SUNTSU

Ceramic SMD Low Current 6 Pad LVDS Oscillator

SLO32L Series

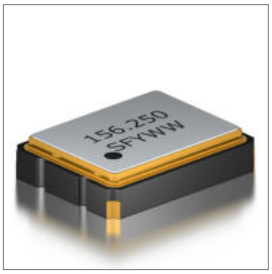
3.2mm x 2.5mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVDS
- Low Current Consumption
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SLO 32 L 3 A 48 1 - 156.250M

- **SUNTSU LOW CURRENT OSC**
- **3.2mm x 2.5mm**
- **LVDS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		320	135~175MHz(1.8V), 100~320MHz(2.5&3.3V)
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V Option	V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})	mA		15	20	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	350	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV			50	
Rise (TR) and Fall (TF) Time	ns		0.25	0.5	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5.0	
Phase Jitter (12kHz ~ 20MHz)	fs		120	150	

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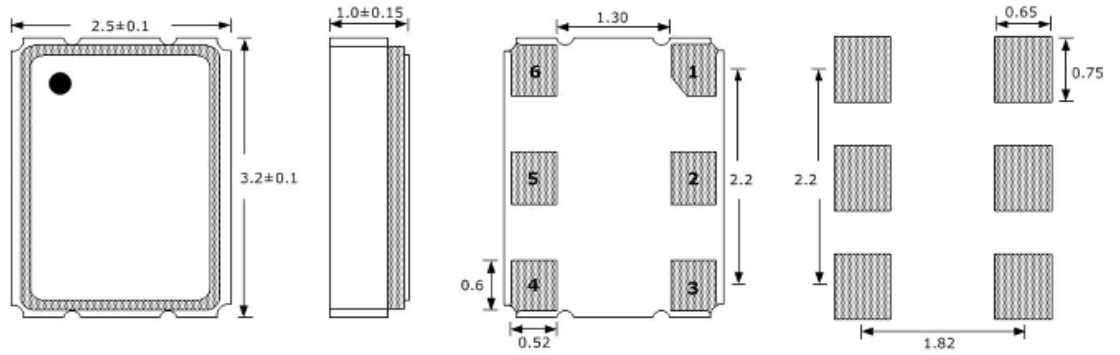
SLO32L Series

3.2mm x 2.5mm

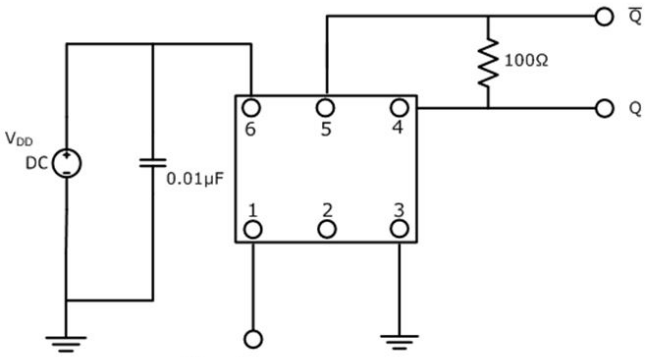
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.



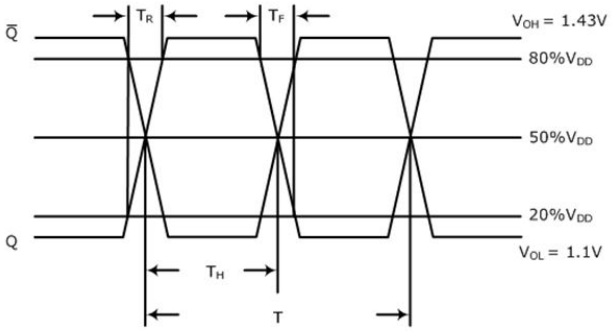
PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVDS)



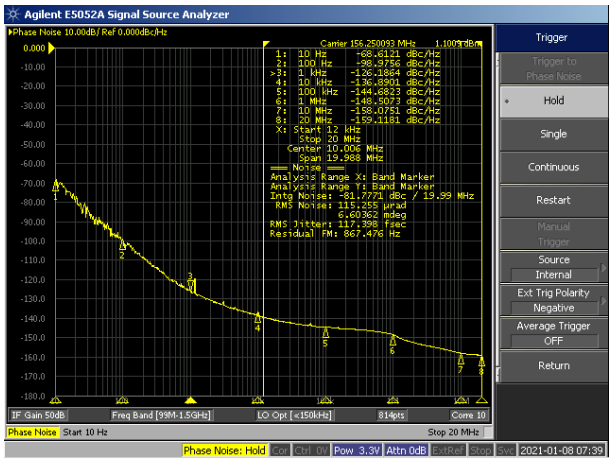
Tri-State or NC

Waveform (LVDS)

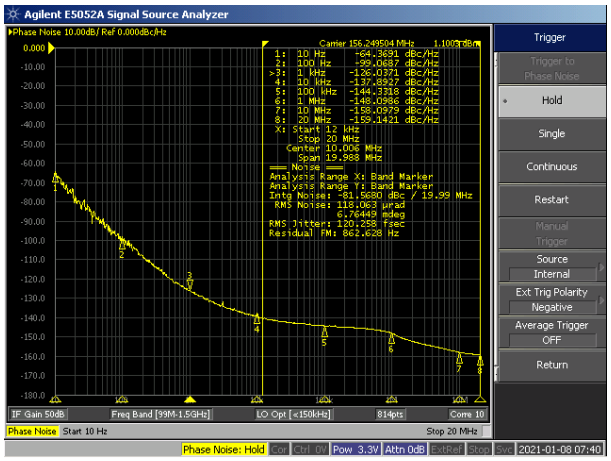


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



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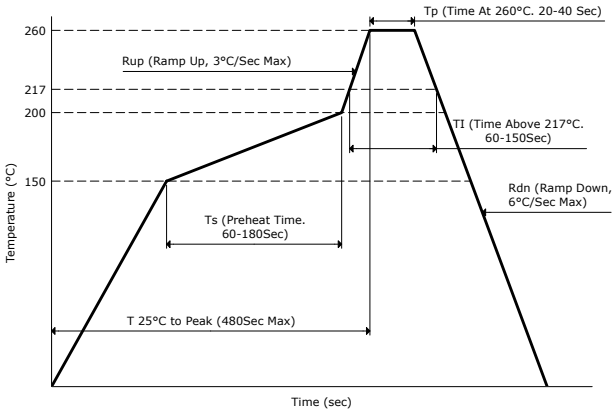
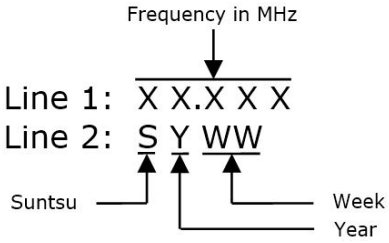
Reflow Profile



Part Marking



Tape And Reel Dimensions

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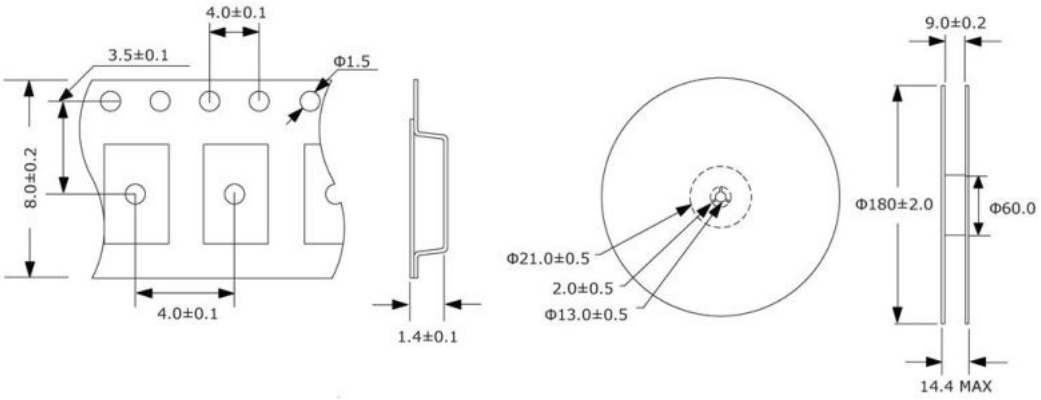
3,000pcs/Reel



Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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Ceramic SMD Low Current 6 Pad LVPECL Oscillator

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3.2mm x 2.5mm

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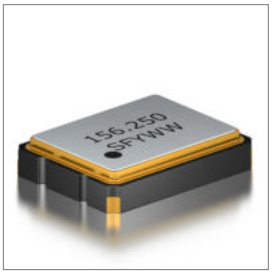
- Ceramic Package
- LVPECL
- Low Current Consumption
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SLO 32 P 3 A 48 1 - 156.250M

- **SUNTSU LOW CURRENT OSC**
- **3.2mm x 2.5mm**
- **LVPECL**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Conection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

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Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		320	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})	mA			50	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH} at 2.5V)	V	1.415		1.760	
Output Logic Levels Low (V_{OL} at 2.5V)	V	0.670		1.195	
Output Logic Levels High (V_{OH} at 3.3V)	V	2.215		2.420	
Output Logic Levels Low (V_{OL} at 3.3V)	V	1.470		1.745	
Rise (TR) and Fall (TF) Time	ns		0.15	0.3	Measured at 20% to 80% of Waveform
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5	
Phase Jitter (12kHz ~ 20MHz)	fs		120	150	

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SLO32P Series

3.2mm x 2.5mm

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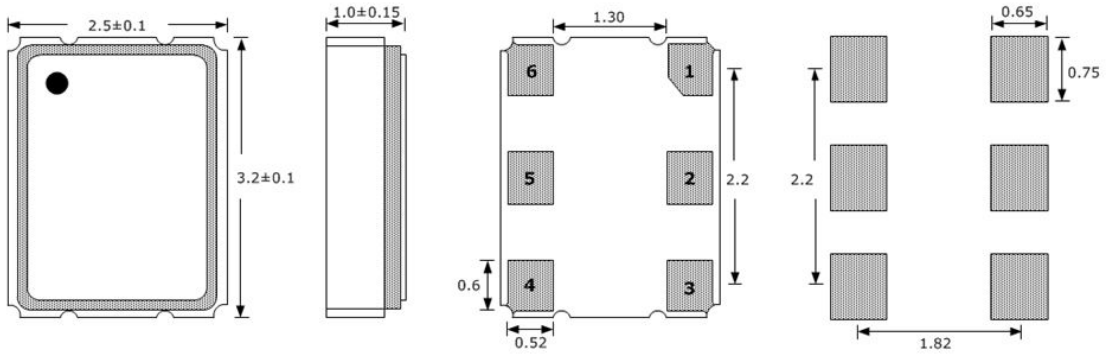
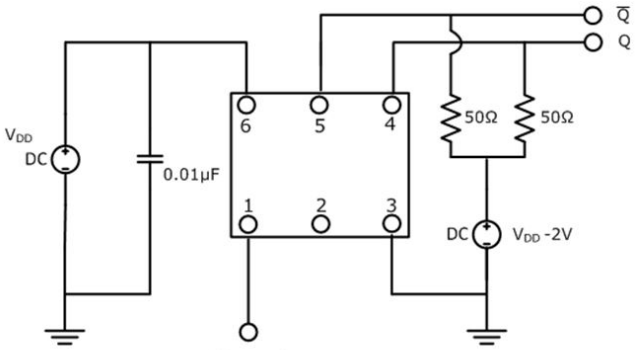


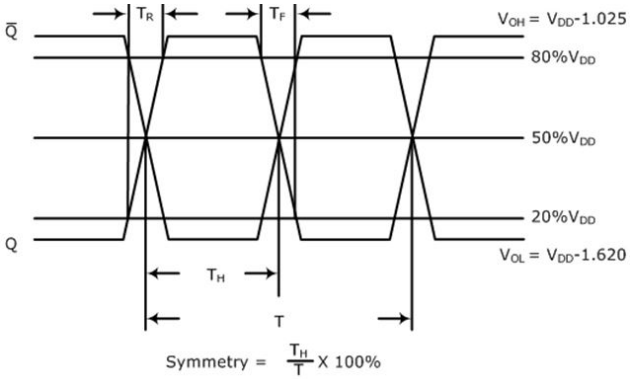
PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVPECL)



Tri-State or NC

Waveform (LVPECL)



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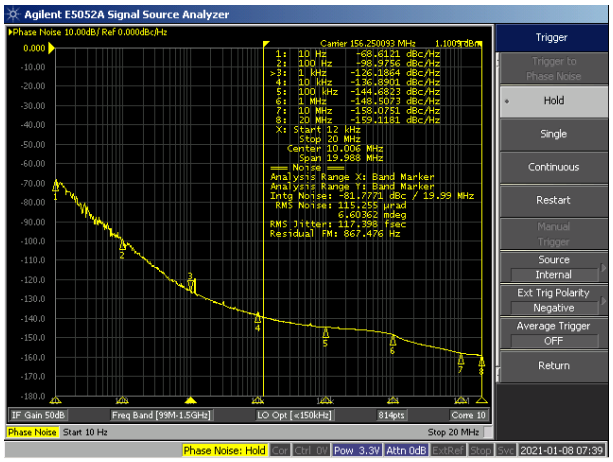
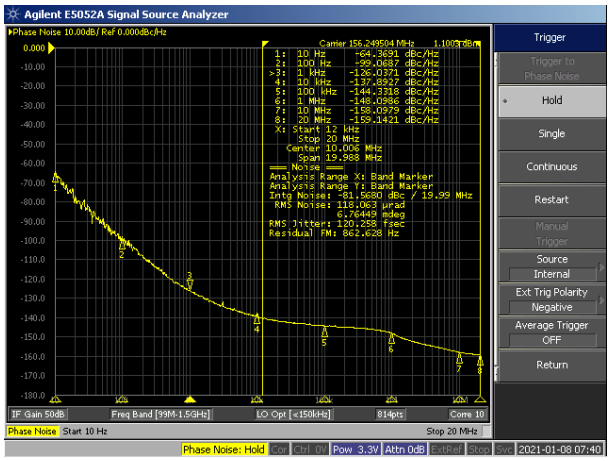
Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



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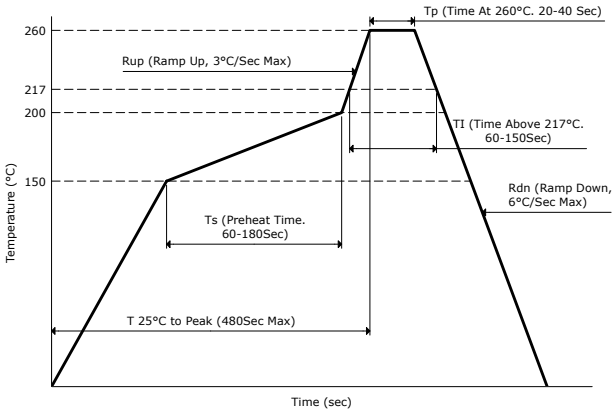
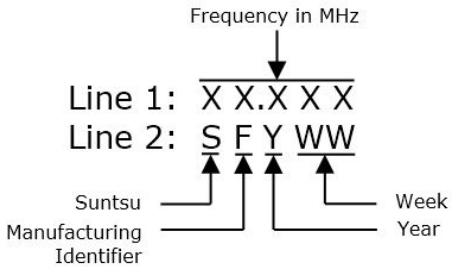
Reflow Profile



Part Marking



Tape And Reel Dimensions

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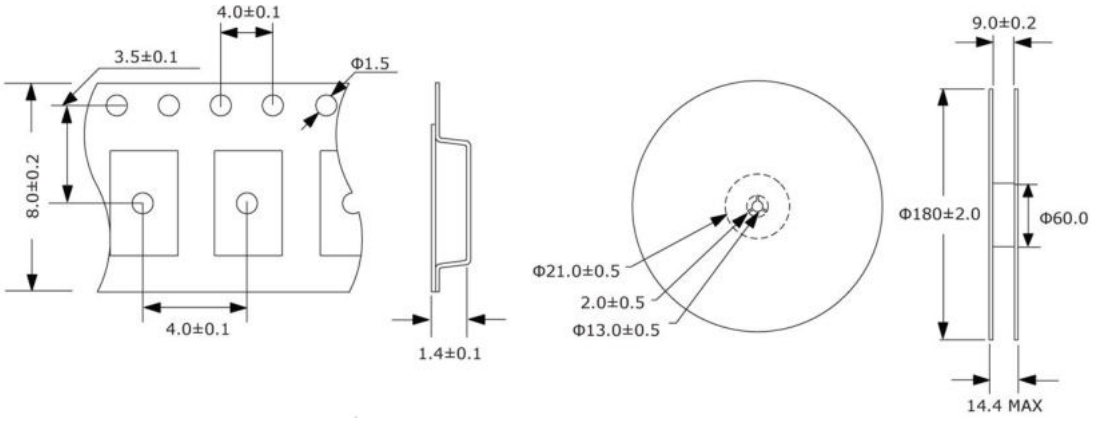
3,000pcs/Reel



Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SLO53L Series

5.0mm x 3.2mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVDS
- Low Current Consumption
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express

Part Numbering Guide

SLO 53 L 3 A 48 1 - 156.250M

- **SUNTSU LOW CURRENT OSC**
- **5.0mm x 3.2mm**
- **LVDS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

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Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		320	135~175MHz(1.8V), 100~320MHz(2.5&3.3V)
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V Option	V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})	mA		15	20	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	350	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV	-50		50	
Rise (TR) and Fall (TF) Time	ns		0.25	0.5	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5.0	
Phase Jitter (12kHz ~ 20MHz)	fs		120	150	

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5.0mm x 3.2mm

Outline Drawing & Land Pattern

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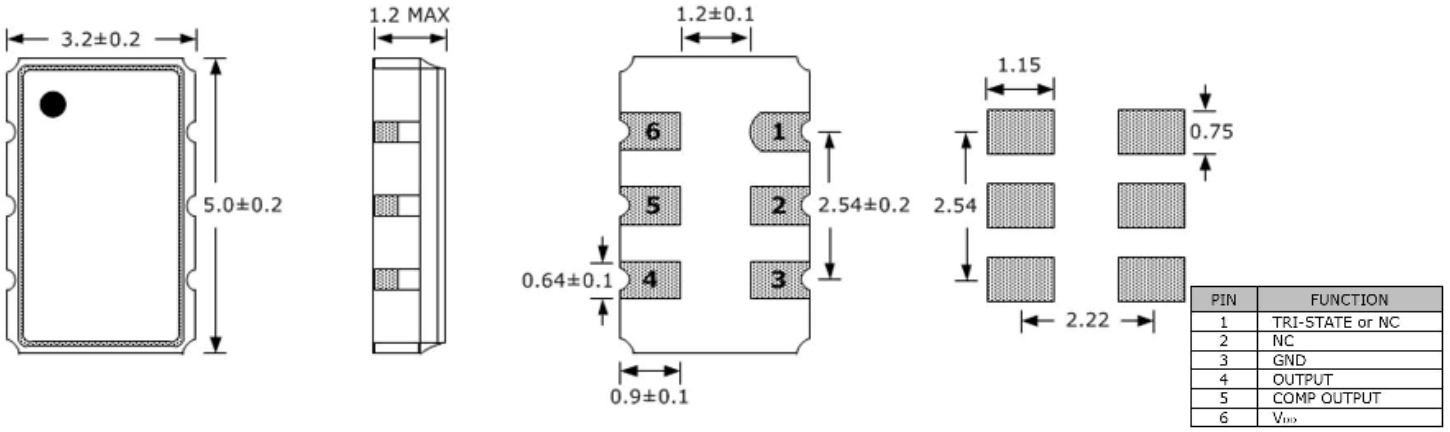

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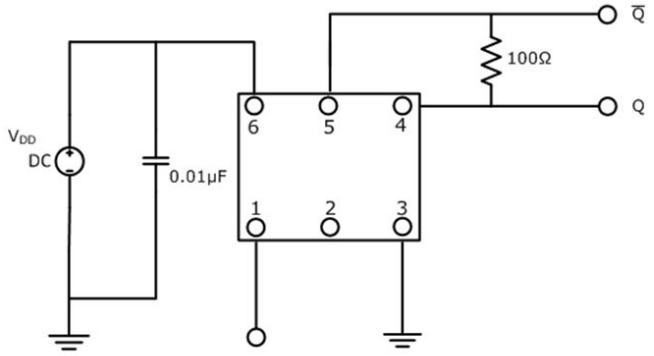
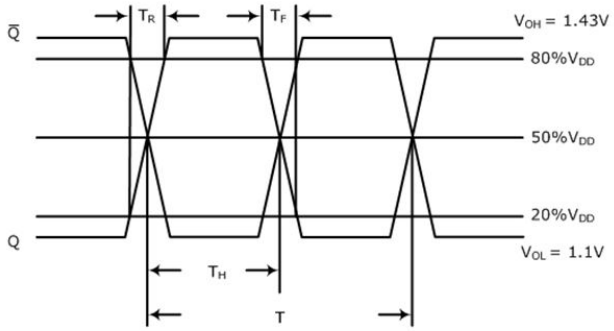
Test Circuit (LVDS)



Tri-State or NC

Waveform (LVDS)



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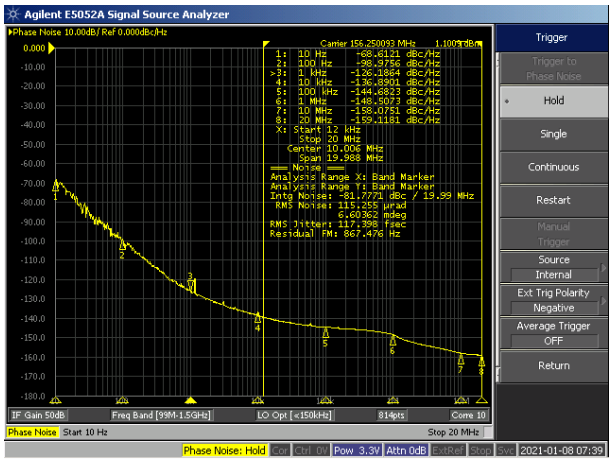

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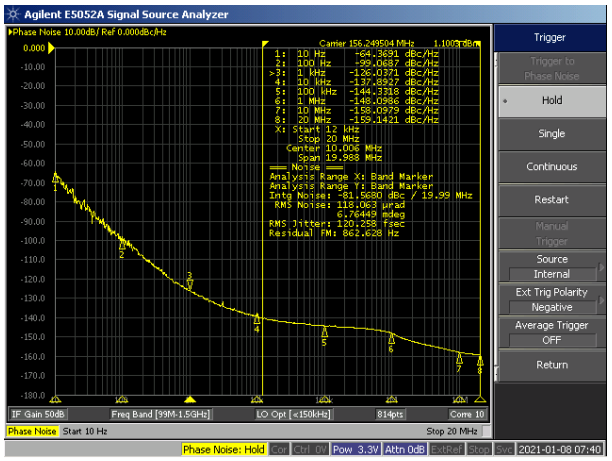

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5.0mm x 3.2mm

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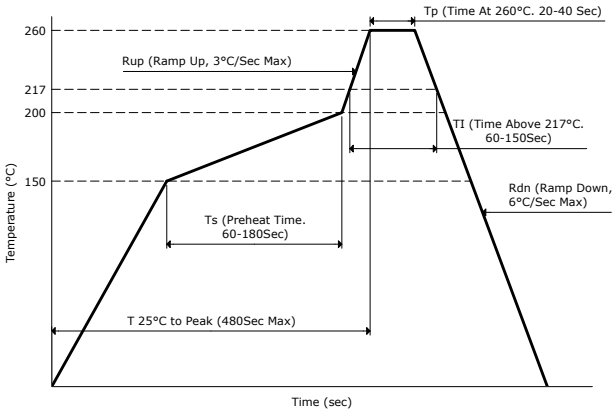
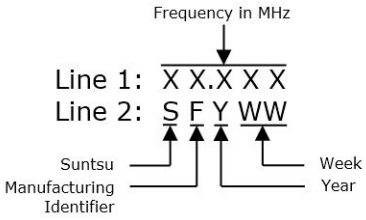


Part Marking



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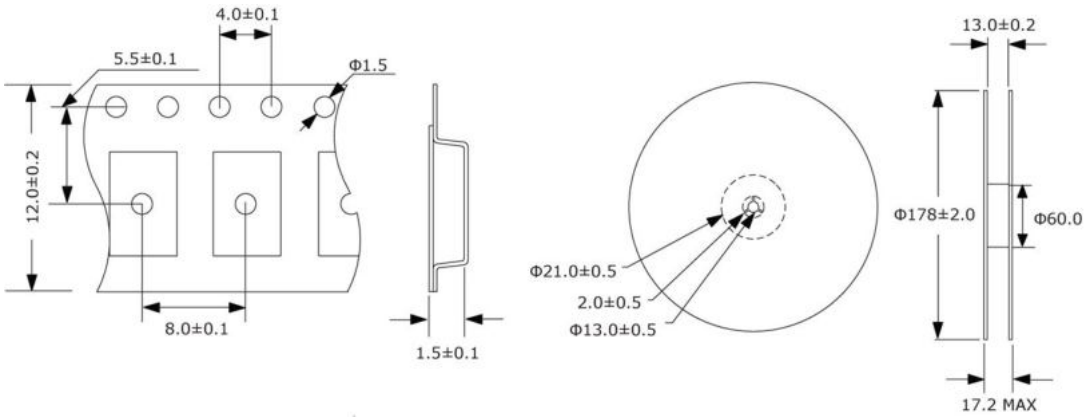

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Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

Suntsu Electronics, Inc.
142 TECHNOLOGY DR., SUITE 150
IRVINE, CA 92618

Call: +1-949-783-7300 | Fax: +1-949-783-7301

SUNTSU

Ceramic SMD Low Current 6 Pad LVPECL Oscillator

SLO53P Series

5.0mm x 3.2mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVPECL
- Low Current Consumption
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express

Part Numbering Guide

SLO 53 P 3 A 48 1 - 156.250M

- **SUNTSU LOW CURRENT OSC**
- **5.0mm x 3.2mm**
- **LVPECL**
- **SUPPLY VOLTAGE**
  - 2 : 2.5±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		320	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})	mA			50	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH} at 2.5V)	V	1.415		1.760	
Output Logic Levels Low (V_{OL} at 2.5V)	V	0.670		1.195	
Output Logic Levels High (V_{OH} at 3.3V)	V	2.215		2.420	
Output Logic Levels Low (V_{OL} at 3.3V)	V	1.470		1.745	
Rise (TR) and Fall (TF) Time	ns		0.15	0.3	Measured at 20% to 80% of Waveform
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5	
Phase Jitter (12kHz ~ 20MHz)	fs		120	150	

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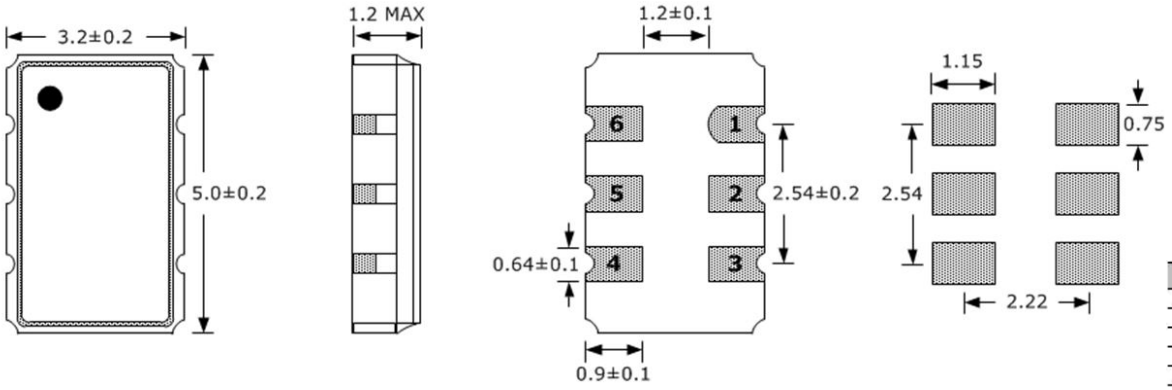
Ceramic SMD Low Current 6 Pad LVPECL Oscillator

SLO53P Series

5.0mm x 3.2mm

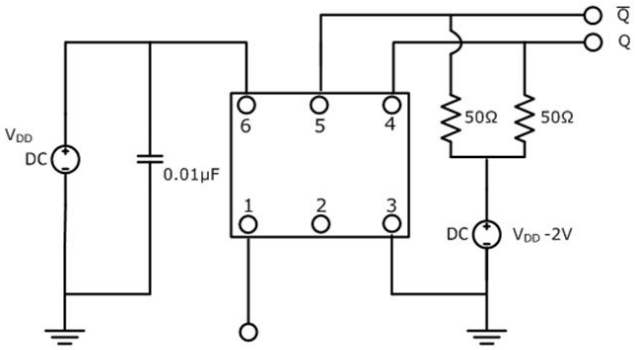
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.



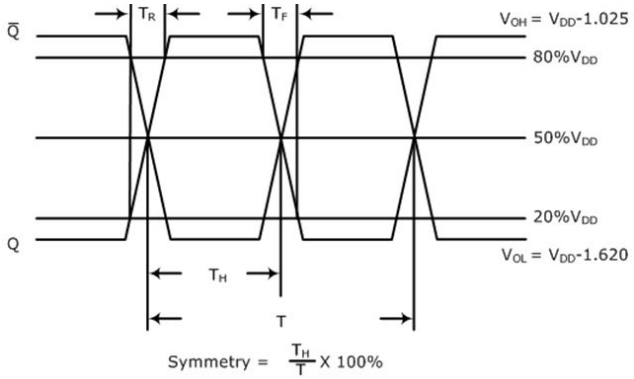
PIN	FUNCTION
1	TRI STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVPECL)



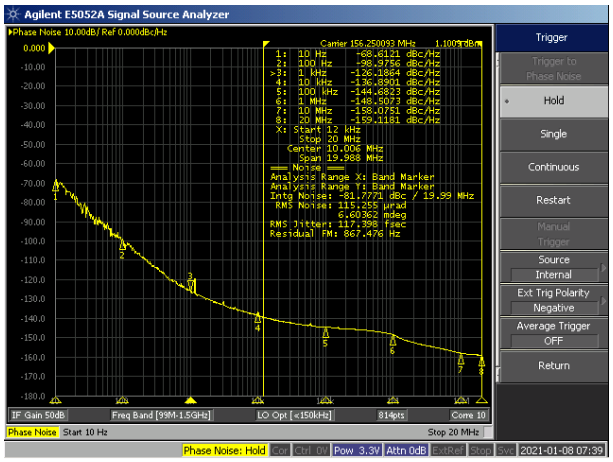
Tri-State or NC

Waveform (LVPECL)

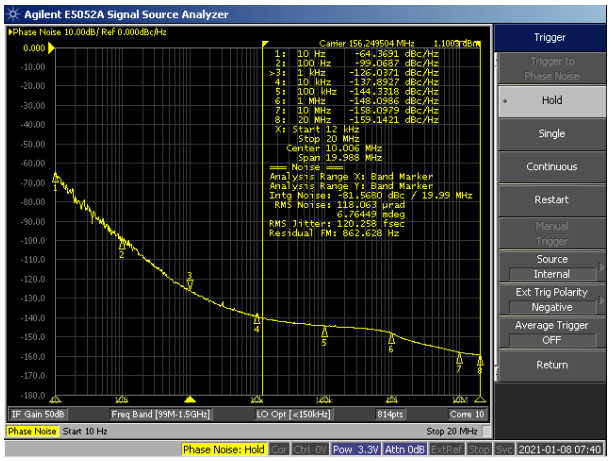


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



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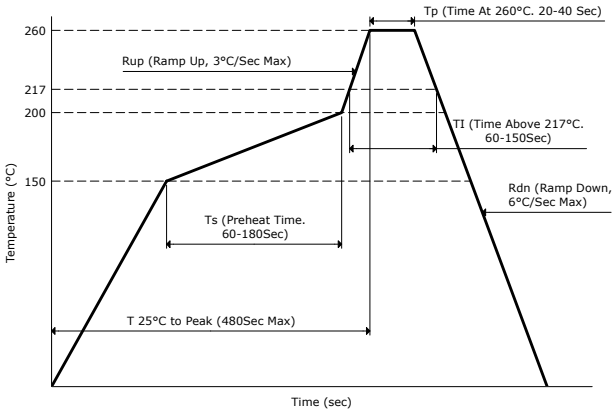
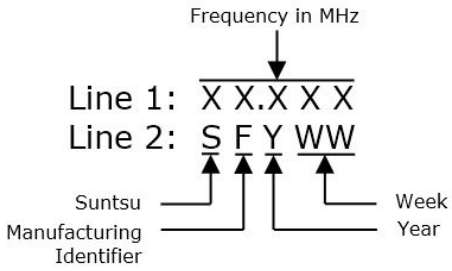
SLO53P Series

5.0mm x 3.2mm

Reflow Profile



Part Marking



Tape And Reel Dimensions

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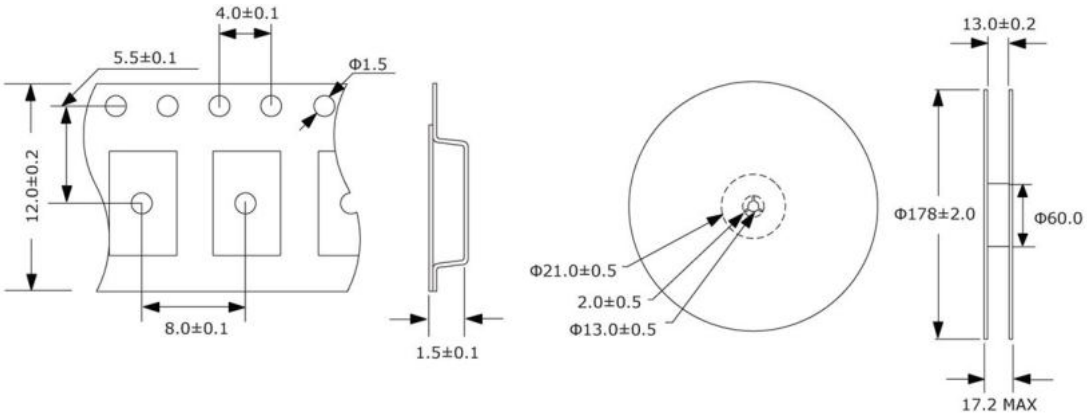
1,000pcs/Reel



Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Low Current 6 Pad LVDS Oscillator

SLO75L Series

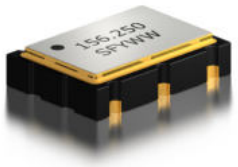
7.0mm x 5.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVDS
- Low Current Consumption
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SLO 75 L 3 A 48 1 - 156.250M

- **SUNTSU LOW CURRENT OSC**
- **7.0mm x 5.0mm**
- **LVDS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range*	MHz	100		320	135~175MHz(1.8V), 100~320MHz(2.5&3.3V)
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V Option	V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})*	mA		15	20	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	350	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV			50	
Rise (TR) and Fall (TF) Time	ns		0.25	0.5	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5.0	
Phase Jitter (12kHz ~ 20MHz)	fs		120	150	

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SUNTSU

Ceramic SMD Low Current 6 Pad LVDS Oscillator

SLO75L Series

7.0mm x 5.0mm

Outline Drawing & Land Pattern

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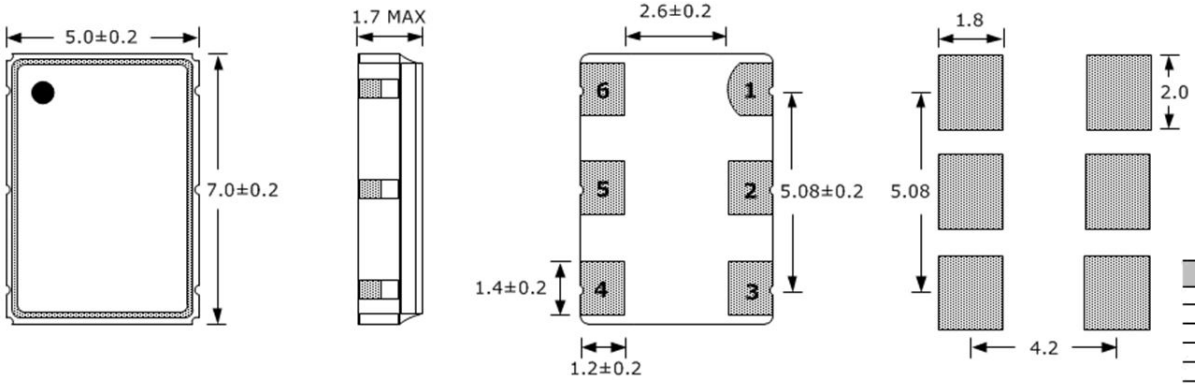
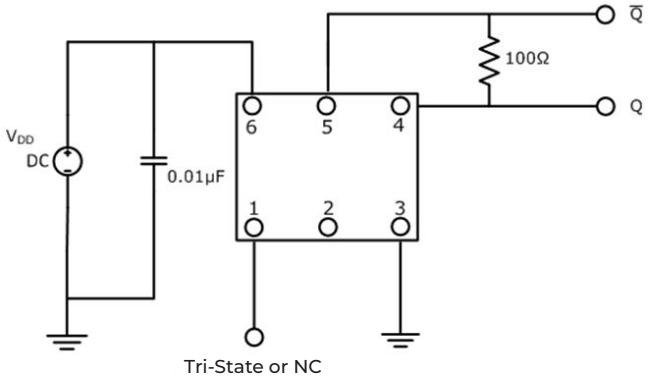


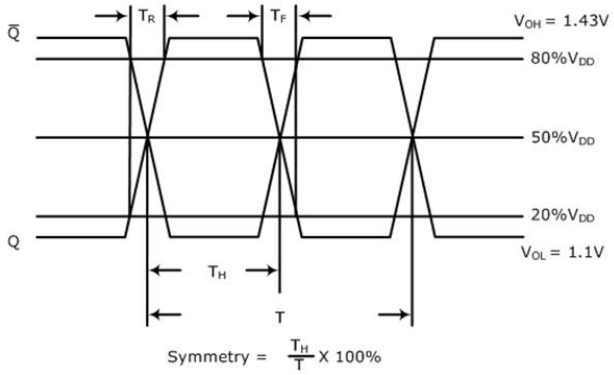
PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	Vcc

Test Circuit (LVDS)



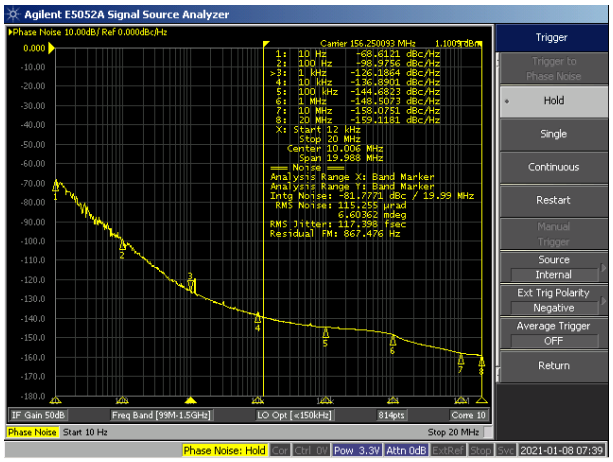
Tri-State or NC

Waveform (LVDS)

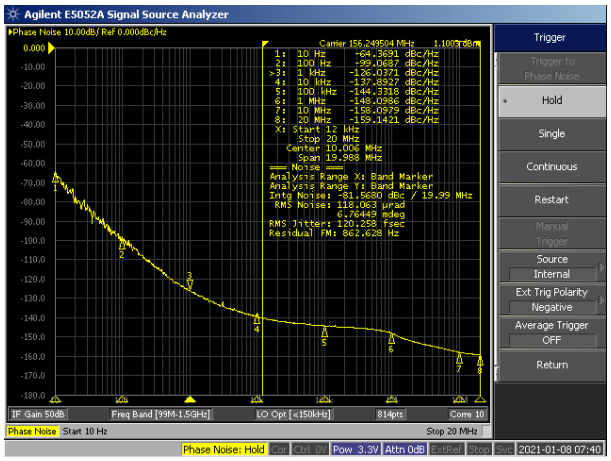


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 156.250MHz

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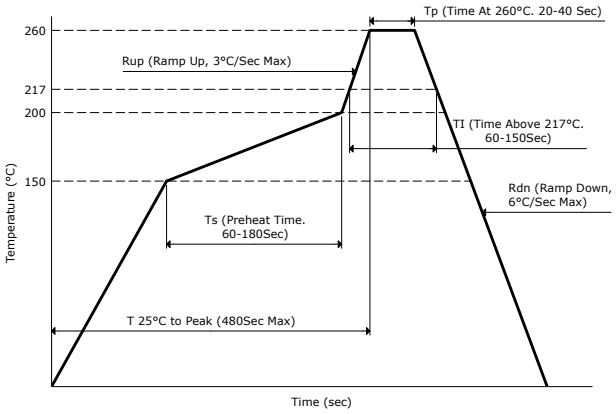
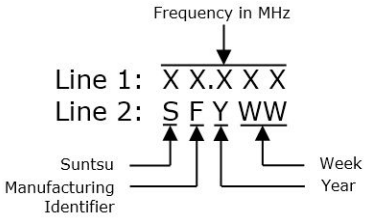
Reflow Profile



Part Marking



Tape And Reel Dimensions

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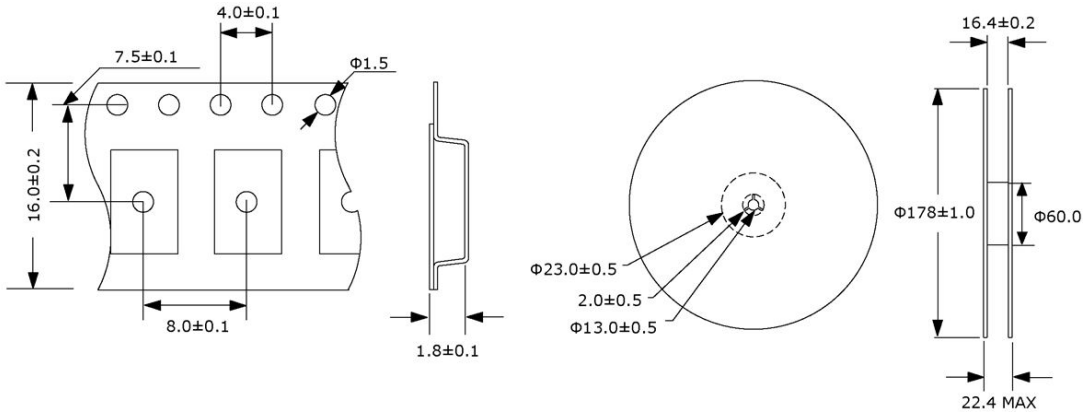
1,000pcs/Reel



Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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Ceramic SMD Low Current 6 Pad LVPECL Oscillator

SLO75P Series

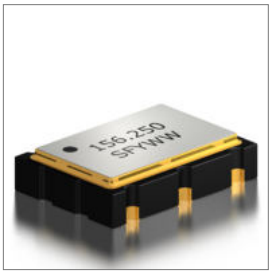
7.0mm x 5.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVPECL
- Low Current Consumption
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SLO 75 P 3 A 48 1 - 156.250M

- **SUNTSU LOW CURRENT OSC**
- **7.0mm x 5.0mm**
- **LVPECL**
- **SUPPLY VOLTAGE**
  - 2: 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
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  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		320	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})	mA			50	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH} at 2.5V)	V	1.415		1.760	
Output Logic Levels Low (V_{OL} at 2.5V)	V	0.670		1.195	
Output Logic Levels High (V_{OH} at 3.3V)	V	2.215		2.420	
Output Logic Levels Low (V_{OL} at 3.3V)	V	1.470		1.745	
Rise (TR) and Fall (TF) Time	ns		0.15	0.3	Measured at 20% to 80% of Waveform
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5	
Phase Jitter (12kHz ~ 20MHz)	fs		120	150	

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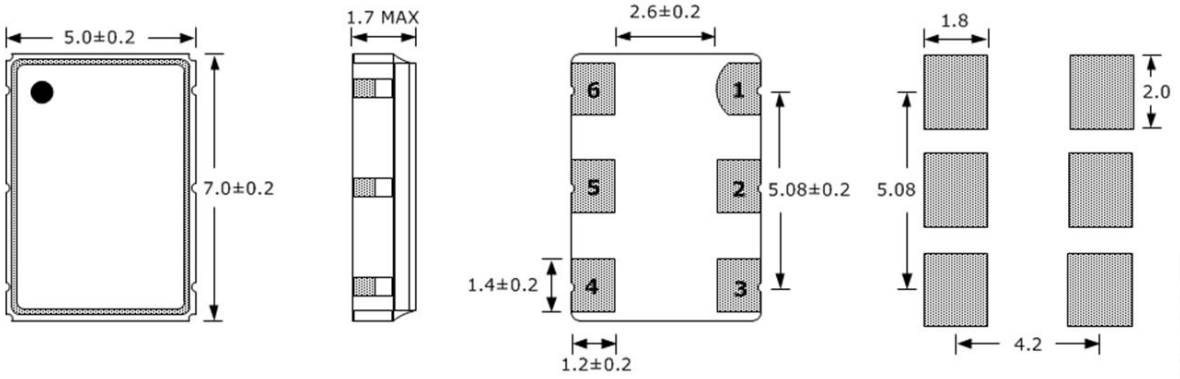
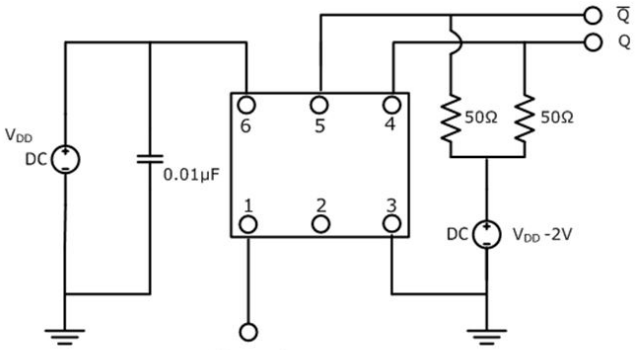


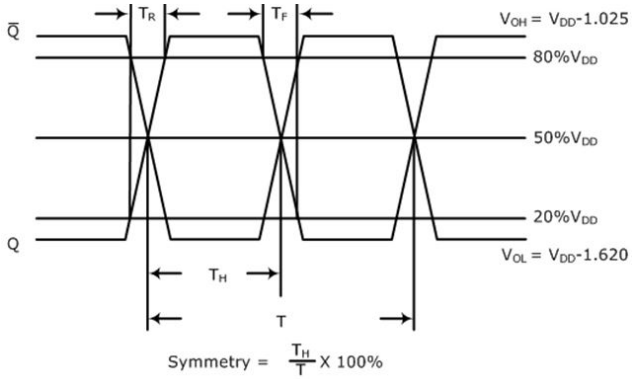
PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVPECL)



Tri-State or NC

Waveform (LVPECL)



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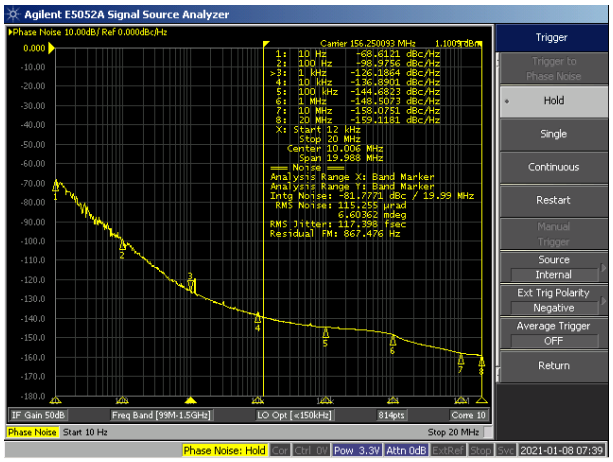
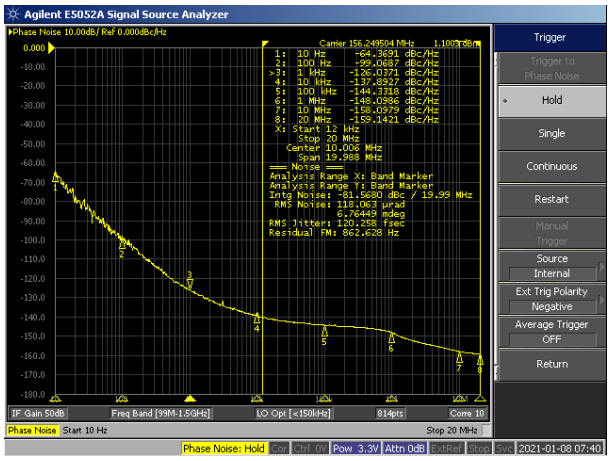


Frequency - 156.250MHz



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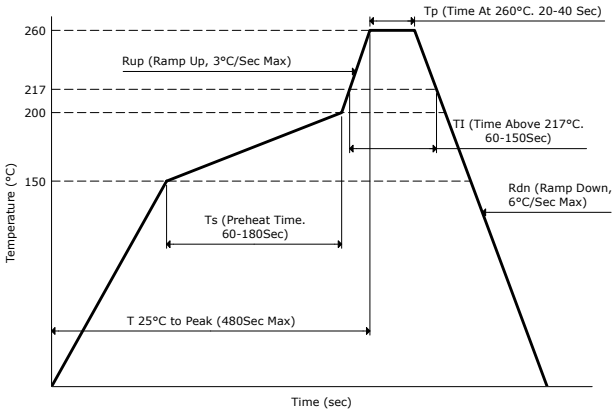
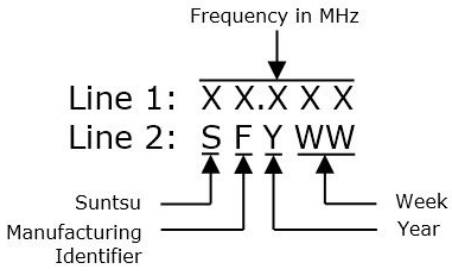
Reflow Profile



Part Marking



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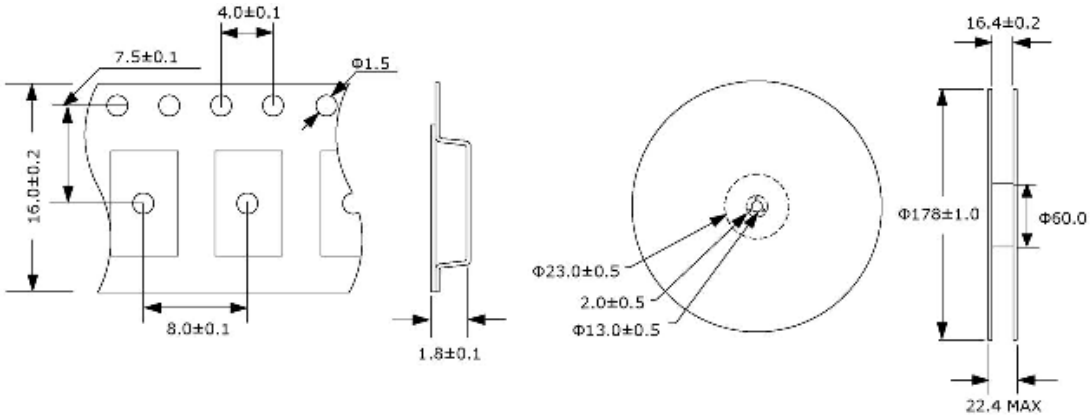

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Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

Suntsu Electronics, Inc.
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Call: +1-949-783-7300 | Fax: +1-949-783-7301

SUNTSU

Ceramic SMD Quick Turn 4 Pad CMOS Oscillator

SQC32C Series

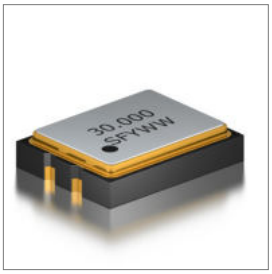
3.0mm x 2.5mm

Features

- ±25ppm (Frequency Stability) Available
- Ceramic Package 4 Pad
- CMOS
- Programmed Oscillator
- Tape and Reel

Applications

- Micro Processors
- FPGA
- Storage Area/Networking
- Digital Video
- Portable Computers



Part Numbering Guide

SQC 32 C 3 A 48 1 - 30.000M

- **SUNTSU QUICK TURN OSC**
- **3.2mm x 2.5mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 3 : 3.3V±5%
  - 5 : 5.0V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK: No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	1		133	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 3.3V option	V	3.135	3.3	3.465	
Supply Voltage (V_{DD}) - 5.0V option	V	4.750	5.0	5.250	
Current (I_{DD}) - 3.3V option	mA			25	
Current (I_{DD}) - 5.0V option	mA			45	
Output Load (CMOS)	pF			15	
Output Logic Levels High (V_{OH})	V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})	V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	ns			4	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage(3.3V) - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage(3.3V) - Disable	V			0.3*V_{DD}	
Tri-State Input Voltage(5.0V) - Enable	V	2.0			No Connection
Tri-State Input Voltage(5.0V) - Disable	V			0.8	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps			11	

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SUNTSU

Ceramic SMD Quick Turn 4 Pad CMOS Oscillator

SQC32C Series

3.0mm x 2.5mm

Outline Drawing & Land Pattern

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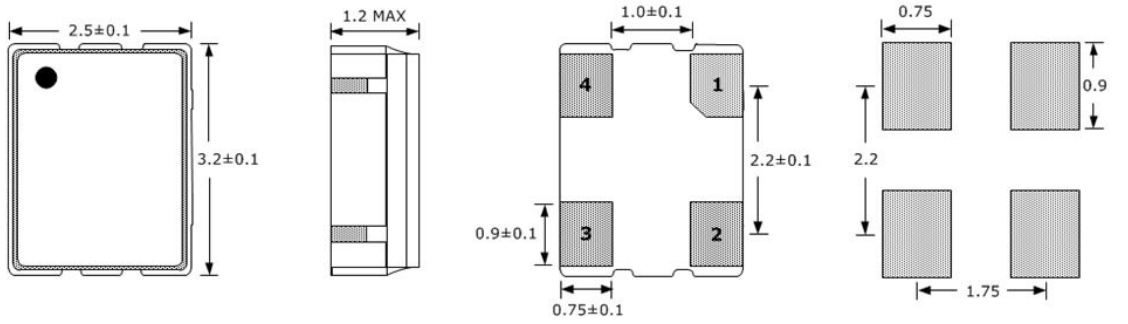
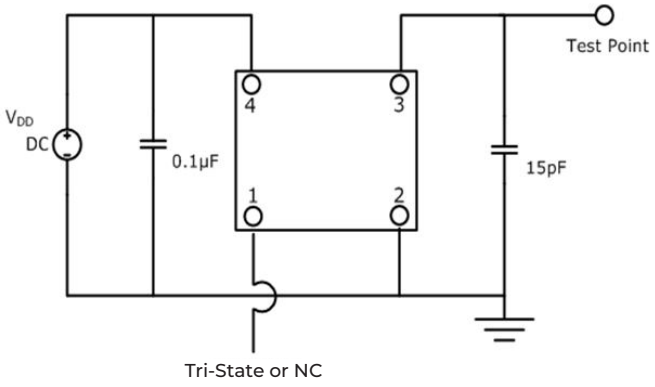
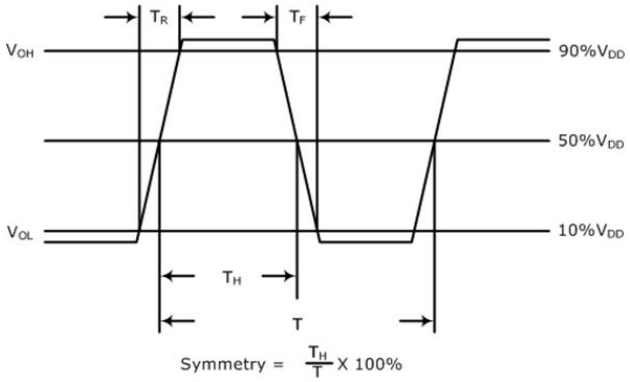


PIN	FUNCTION
1	TRI-STATE or NC
2	GND
3	OUTPUT
4	V_{DD}

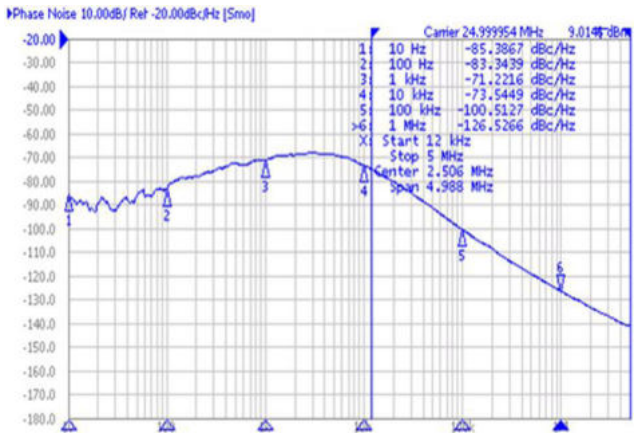
Test Circuit (CMOS)



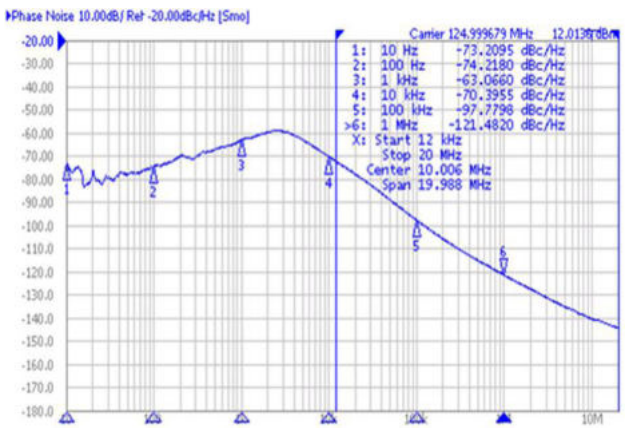
Waveform (CMOS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 25.000MHz



Frequency - 125.000MHz

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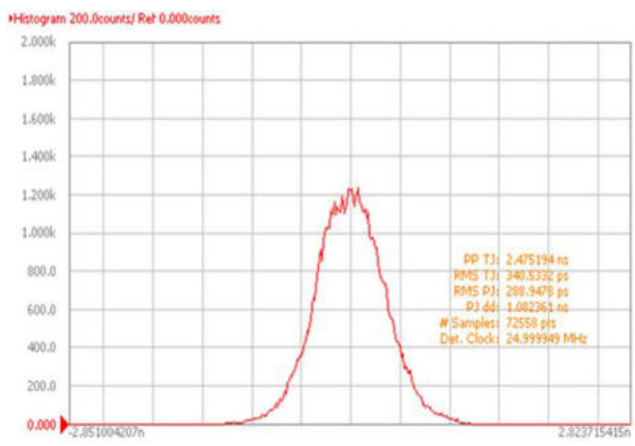
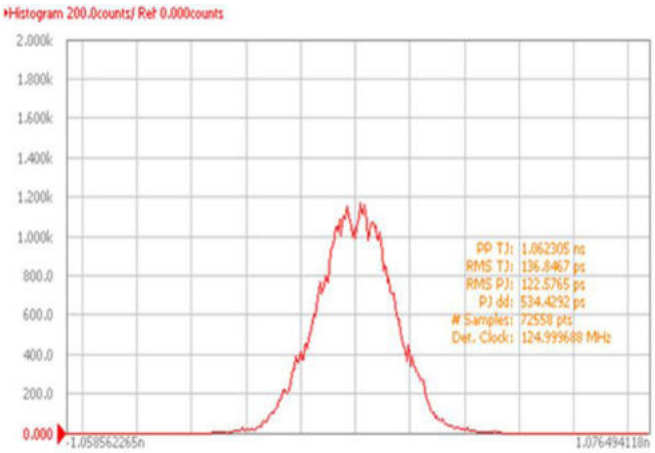
Typical Jitter Performance (Measured By Agilent E5052A)

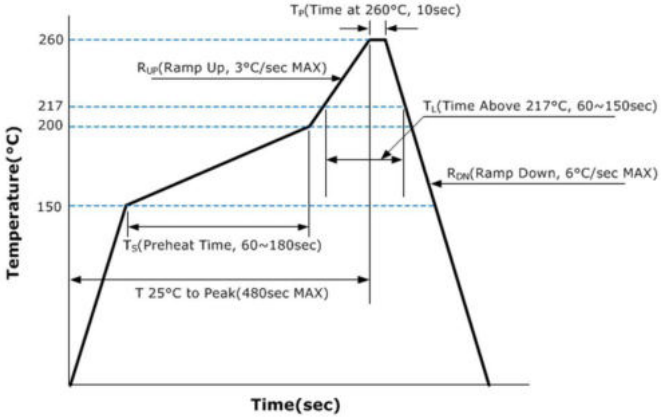


Frequency - 25.000MHz

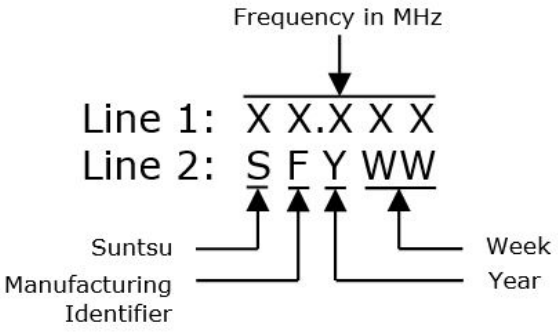


Frequency - 125.000MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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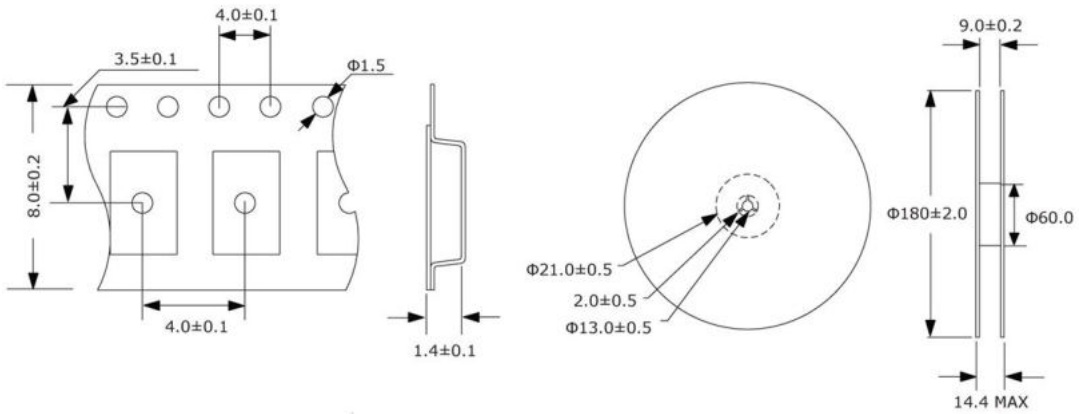
1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 4 Pad CMOS Oscillator

SQC53C Series

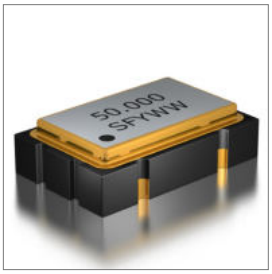
5.0mm x 3.2mm

Features

- ±25ppm (Frequency Stability) Available
- Ceramic Package 4 Pad
- CMOS
- Programmed Oscillator
- Tape and Reel

Applications

- Micro Processors
- FPGA
- Storage Area/Networking
- Digital Video
- Portable Computers



Part Numbering Guide

SQC 53 C 3 A 48 1 - 50.000M

- **SUNTSU QUICK TURN OSC**
- **5.0mm x 3.2mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 3 : 3.3V±5%
  - 5 : 5.0V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	1		133	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 3.3V option	V	3.135	3.3	3.465	
Supply Voltage (V_{DD}) - 5.0V option	V	4.750	5.0	5.250	
Current (I_{DD}) - 3.3V option	mA			25	
Current (I_{DD}) - 5.0V option	mA			45	
Output Load (CMOS)	pF			15	
Output Logic Levels High (V_{OH})	V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})	V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	ns			4	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage(3.3V) - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage(3.3V) - Disable	V			0.3*V_{DD}	
Tri-State Input Voltage(5.0V) - Enable	V	2.0			No Connection
Tri-State Input Voltage(5.0V) - Disable	V			0.8	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps			11	

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SUNTSU

Ceramic SMD Quick Turn 4 Pad CMOS Oscillator

SQC53C Series

5.0mm x 3.2mm

Outline Drawing & Land Pattern

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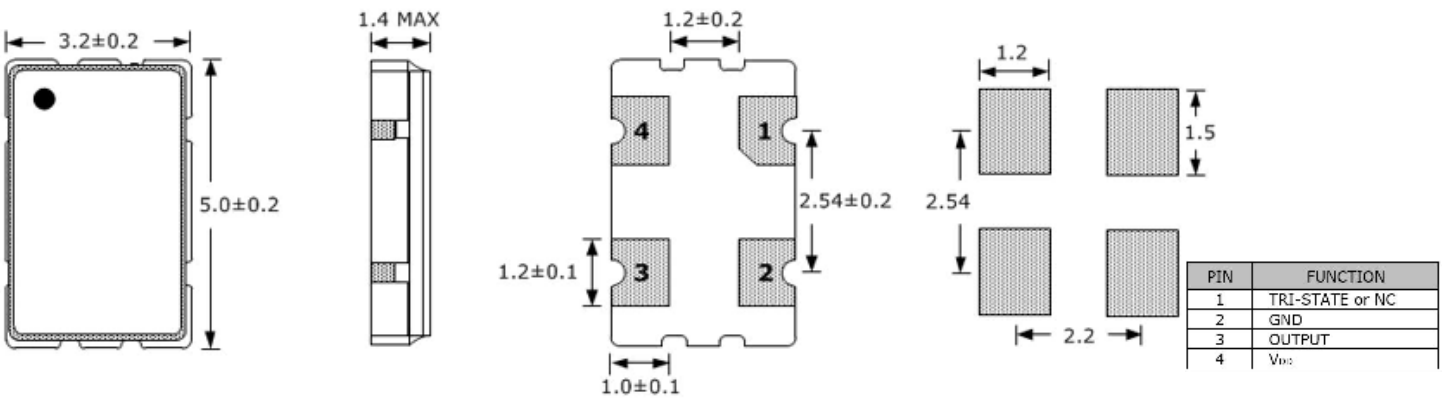
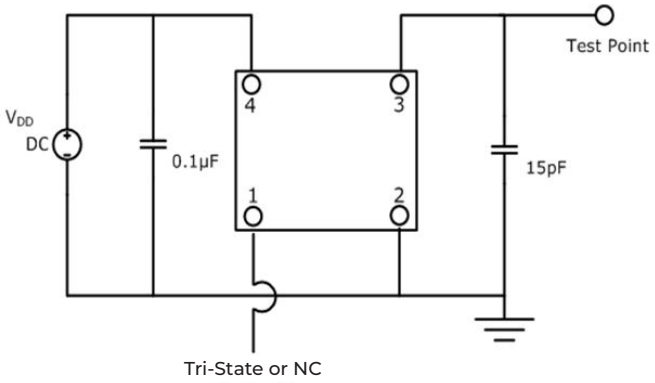
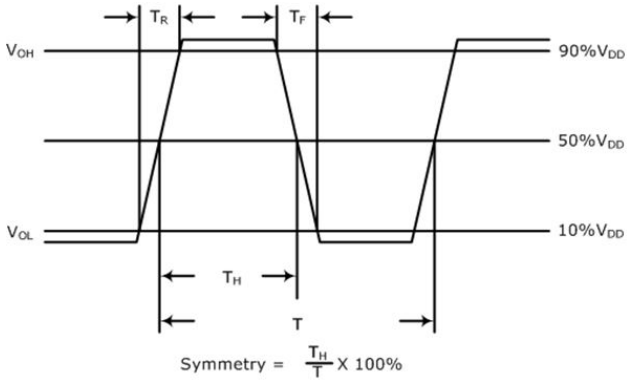


PIN	FUNCTION
1	TRI-STATE or NC
2	GND
3	OUTPUT
4	V_{DD}

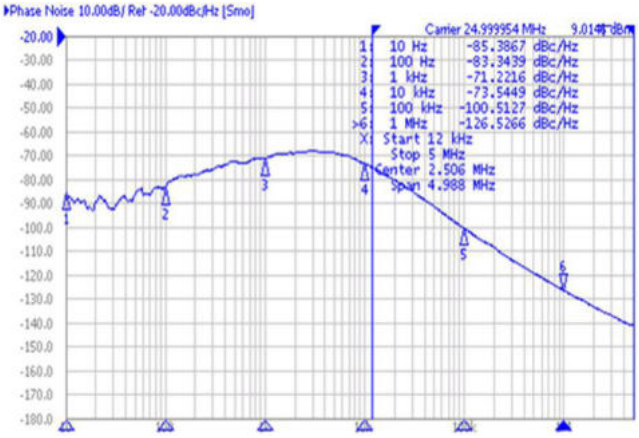
Test Circuit (CMOS)



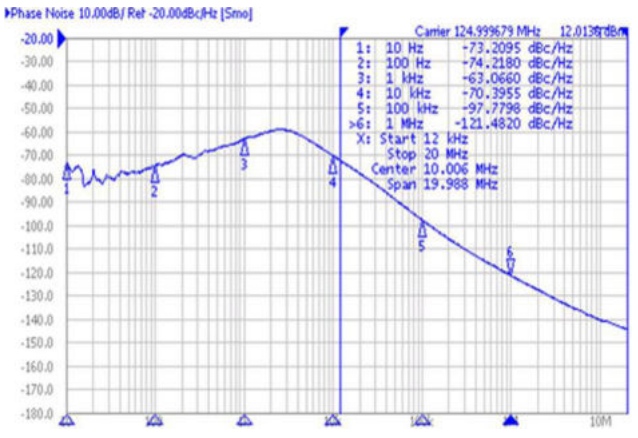
Waveform (CMOS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 25.000MHz



Frequency - 125.000MHz

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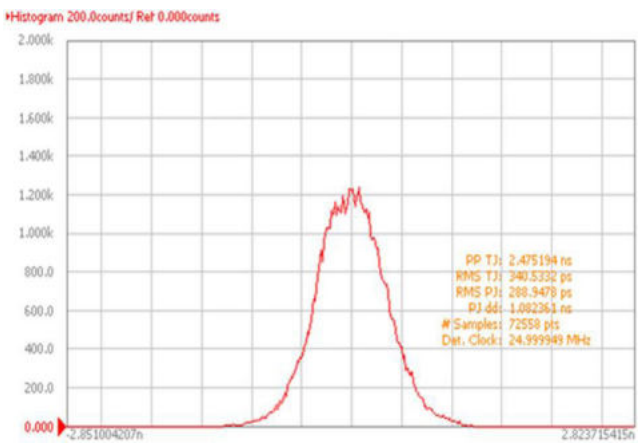
SUNTSU

Ceramic SMD Quick Turn 4 Pad CMOS Oscillator

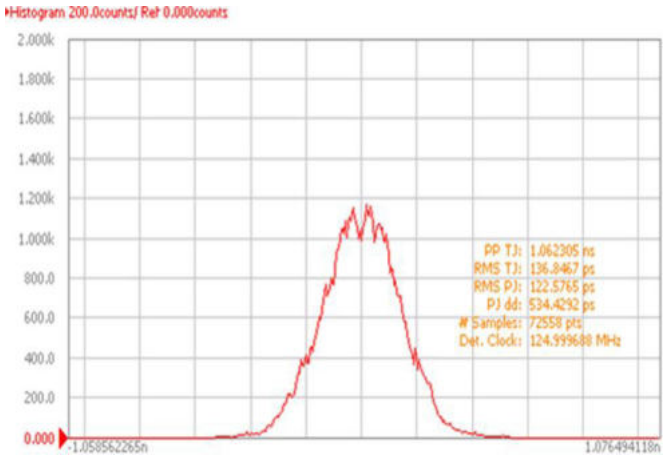
SQC53C Series

5.0mm x 3.2mm

Typical Jitter Performance (Measured By Agilent E5052A)

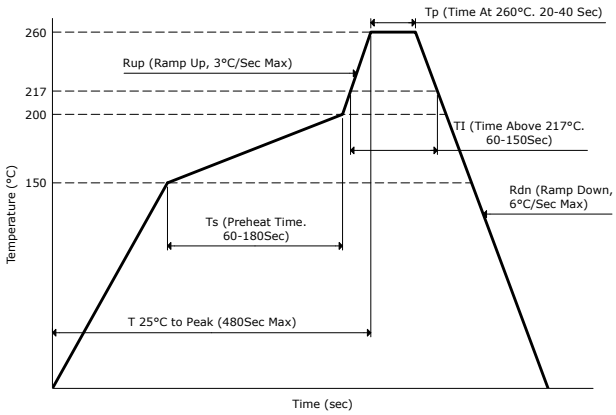


Frequency - 25.000MHz

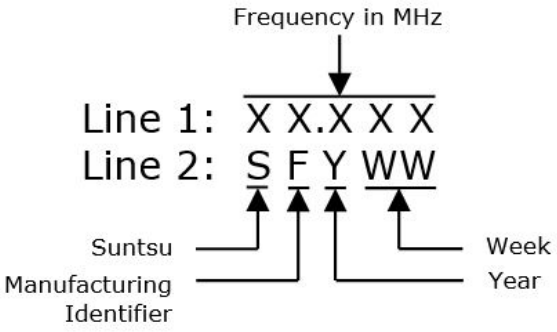


Frequency - 125.000MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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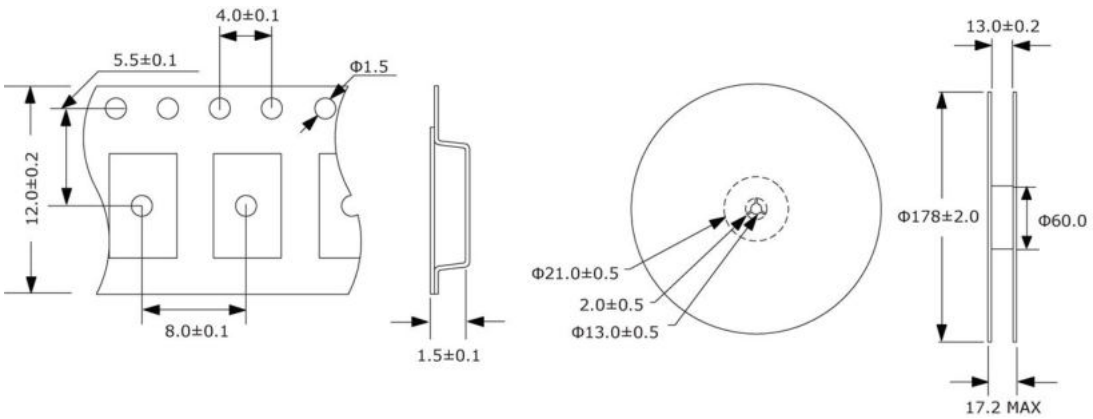
1,000pcs/Reel



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Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 4 Pad CMOS Oscillator

SQC75C Series

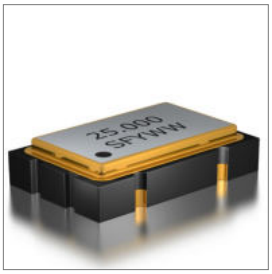
7.0mm x 5.0mm

Features

- ±25ppm (Frequency Stability) Available
- Ceramic Package 4 Pad
- CMOS
- Programmed Oscillator
- Tape and Reel

Applications

- Micro Processors
- FPGA
- Storage Area/Networking
- Digital Video
- Portable Computers



Part Numbering Guide

SQC 75 C 3 A 48 1 - 25.000M

- **SUNTSU QUICK TURN OSC**
- **7.0mm x 5.0mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 3 : 3.3V±5%
  - 5 : 5.0V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	1		133	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 3.3V option	V	3.135	3.3	3.465	
Supply Voltage (V_{DD}) - 5.0V option	V	4.750	5.0	5.250	
Current (I_{DD}) - 3.3V option	mA			25	
Current (I_{DD}) - 5.0V option	mA			45	
Output Load (CMOS)	pF			15	
Output Logic Levels High (V_{OH})	V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})	V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	ns			4	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage(3.3V) - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage(3.3V) - Disable	V			0.3*V_{DD}	
Tri-State Input Voltage(5.0V) - Enable	V	2.0			No Connection
Tri-State Input Voltage(5.0V) - Disable	V			0.8	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		50	100	

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SQC75C Series

7.0mm x 5.0mm

Outline Drawing & Land Pattern

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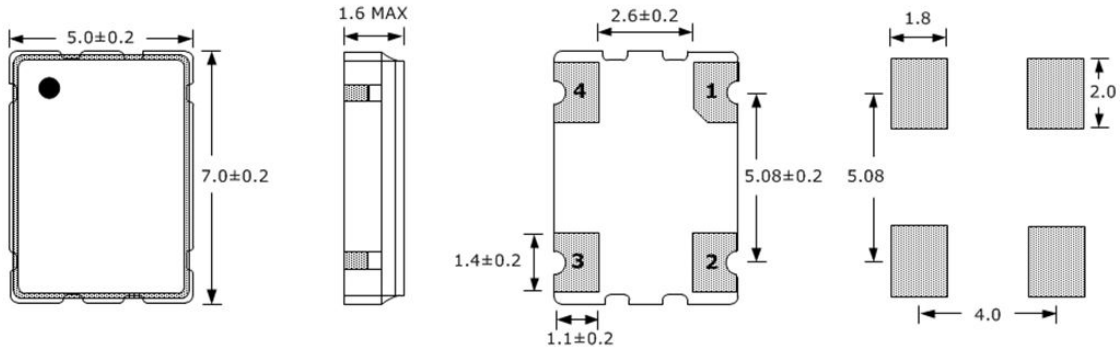

PIN	FUNCTION
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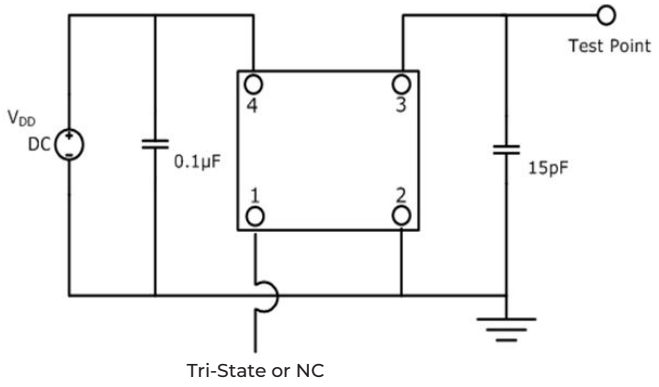
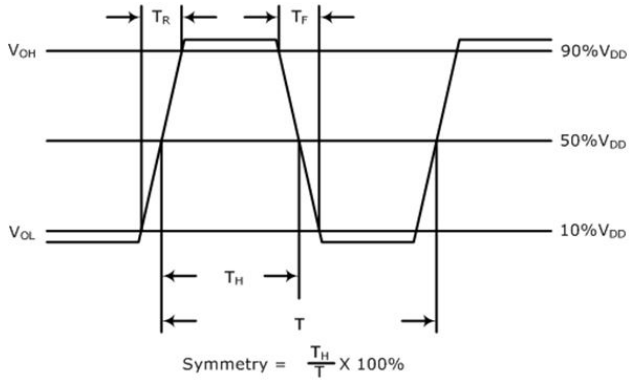
3	OUTPUT
4	V_{DD}

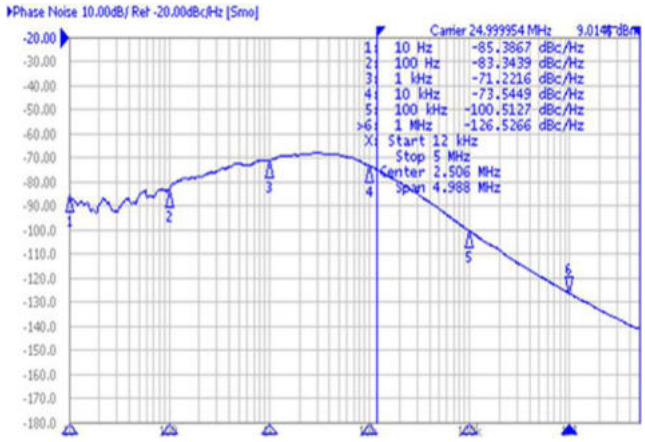
Test Circuit (CMOS)



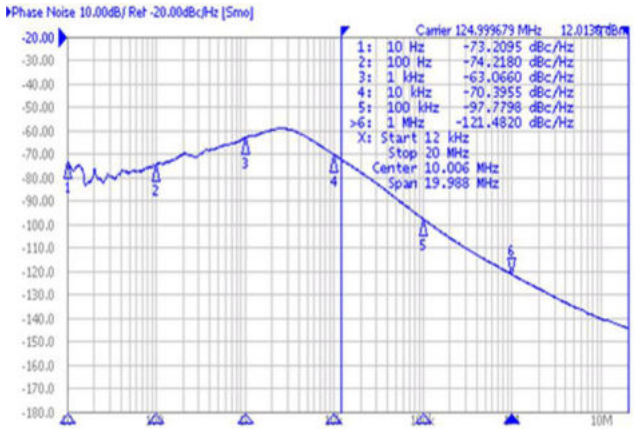
Waveform (CMOS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 25.000MHz



Frequency - 125.000MHz

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Specifications are subject to change without notice.

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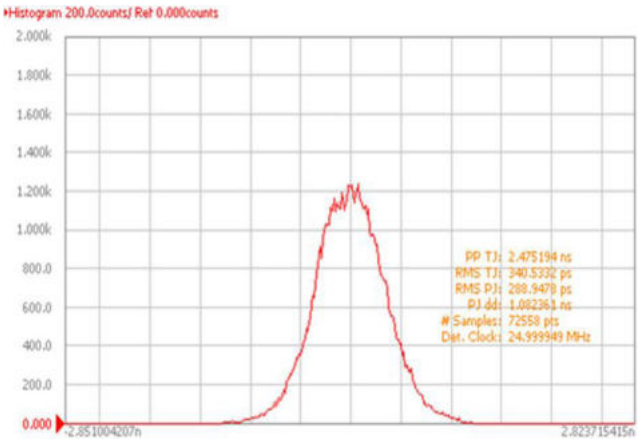
SUNTSU

Ceramic SMD Quick Turn 4 Pad CMOS Oscillator

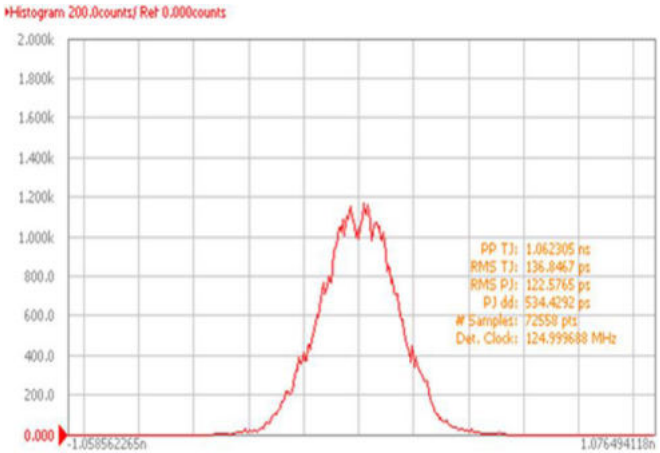
SQC75C Series

7.0mm x 5.0mm

Typical Jitter Performance (Measured By Agilent E5052A)

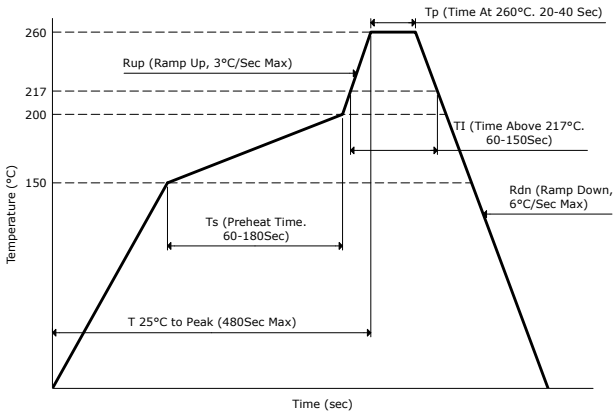


Frequency - 25.000MHz

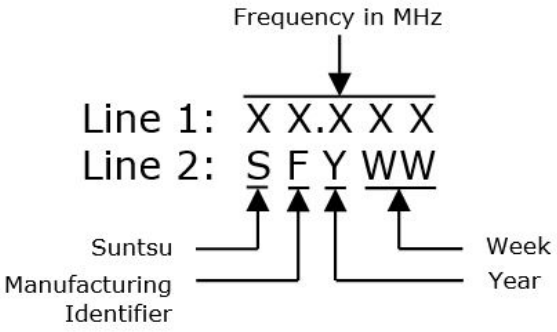


Frequency - 125.000MHz

Reflow Profile



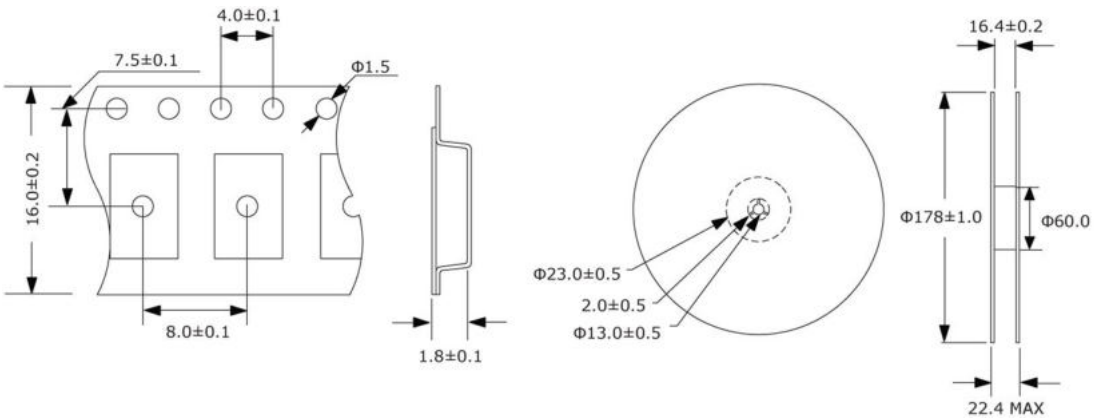
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

SQG22P Series

2.5mm x 2.0mm

Features

- ±20ppm (Frequency Stability) Available
- Wide Frequency Range
- LVPECL
- Programmed Oscillator
- Tape and Reel

Applications

- Ethernet (10G/40G/100G)
- Base Stations
- Wi-Fi
- DSL/ADSL
- Communications

Part Numbering Guide

SQG 22 P 3 A 48 1 - 156.250M

- **SUNTSU QUICK TURN OSC**
- **2.5mm x 2.0mm**
- **LVPECL**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		1500	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			60	
Current (I_{DD}) - 3.3V option	mA			65	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH})	V	V_{DD}-1.025			
Output Logic Levels Low (V_{OL})	V			V_{DD}-1.62	
Rise (TR) and Fall (TF) Time	ns			1	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.5	1.5	

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SUNTSU

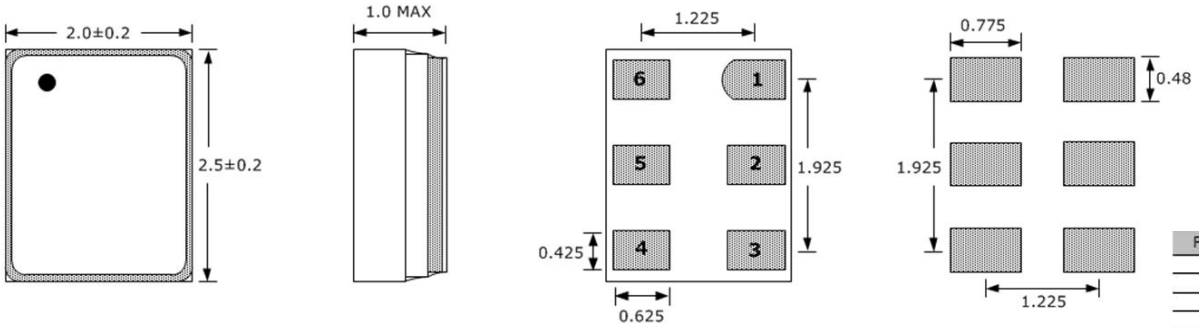
Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

SQG22P Series

2.5mm x 2.0mm

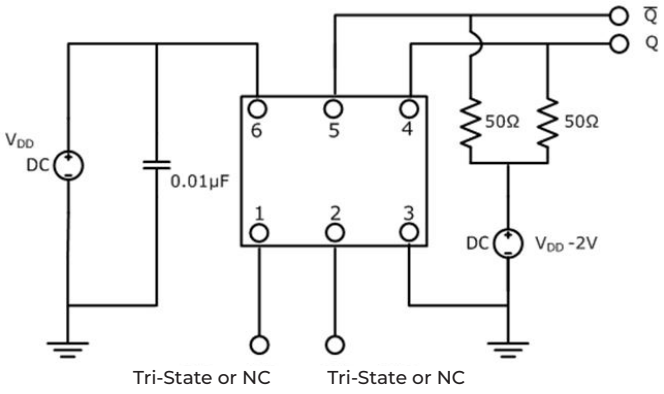
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

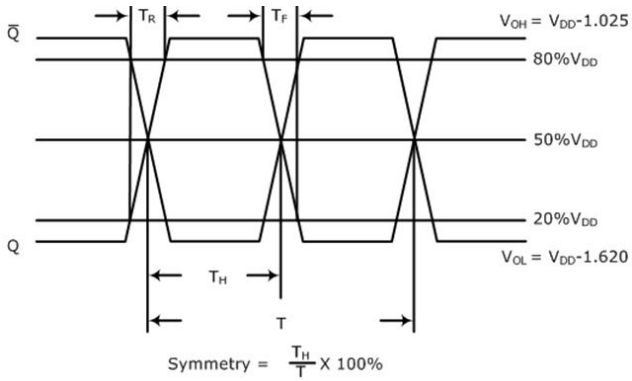


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

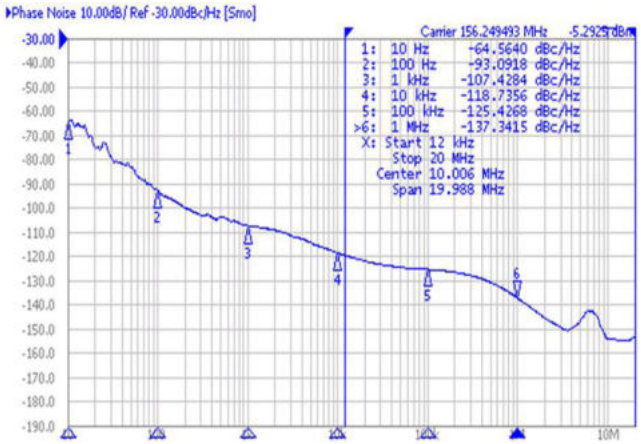
Test Circuit (LVPECL)



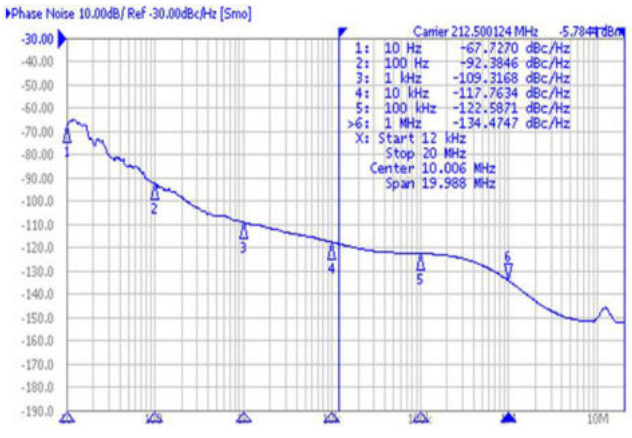
Waveform (LVPECL)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 212.500MHz

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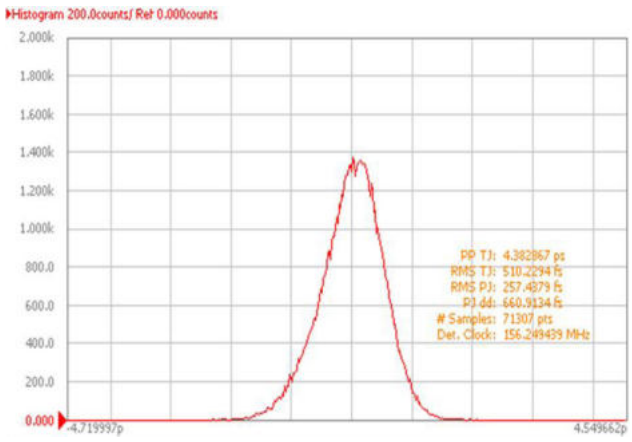
SUNTSU

Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

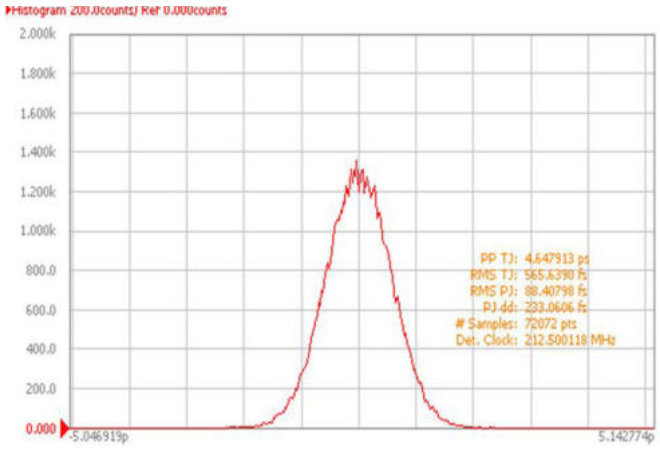
SQG22P Series

2.5mm x 2.0mm

Typical Jitter Performance (Measured By Agilent E5052A)

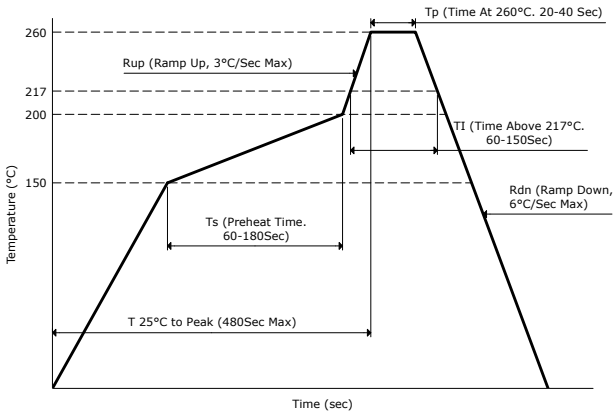


Frequency - 156.250MHz

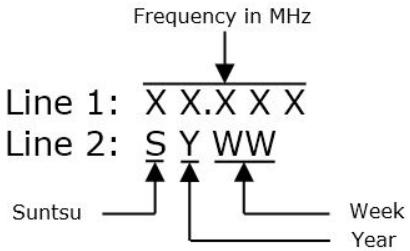


Frequency - 212.500MHz

Reflow Profile



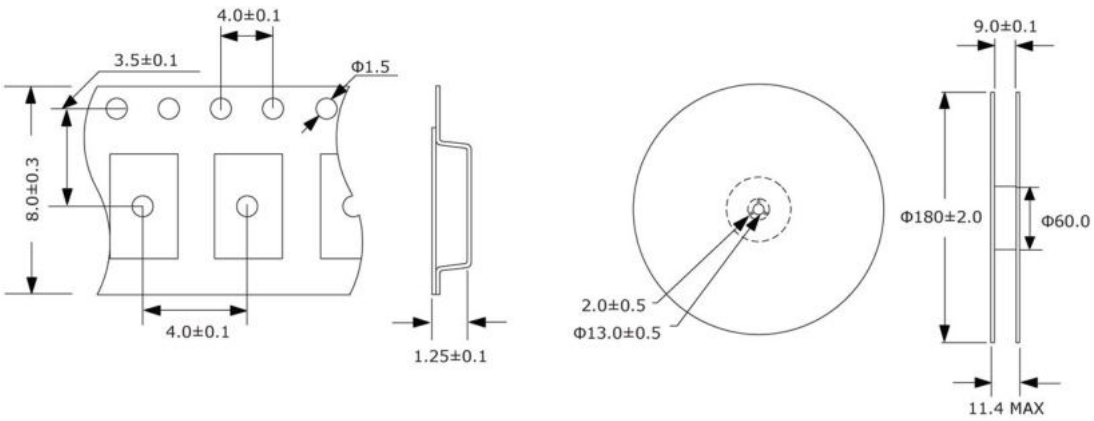
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

3,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Plastic SMD Quick Turn 4 Pad CMOS Oscillator

SQCPJC Series

14.0mm x 9.8mm

Features

- ±25ppm (Frequency Stability) Available
- Plastic J-Lead Package
- CMOS
- Programmed Oscillator
- Tape and Reel

Applications

- Micro Processors
- FPGA
- Storage Area/Networking
- Digital Video
- Portable Computers

Part Numbering Guide

SQC PJ C 3 A 48 1 -48.000M

- **SUNTSU QUICK TURN OSC**
- **14.0mm x 9.8mm PLASTIC J-LEAD**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 3 : 3.3V±5%
  - 5 : 5.0V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	1		133	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 3.3V option	V	3.135	3.3	3.465	
Supply Voltage (V_{DD}) - 5.0V option	V	4.750	5.0	5.250	
Current (I_{DD}) - 3.3V option	mA			25	
Current (I_{DD}) - 5.0V option	mA			45	
Output Load (CMOS)	pF			15	
Output Logic Levels High (V_{OH})	V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})	V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	ns			4	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage(3.3V) - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage(3.3V) - Disable	V			0.3*V_{DD}	
Tri-State Input Voltage(5.0V) - Enable	V	2.0			No Connection
Tri-State Input Voltage(5.0V) - Disable	V			0.8	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps			11	

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SUNTSU

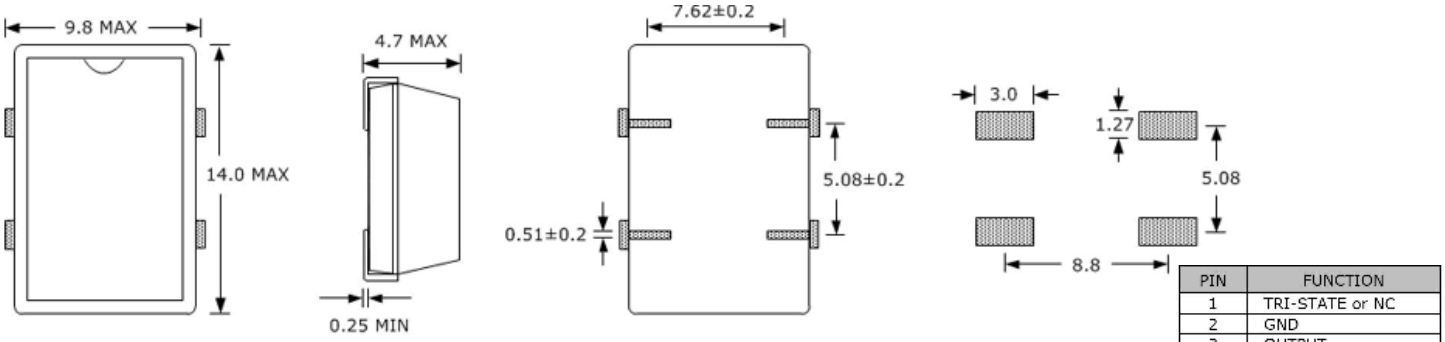
Plastic SMD Quick Turn 4 Pad CMOS Oscillator

SQCPJC Series

14.0mm x 9.8mm

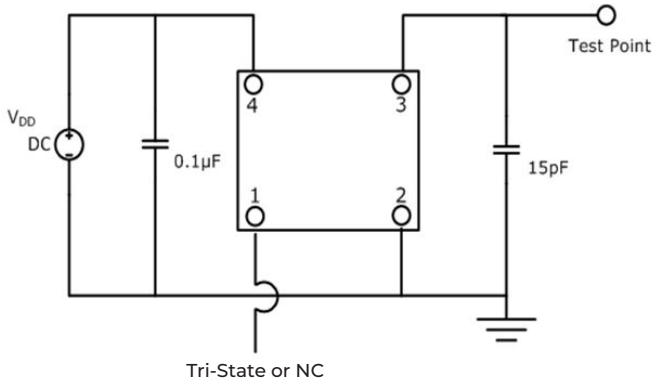
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

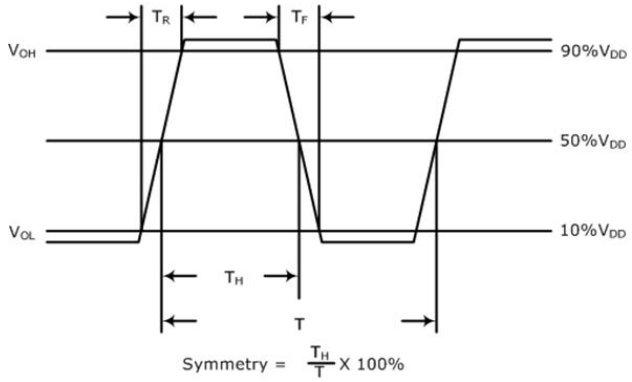


PIN	FUNCTION
1	TRI-STATE or NC
2	GND
3	OUTPUT
4	V_{DD}

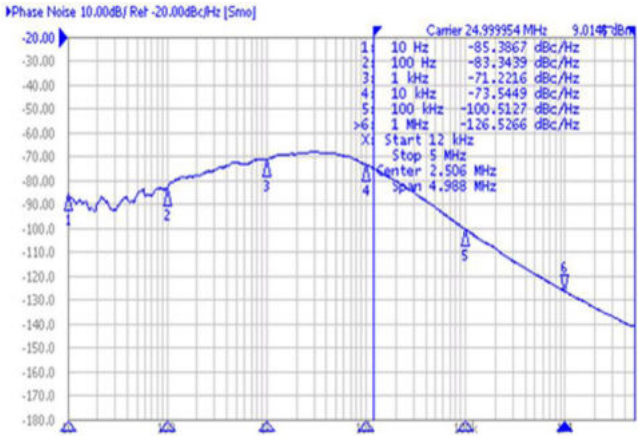
Test Circuit (CMOS)



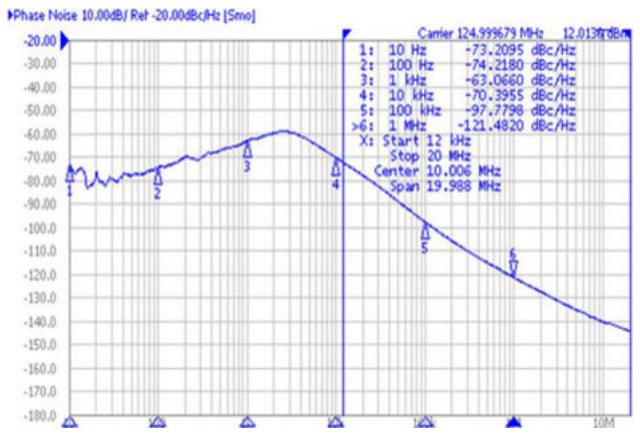
Waveform (CMOS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 25.000MHz



Frequency - 125.000MHz

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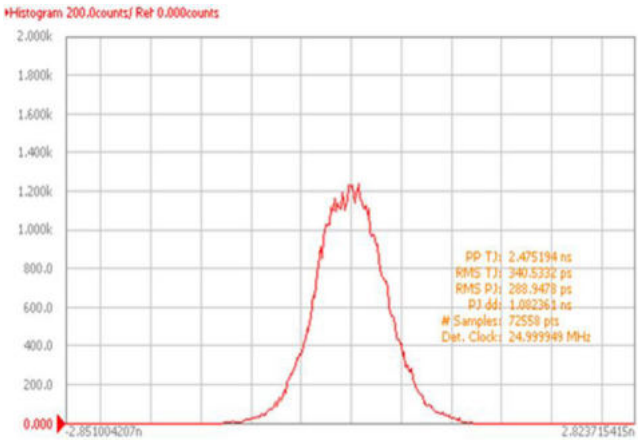
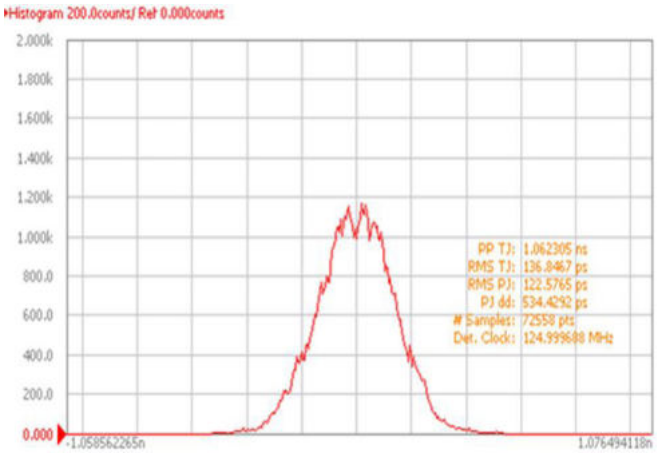
142 TECHNOLOGY DR., SUITE 150
IRVINE, CA 92618

Call: +1-949-783-7300 | Fax: +1-949-783-7301

Typical Jitter Performance (Measured By Agilent E5052A)

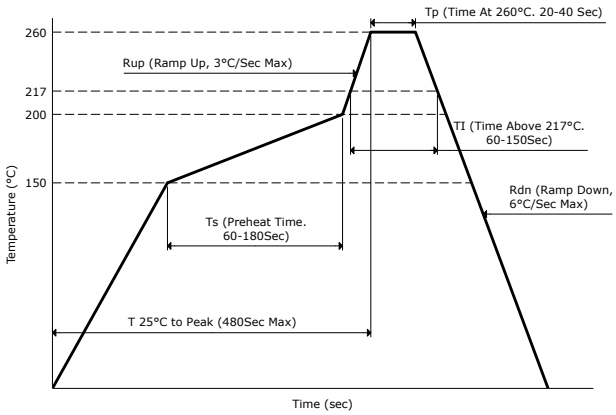


Frequency - 25.000MHz

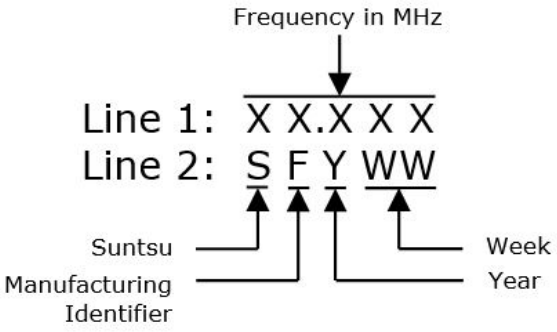


Frequency - 125.000MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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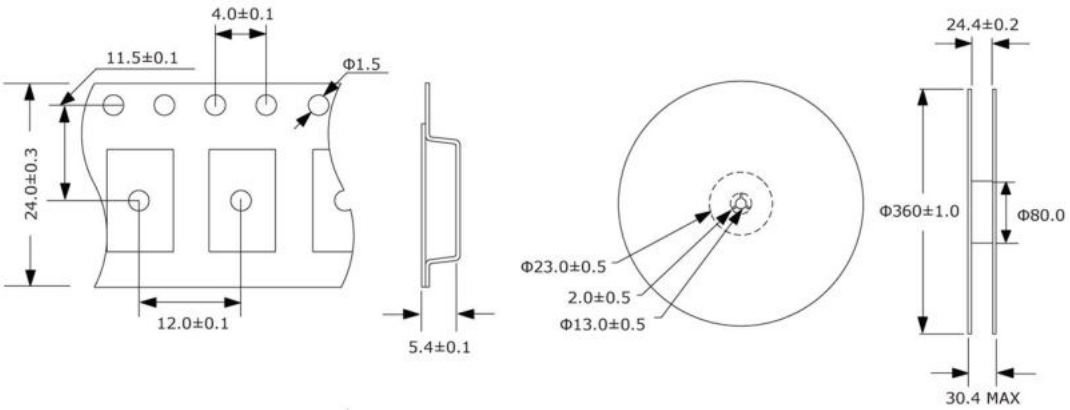
1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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IRVINE, CA 92618

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SUNTSU

Ceramic SMD Quick Turn 6 Pad CMOS Oscillator

SQG22C Series

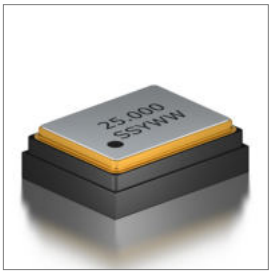
2.5mm x 2.0mm

Features

- ±20ppm (Frequency Stability) Available
- Wide Frequency Range
- CMOS
- Programmed Oscillator
- Tape and Reel

Applications

- Ethernet (10G/40G/100G)
- Base Stations
- Wi-Fi
- DSL/ADSL
- Communications



Part Numbering Guide

SQG 22 C 3 A 48 1 - 25.000M

- **SUNTSU QUICK TURN OSC**
- **2.5mm x 2.0mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		250	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			35	
Current (I_{DD}) - 3.3V option	mA			40	
Output Load (CMOS)	pF			15	
Output Logic Levels High (V_{OH})	V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})	V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	ns			3	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.5	1.5	

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SUNTSU

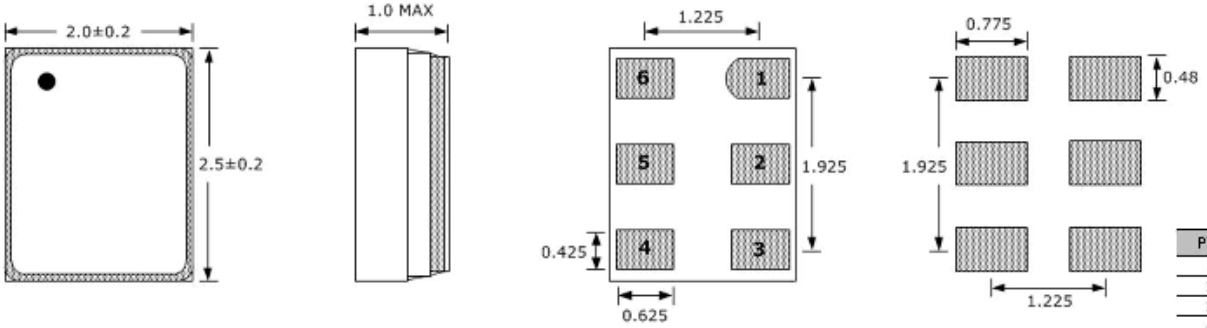
Ceramic SMD Quick Turn 6 Pad CMOS Oscillator

SQG22C Series

2.5mm x 2.0mm

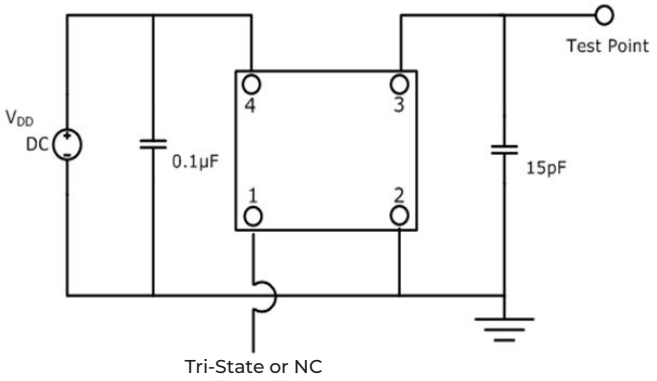
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

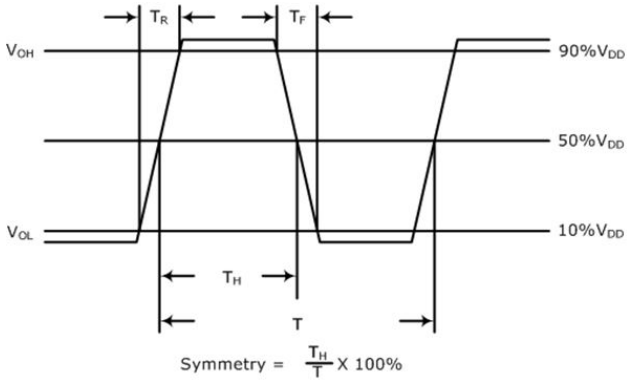


PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	NC
6	Vdd

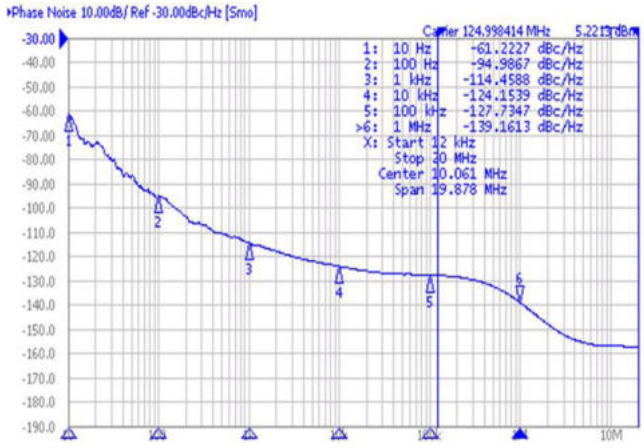
Test Circuit (CMOS)



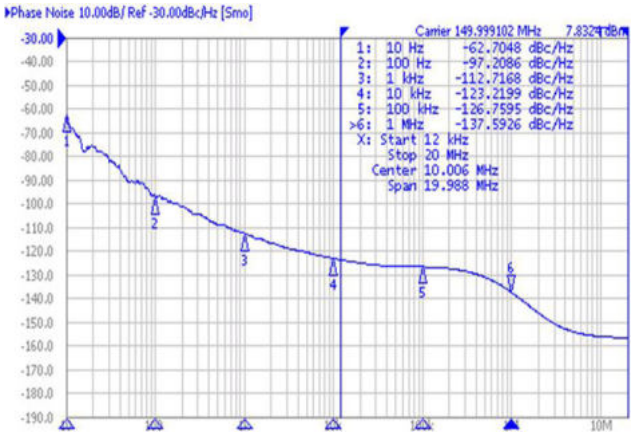
Waveform (CMOS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 125.000MHz



Frequency - 150.000MHz

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Ceramic SMD Quick Turn 6 Pad CMOS Oscillator

SQG22C Series

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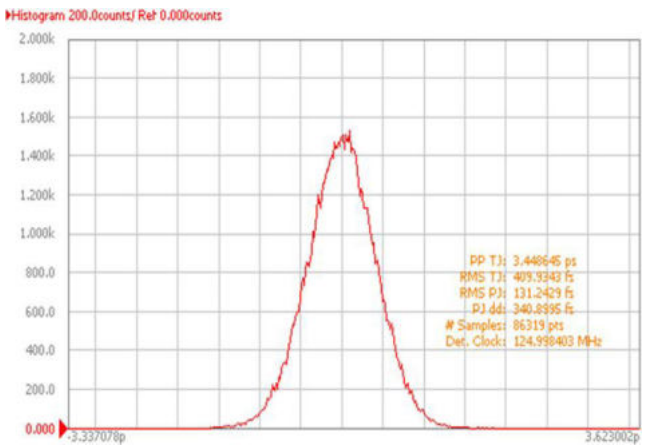
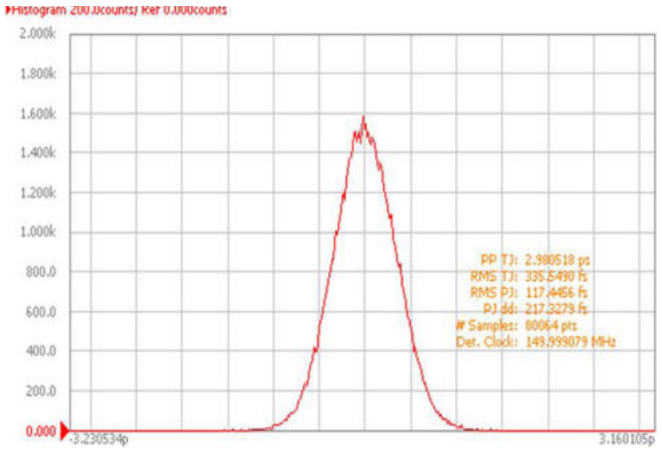
Typical Jitter Performance (Measured By Agilent E5052A)

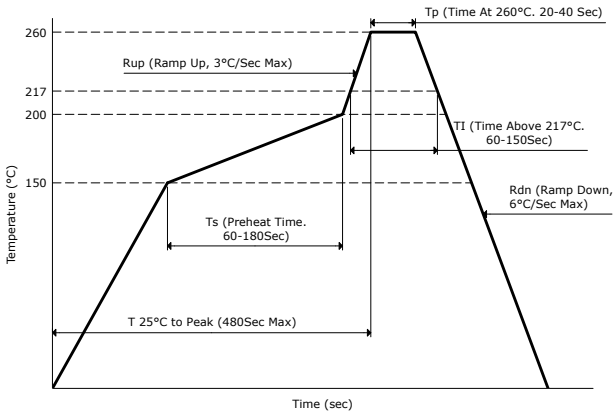


Frequency - 125.000MHz

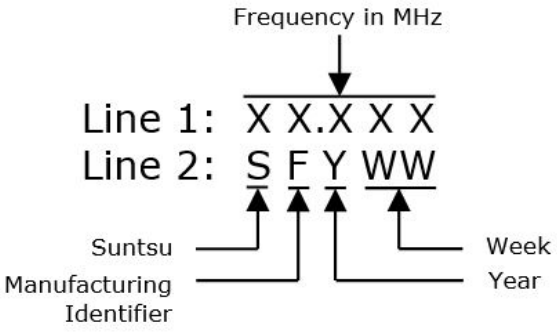


Frequency - 150.000MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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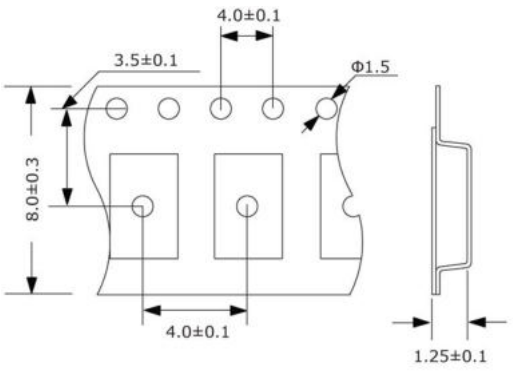
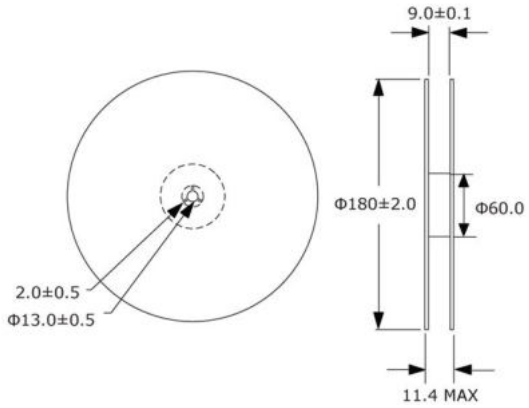
3,000pcs/Reel





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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 6 Pad LVDS Oscillator

SQG22L Series

2.5mm x 2.0mm

Features

- ±20ppm (Frequency Stability) Available
- Wide Frequency Range
- LVDS
- Programmed Oscillator
- Tape and Reel

Applications

- Ethernet (10G/40G/100G)
- Base Stations
- Wi-Fi
- DSL/ADSL
- Communications

Part Numbering Guide

SQG 22 L 3 A 48 1 - 156.250M

- **SUNTSU QUICK TURN OSC**
- **2.5mm x 2.0mm**
- **LVDS**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY** MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		1500	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			35	
Current (I_{DD}) - 3.3V option	mA			40	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	330	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV			50	
Rise (TR) and Fall (TF) Time	ns			1	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.5	1.5	

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Ceramic SMD Quick Turn 6 Pad LVDS Oscillator

SQG22L Series

2.5mm x 2.0mm

Outline Drawing & Land Pattern

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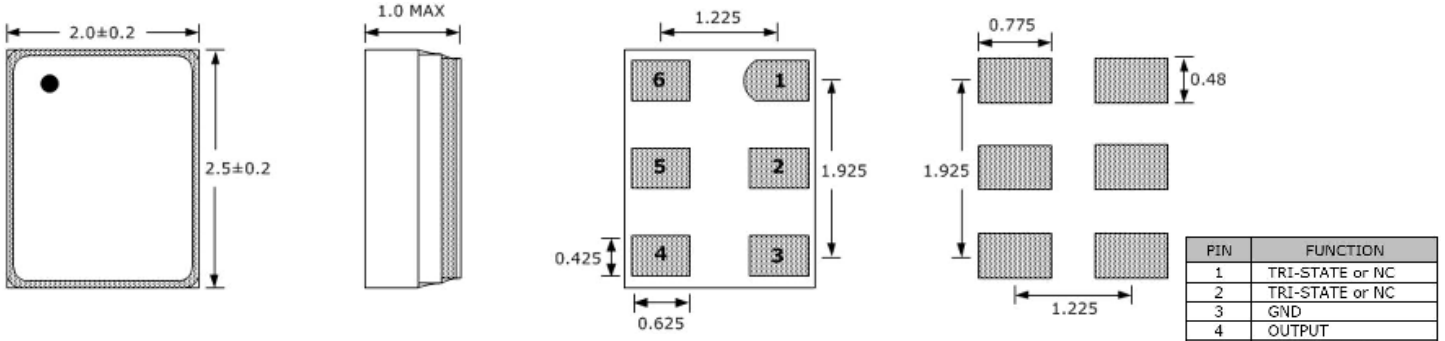
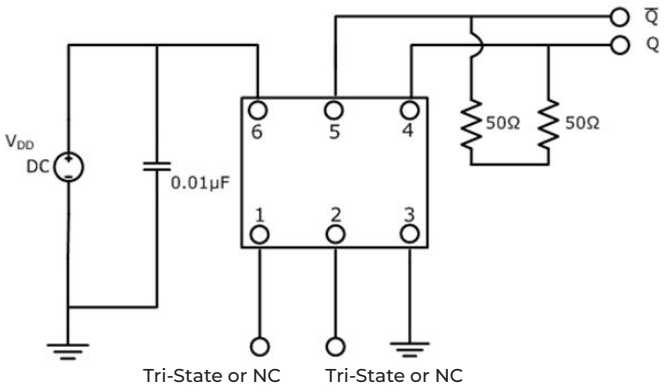
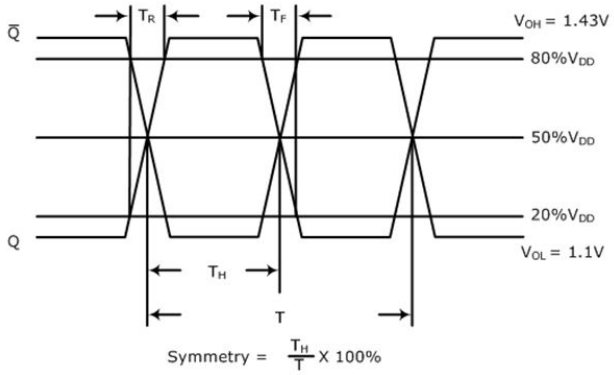


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVDS)

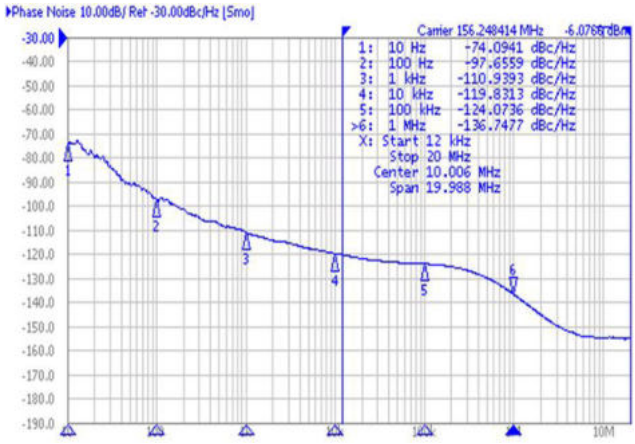


Waveform (LVDS)

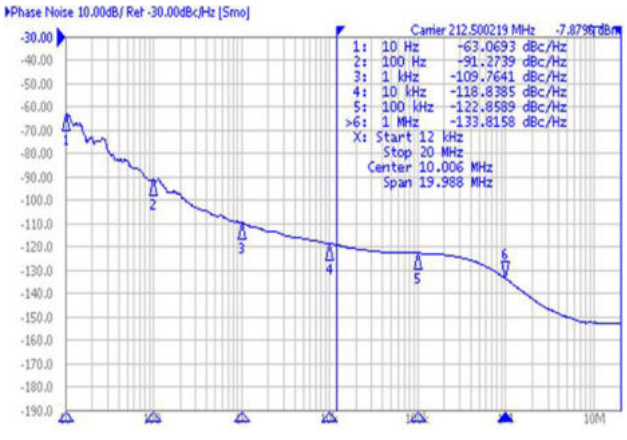


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 212.500MHz

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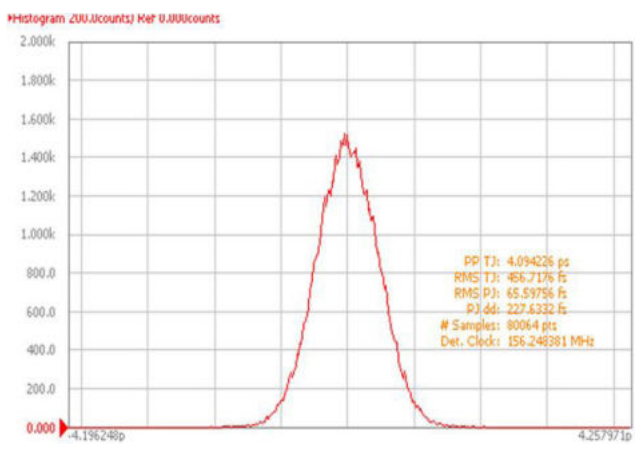
Ceramic SMD Quick Turn 6 Pad LVDS Oscillator

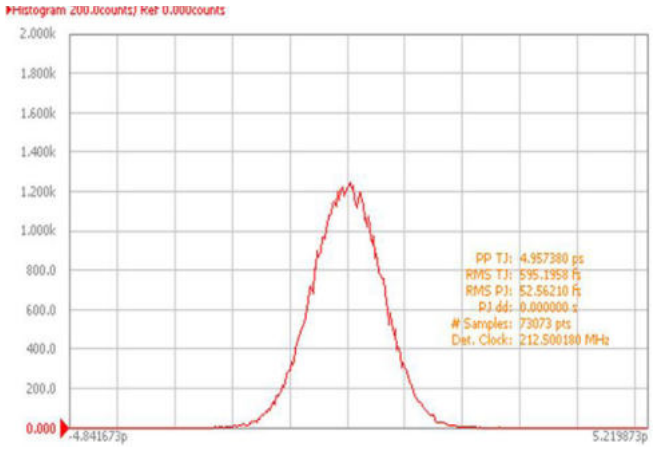
SQG22L Series

2.5mm x 2.0mm

Typical Jitter Performance (Measured By Agilent E5052A)

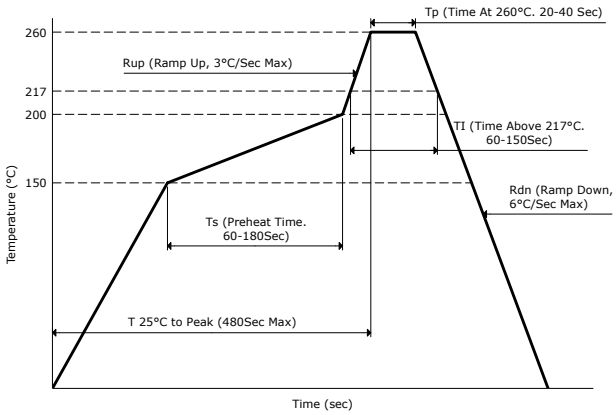


Frequency - 156.250MHz

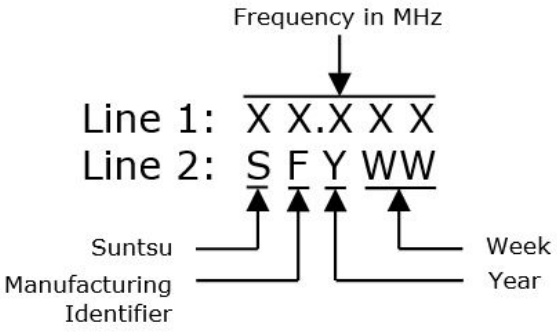


Frequency - 212.500MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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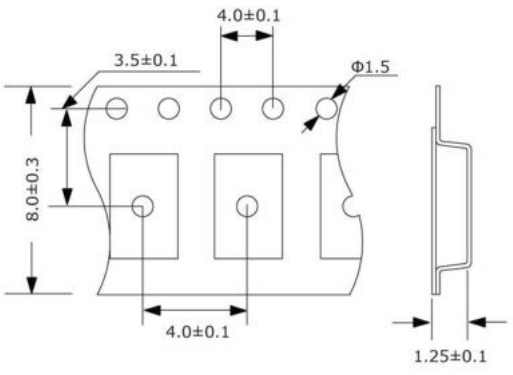
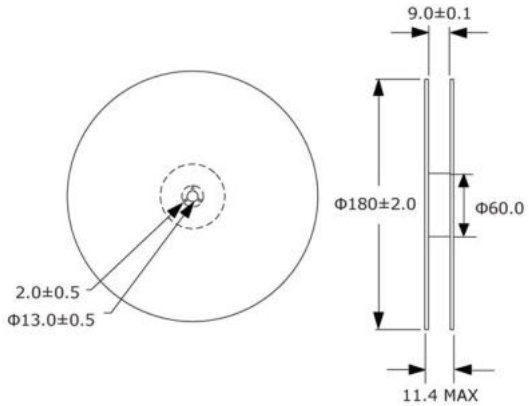
3,000pcs/Reel





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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 6 Pad CMOS Oscillator

SQG32C Series

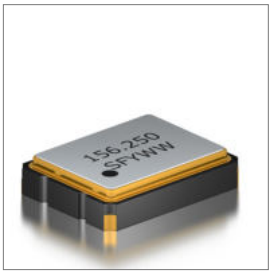
3.2mm x 2.5mm

Features

- ±20ppm (Frequency Stability) Available
- Wide Frequency Range
- CMOS
- Programmed Oscillator
- Tape and Reel

Applications

- Ethernet (10G/40G/100G)
- Base Stations
- Wi-Fi
- DSL/ADSL
- Communications



Part Numbering Guide

SQG 32 C 3 A 48 1 - 25.000M

- **SUNTSU QUICK TURN OSC** — SQG
- **3.2mm x 2.5mm** — 32
- **CMOS** — C
- **SUPPLY VOLTAGE** — 2 : 2.5V±5%; 3 : 3.3V±5%
- **FREQUENCY STABILITY** — A : ±50ppm; B : ±30ppm; C : ±25ppm; *D : ±20ppm
- **OPERATING TEMPERATURE RANGE** — 07 : 0°C - +70°C; 16 : -10°C - +60°C; 17 : -10°C - +70°C; 27 : -20°C - +70°C; 38 : -30°C - +85°C; 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)** — BLANK : No Connection; 1 : Pin 1
- **FREQUENCY** — MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		250	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.135	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			35	
Current (I_{DD}) - 3.3V option	mA			40	
Output Load (CMOS)	pF			15	
Output Logic Levels High (V_{OH})	V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})	V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	ns			3	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.5	1.5	

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Outline Drawing & Land Pattern

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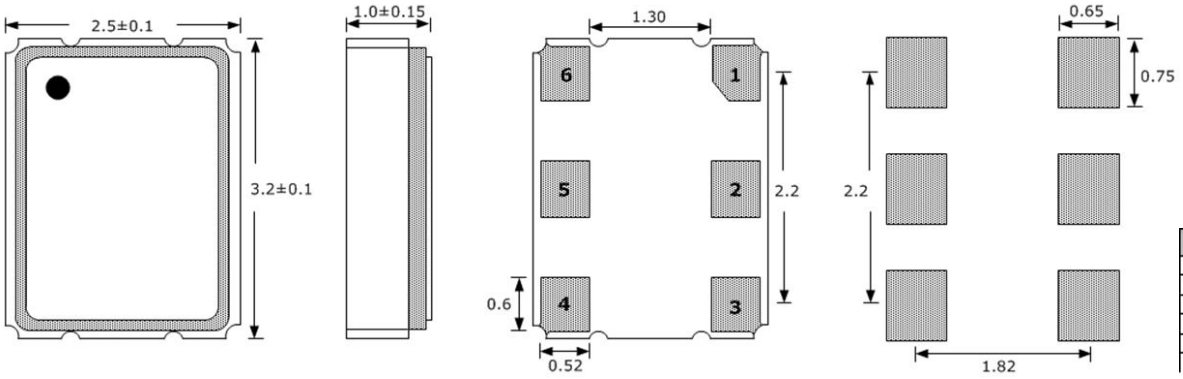
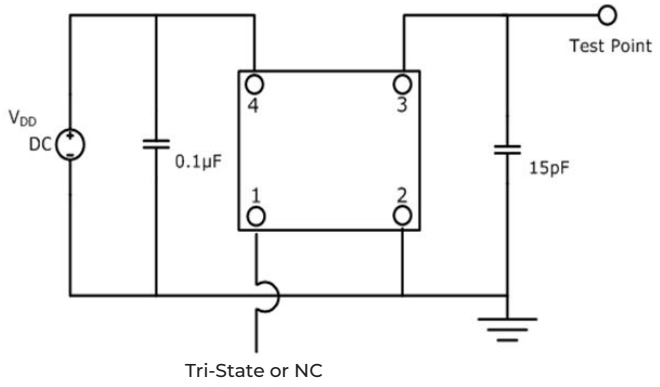
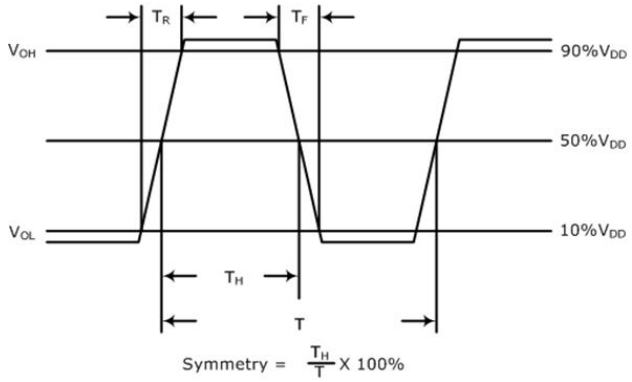


PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	NC
6	V_{DD}

Test Circuit (CMOS)

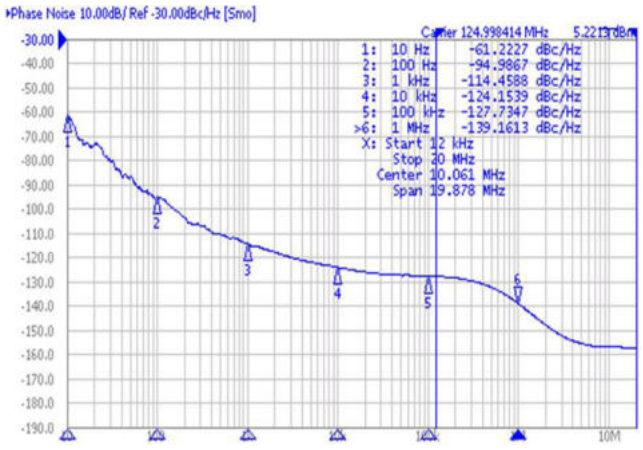


Waveform (CMOS)

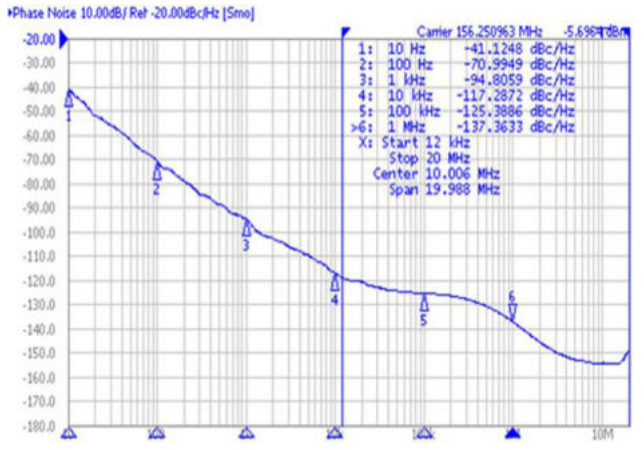


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 125.000MHz



Frequency - 1596.250MHz

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SQG32C Series

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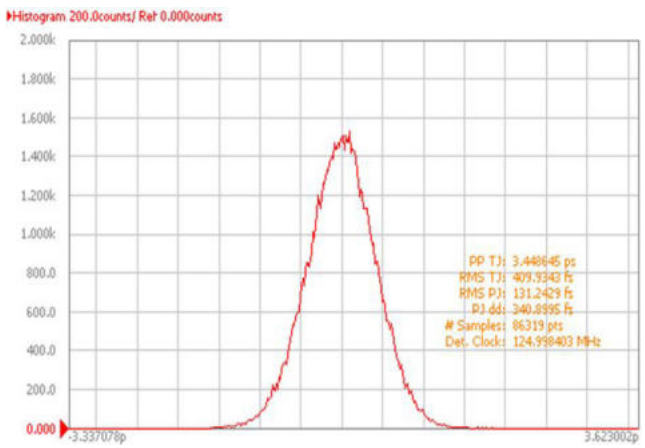
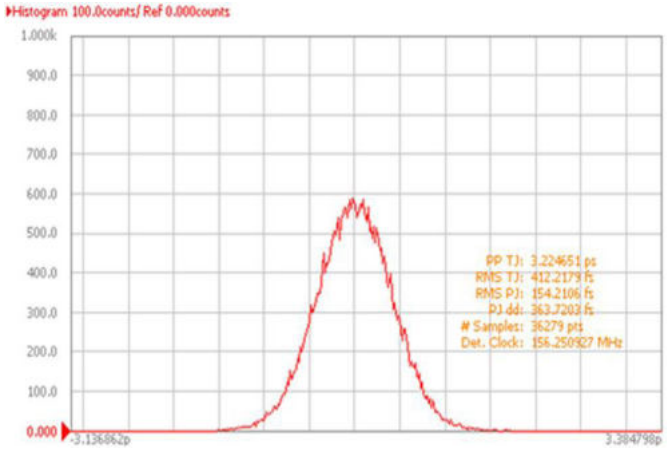
Typical Jitter Performance (Measured By Agilent E5052A)

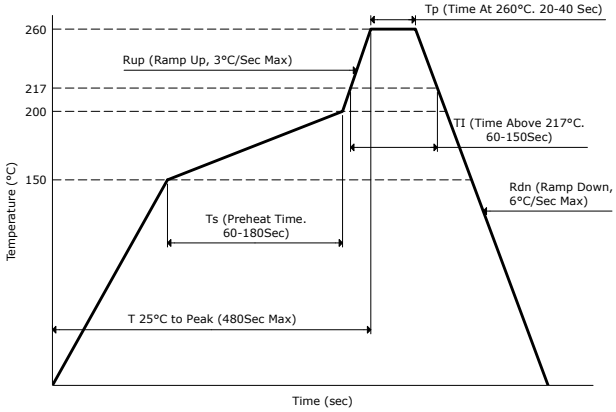


Frequency - 125.000MHz

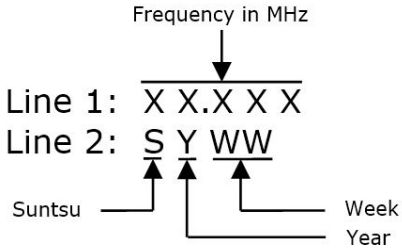


Frequency - 156.250MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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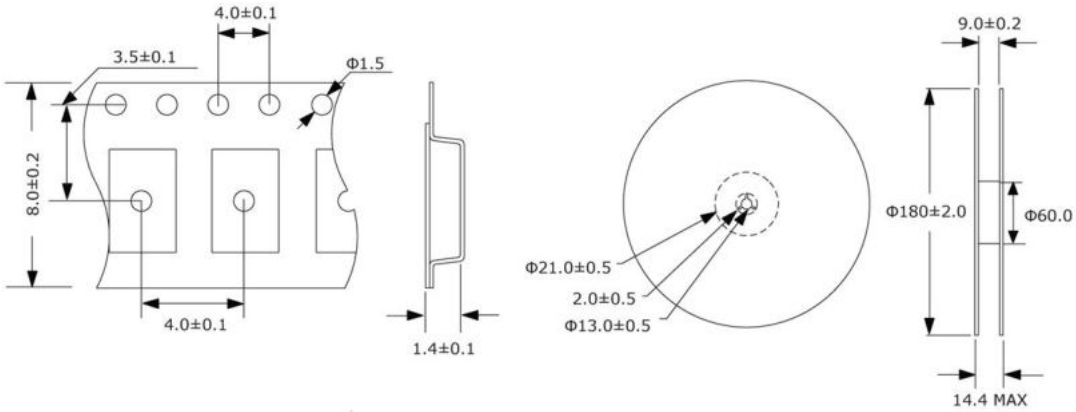
3,000pcs/Reel



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Specifications are subject to change without notice.

Suntsu Electronics, Inc.
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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 6 Pad LVDS Oscillator

SQG32L Series

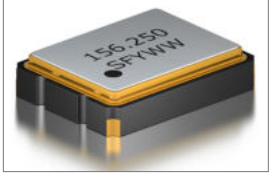
3.2mm x 2.5mm

Features

- ±20ppm (Frequency Stability) Available
- Wide Frequency Range
- LVDS
- Programmed Oscillator
- Tape and Reel

Applications

- Ethernet (10G/40G/100G)
- Base Stations
- Wi-Fi
- DSL/ADSL
- Communications



Part Numbering Guide

SQG 32 L 3 A 48 1 - 156.250M

- **SUNTSU QUICK TURN OSC** — SQG
- **3.2mm x 2.5mm** — 32
- **LVDS** — L
- **SUPPLY VOLTAGE** — 2 : 2.5V±5%; 3 : 3.3V±5%
- **FREQUENCY STABILITY** — A : ±50ppm; B : ±30ppm; C : ±25ppm; *D : ±20ppm
- **OPERATING TEMPERATURE RANGE** — 07 : 0°C - +70°C; 16 : -10°C - +60°C; 17 : -10°C - +70°C; 27 : -20°C - +70°C; 38 : -30°C - +85°C; 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)** — 1 : Pin 1; 2 : Pin 2
- **FREQUENCY** — MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		1500	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			35	
Current (I_{DD}) - 3.3V option	mA			40	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	330	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV			50	
Rise (TR) and Fall (TF) Time	ns			1	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.5	1.5	

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SUNTSU

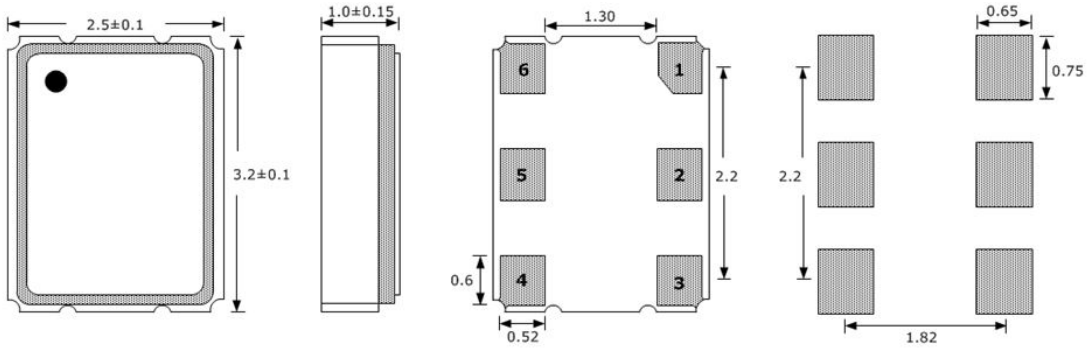
Ceramic SMD Quick Turn 6 Pad LVDS Oscillator

SQG32L Series

3.2mm x 2.5mm

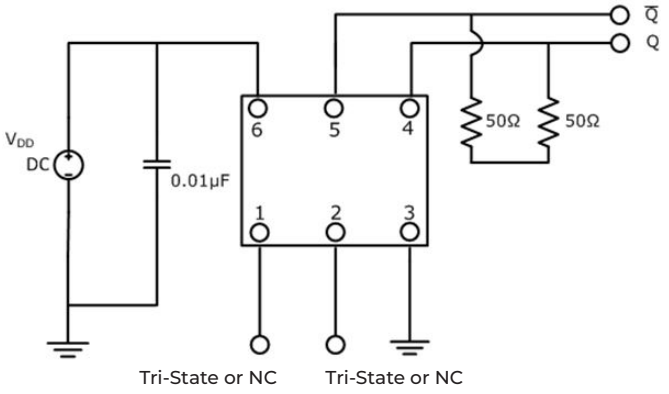
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

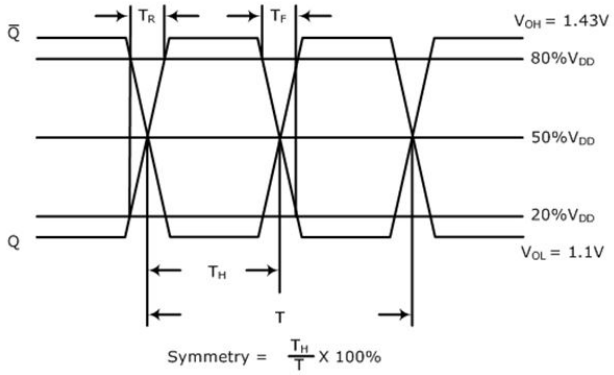


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

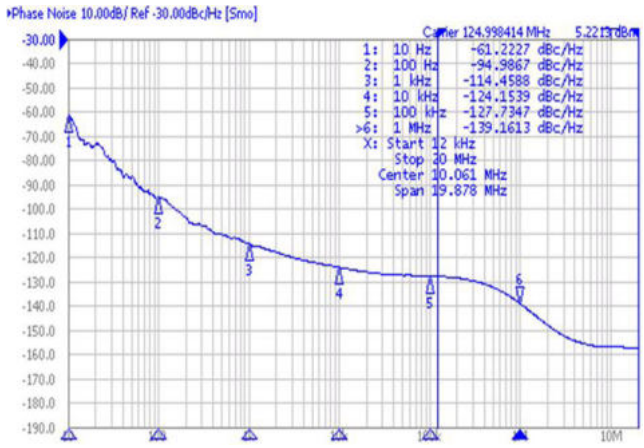
Test Circuit (LVDS)



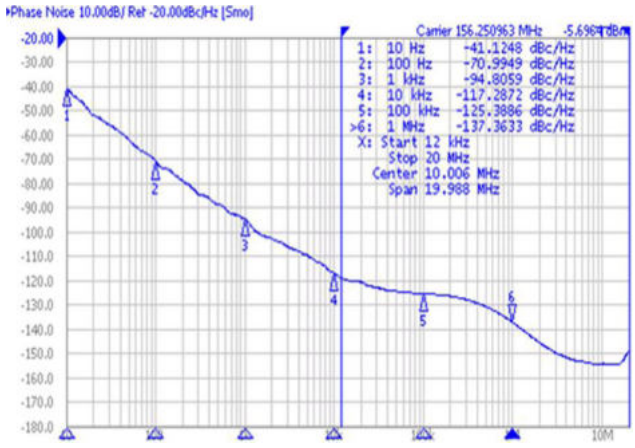
Waveform (LVDS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 125.000MHz



Frequency - 156.250MHz

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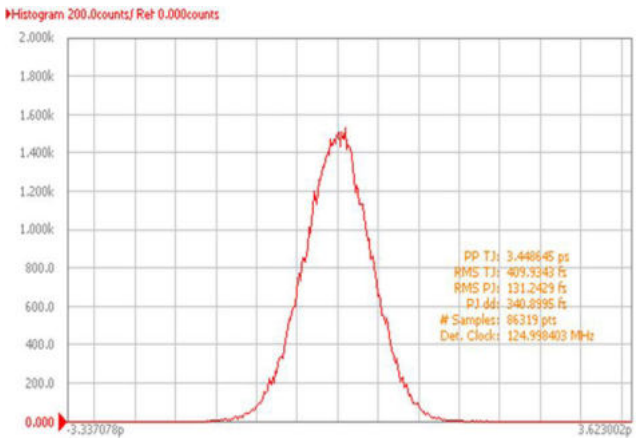
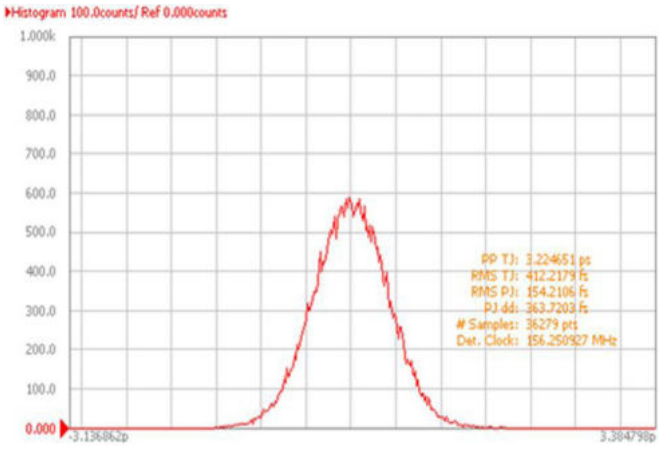
Typical Jitter Performance (Measured By Agilent E5052A)

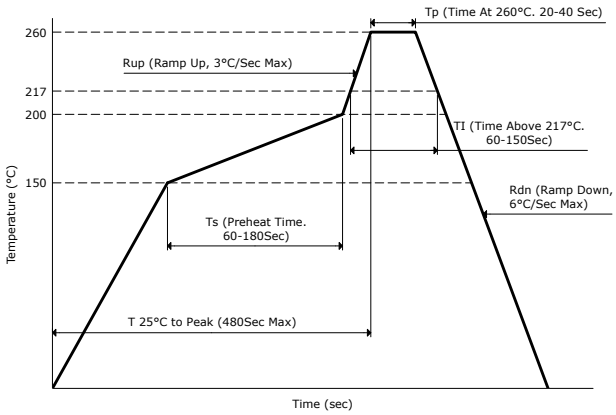


Frequency - 125.000MHz

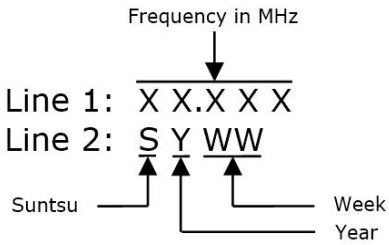


Frequency - 156.250MHz

Reflow Profile



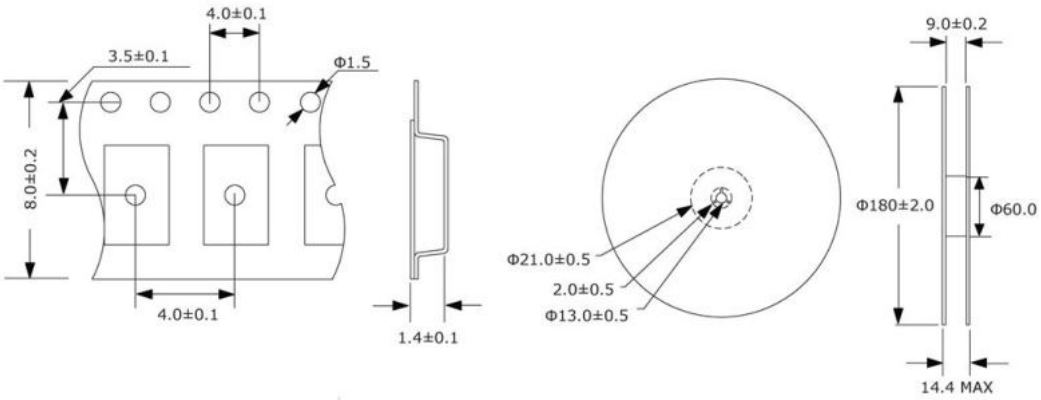
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

3,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

SQG32P Series

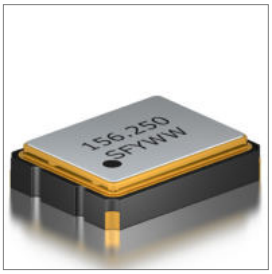
3.2mm x 2.5mm

Features

- ±20ppm (Frequency Stability) Available
- Wide Frequency Range
- LVPECL
- Programmed Oscillator
- Tape and Reel

Applications

- Ethernet (10G/40G/100G)
- Base Stations
- Wi-Fi
- DSL/ADSL
- Communications



Part Numbering Guide

SQG 32 P 3 A 48 1 - 156.250M

- **SUNTSU QUICK TURN OSC** — SQG
- **3.2mm x 2.5mm** — 32
- **LVPECL** — P
- **SUPPLY VOLTAGE** — 3
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY** — A
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE** — 48
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)** — 1
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY** — 156.250M
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		1500	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			60	
Current (I_{DD}) - 3.3V option	mA			65	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH})	V	V_{DD}-1.025			
Output Logic Levels Low (V_{OL})	V			V_{DD}-1.62	
Rise (TR) and Fall (TF) Time	ns			1	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.5	1.5	

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SUNTSU

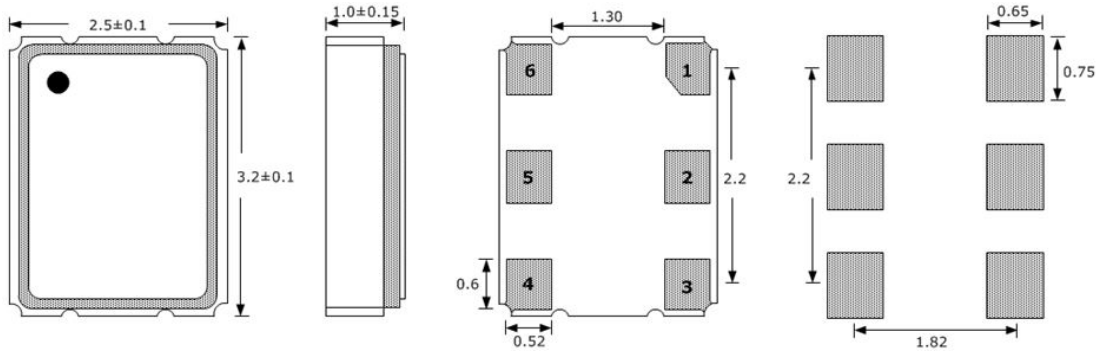
Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

SQG32P Series

3.2mm x 2.5mm

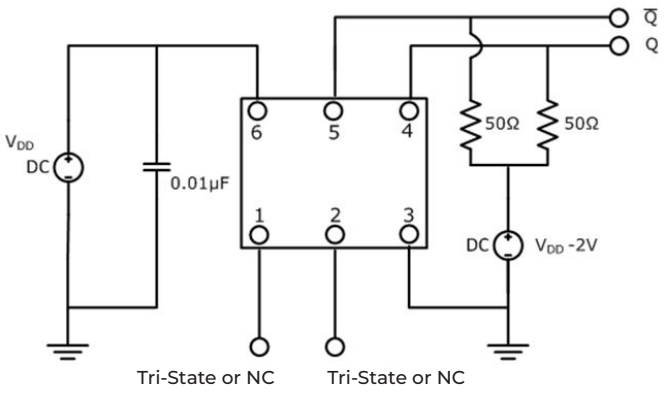
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

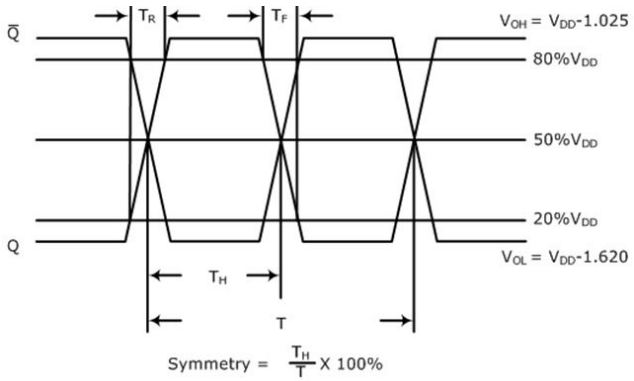


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

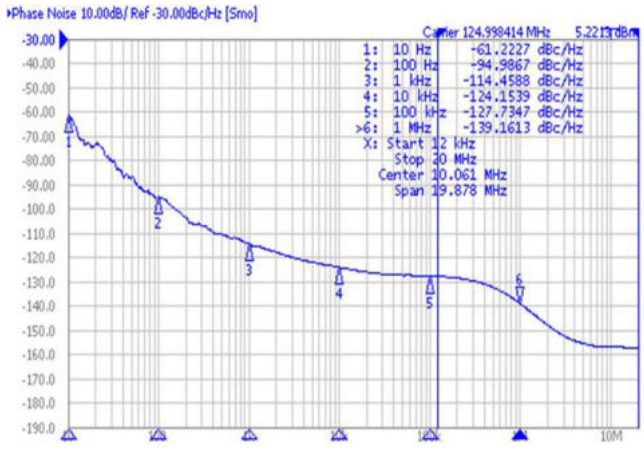
Test Circuit (LVPECL)



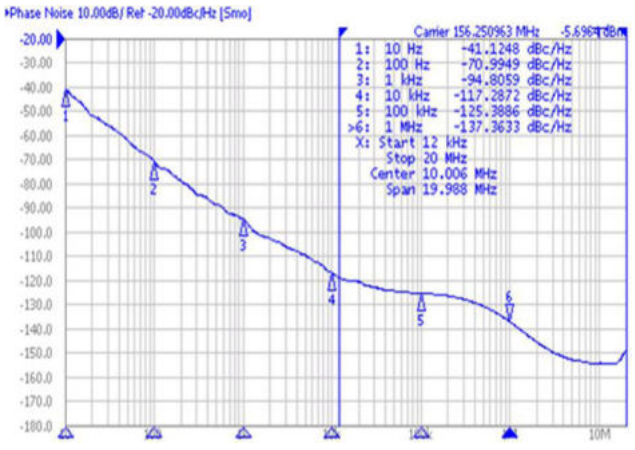
Waveform (LVPECL)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 125.000MHz



Frequency - 156.250MHz

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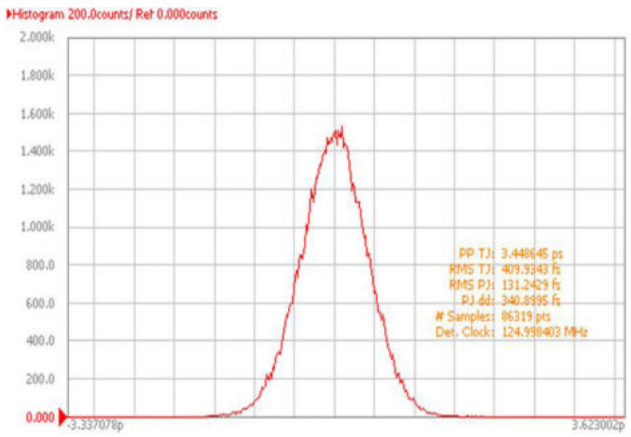
SUNTSU

Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

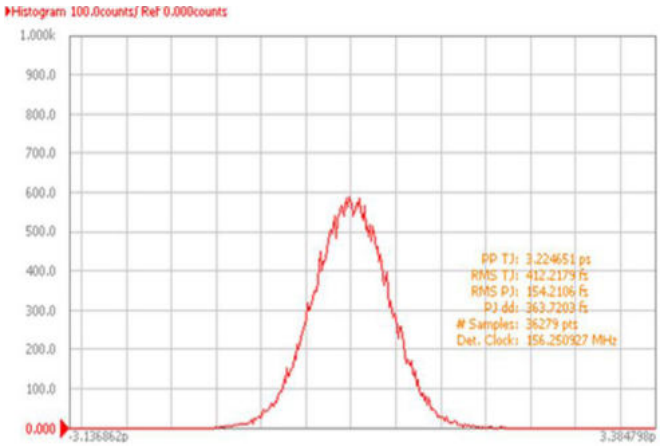
SQG32P Series

3.2mm x 2.5mm

Typical Jitter Performance (Measured By Agilent E5052A)

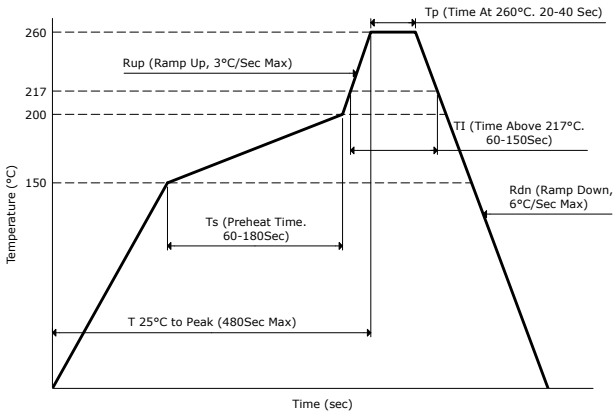


Frequency - 125.000MHz

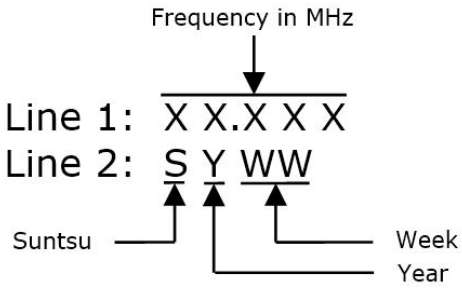


Frequency - 156.250MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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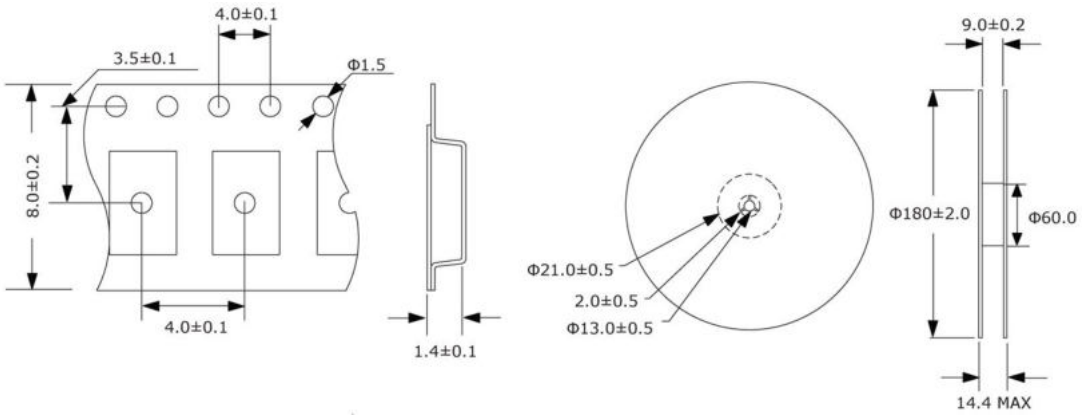
3,000pcs/Reel



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Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 6 Pad CMOS Oscillator

SQG53C Series

5.0mm x 3.2mm

Features

- ±20ppm (Frequency Stability) Available
- Wide Frequency Range
- CMOS
- Programmed Oscillator
- Tape and Reel

Applications

- Ethernet (10G/40G/100G)
- Base Stations
- Wi-Fi
- DSL/ADSL
- Communications

Part Numbering Guide

SQG 53 C 3 A 48 1 - 27.000M

- **SUNTSU QUICK TURN OSC**
- **5.0mm x 3.2mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY** MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		250	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			35	
Current (I_{DD}) - 3.3V option	mA			40	
Output Load (CMOS)	pF			15	
Output Logic Levels High (V_{OH})	V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})	V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	ns			3	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.7	1.5	

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SUNTSU

Ceramic SMD Quick Turn 6 Pad CMOS Oscillator

SQG53C Series

5.0mm x 3.2mm

Outline Drawing & Land Pattern

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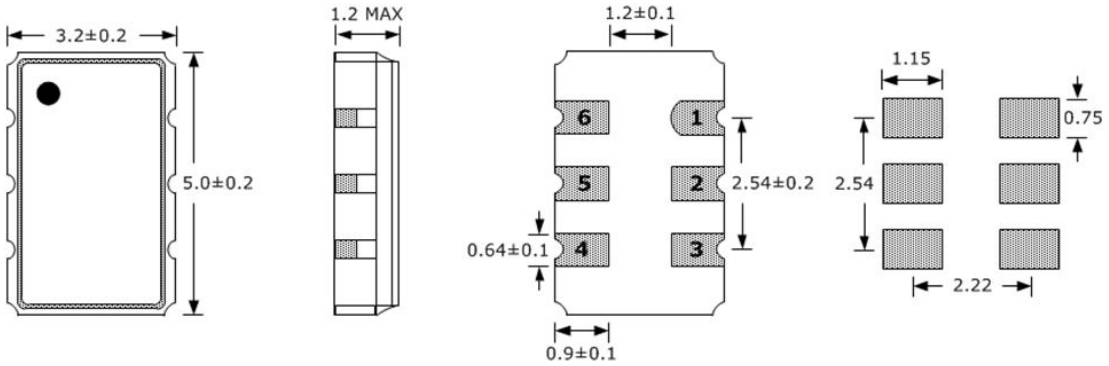
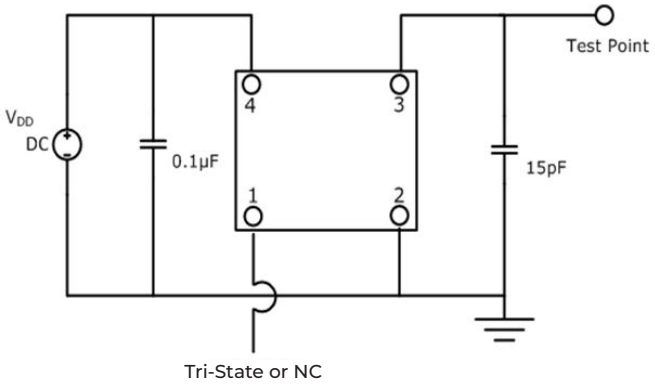
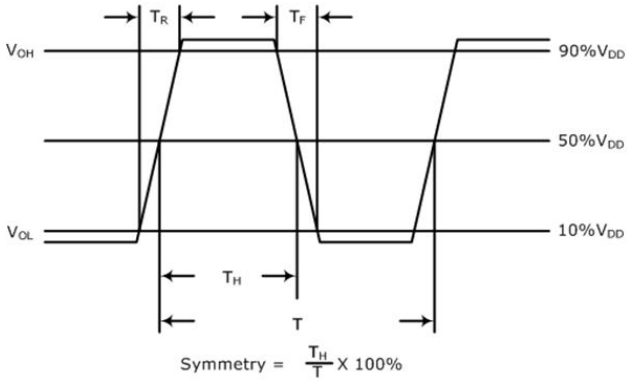


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	NC
6	V_{DD}

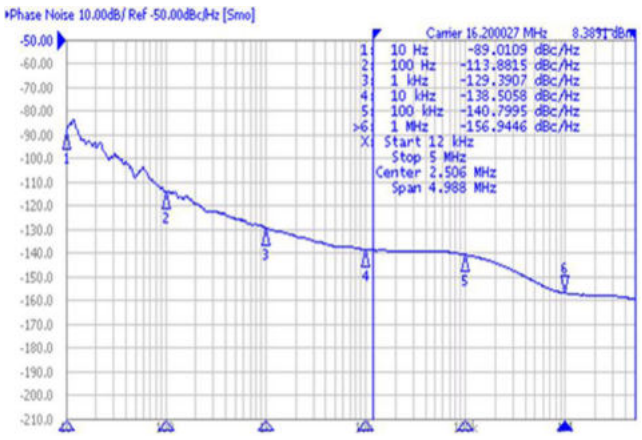
Test Circuit (CMOS)



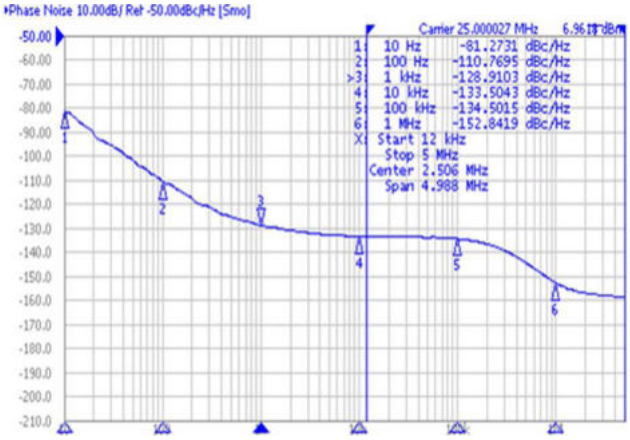
Waveform (CMOS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 16.200MHz



Frequency - 25.000MHz

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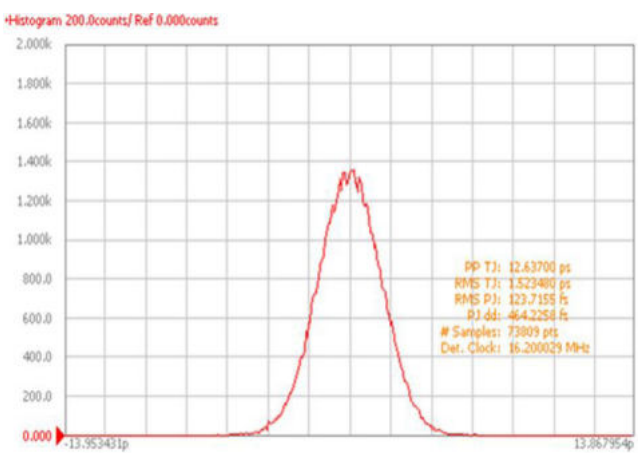
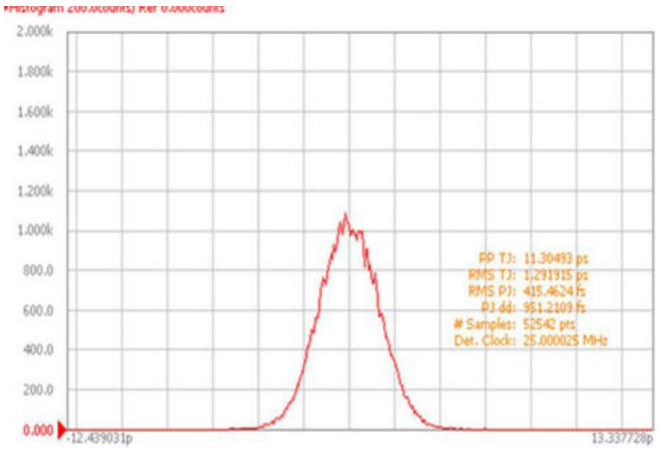
Typical Jitter Performance (Measured By Agilent E5052A)

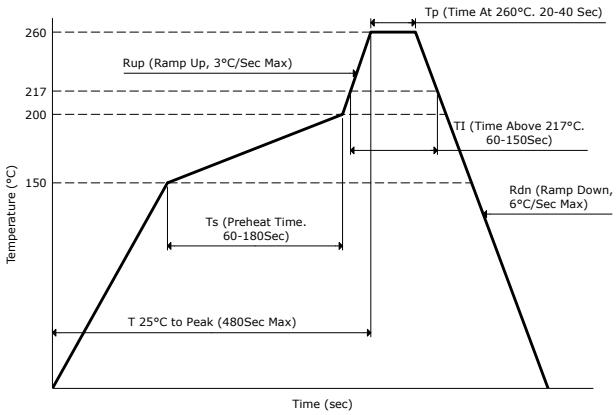


Frequency - 16.200MHz

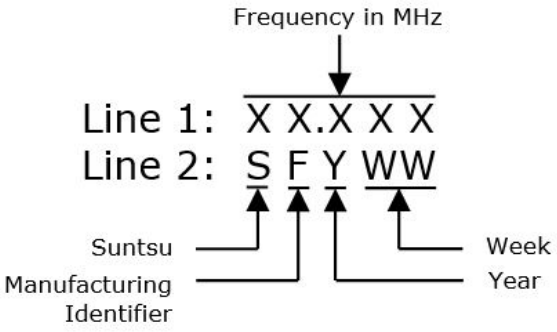


Frequency - 25.000MHz

Reflow Profile



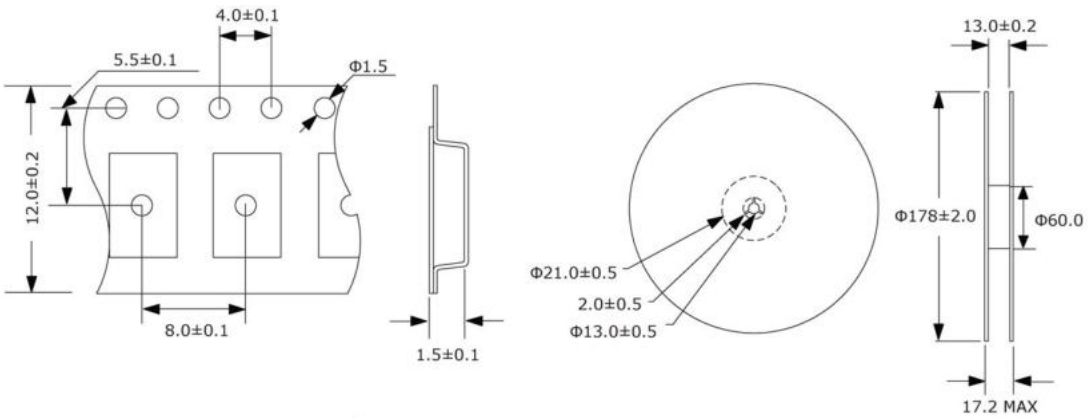
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 6 Pad LVDS Oscillator

SQG53L Series

5.0mm x 3.2mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVDS
- Programmed Oscillator
- Tape and Reel

Applications

- Micro Processors
- FPGA
- Storage Area/Networking
- Digital Video
- SONET/SDH

Part Numbering Guide

SQG 53 L 3 A 48 1 - 100.000M

- **SUNTSU QUICK TURN OSC**
- **5.0mm x 3.2mm**
- **LVDS**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		1500	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			65	
Current (I_{DD}) - 3.3V option	mA			70	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	330	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV			50	
Rise (TR) and Fall (TF) Time	ns			1	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.7	1.5	

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SUNTSU

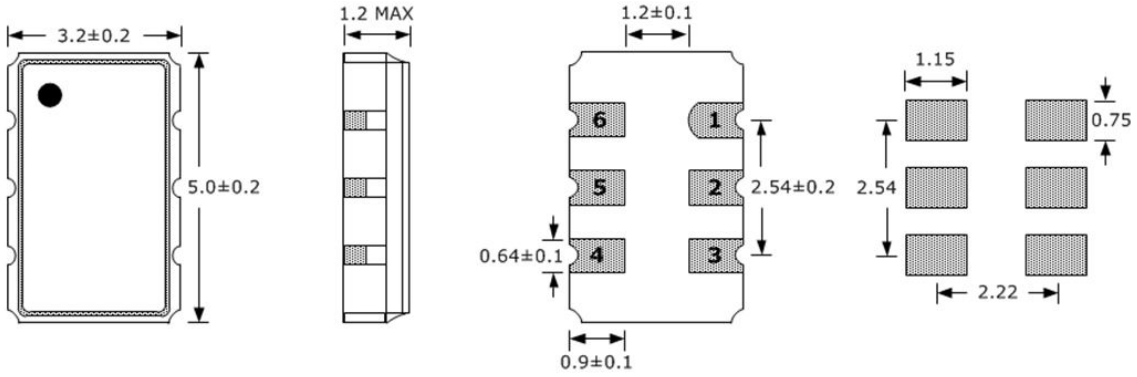
Ceramic SMD Quick Turn 6 Pad LVDS Oscillator

SQG53L Series

5.0mm x 3.2mm

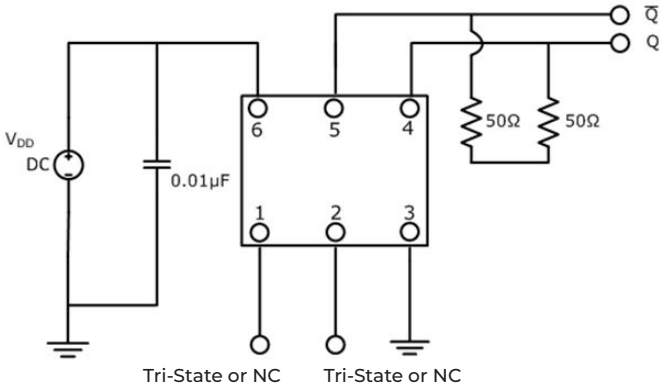
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

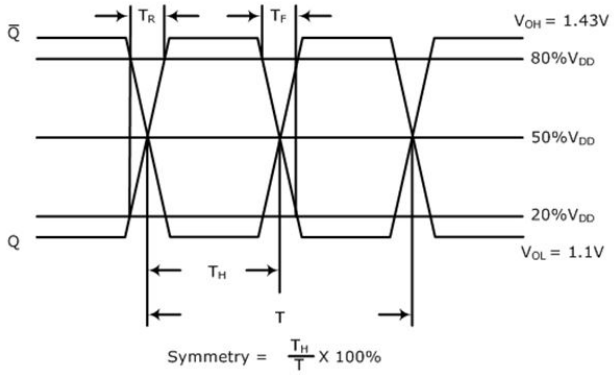


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

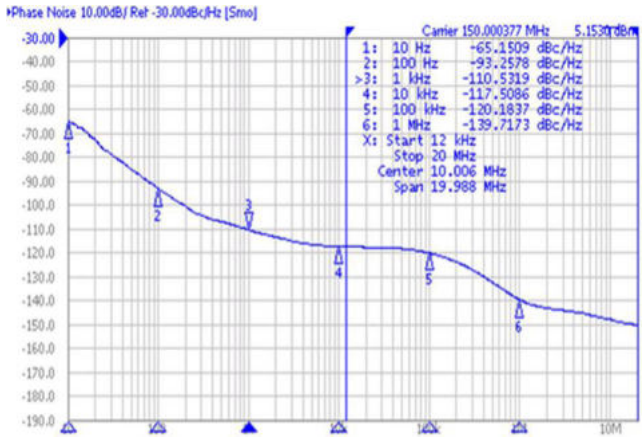
Test Circuit (LVDS)



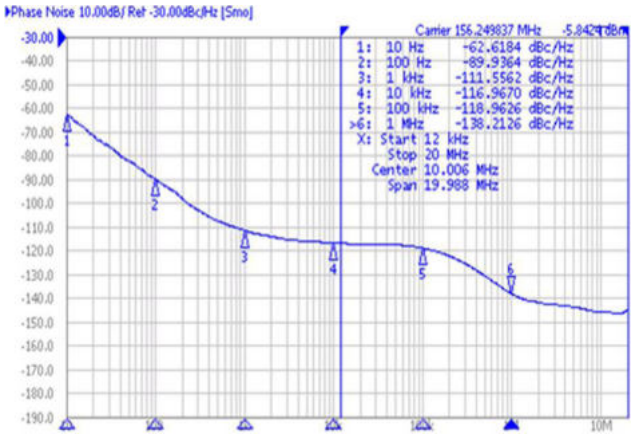
Waveform (LVDS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 150.000MHz



Frequency - 156.250MHz

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Specifications are subject to change without notice.

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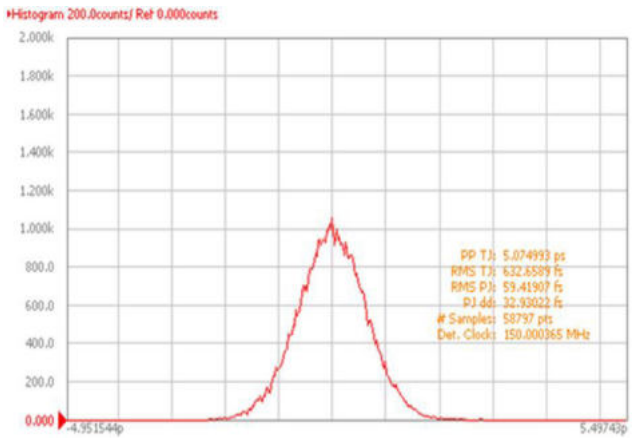
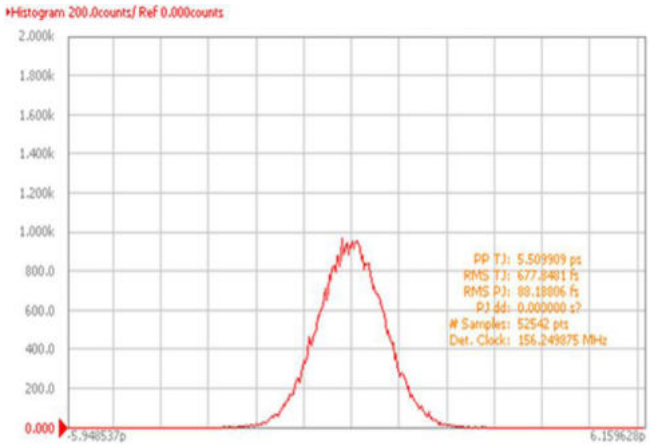
Typical Jitter Performance (Measured By Agilent E5052A)

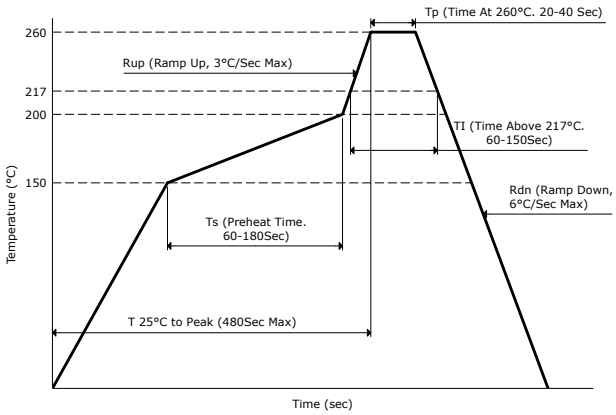


Frequency - 150.000MHz

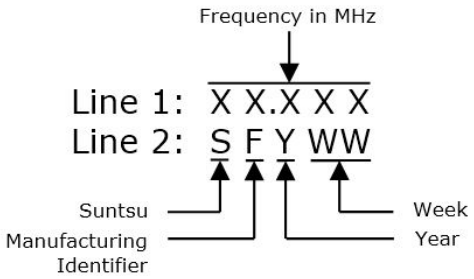


Frequency - 156.250MHz

Reflow Profile



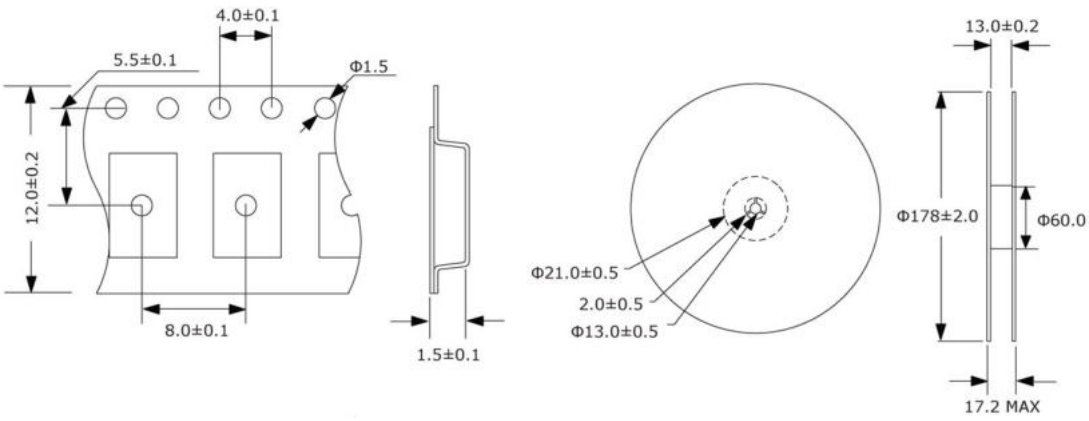
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

SQG53P Series

5.0mm x 3.2mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVPECL
- Programmed Oscillator
- Tape and Reel

Applications

- Micro Processors
- FPGA
- Storage Area/Networking
- Digital Video
- SONET/SDH

Part Numbering Guide

SQG 53 P 3 A 48 1 - 156.250M

- **SUNTSU QUICK TURN OSC** — SQG
- **5.0mm x 3.2mm** — 53
- **LVPECL** — P
- **SUPPLY VOLTAGE** — 2 : 2.5V±5%; 3 : 3.3V±5%
- **FREQUENCY STABILITY** — A : ±50ppm; B : ±30ppm; C : ±25ppm; *D : ±20ppm
- **OPERATING TEMPERATURE RANGE** — 07 : 0°C - +70°C; 16 : -10°C - +60°C; 17 : -10°C - +70°C; 27 : -20°C - +70°C; 38 : -30°C - +85°C; 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)** — 1 : Pin 1; 2 : Pin 2
- **FREQUENCY** — MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		1500	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			65	
Current (I_{DD}) - 3.3V option	mA			70	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH})	V	V_{DD}-1.025			
Output Logic Levels Low (V_{OL})	V			V_{DD}-1.62	
Rise (TR) and Fall (TF) Time	ns			1	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.7	1.5	

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SUNTSU

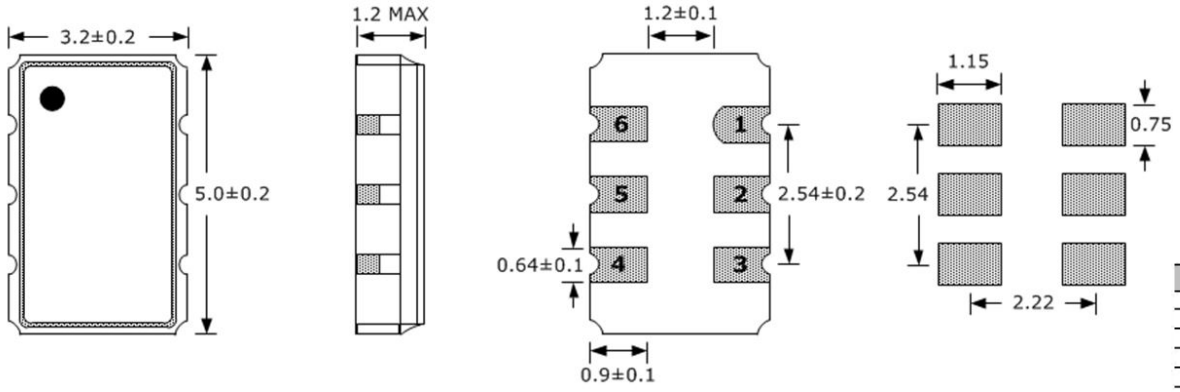
Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

SQG53P Series

5.0mm x 3.2mm

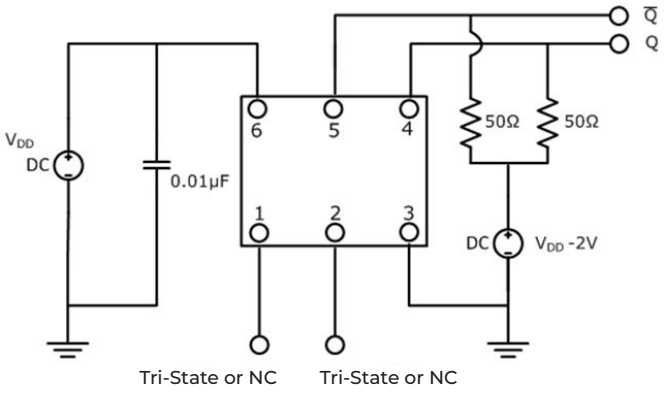
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

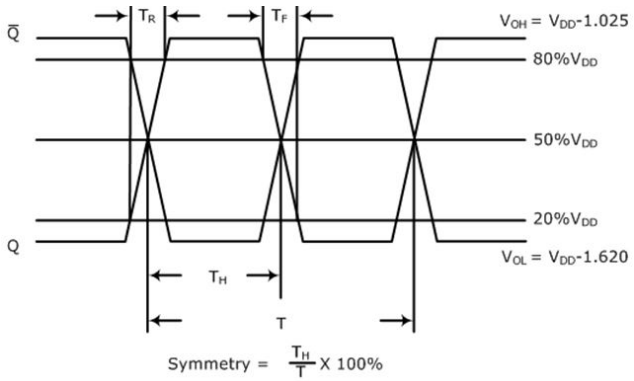


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	Vcc

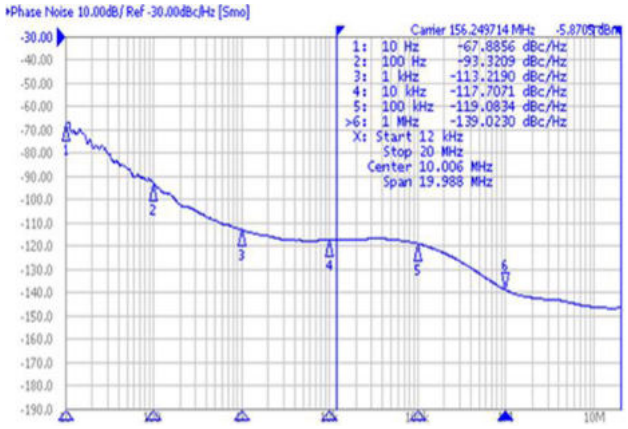
Test Circuit (LVPECL)



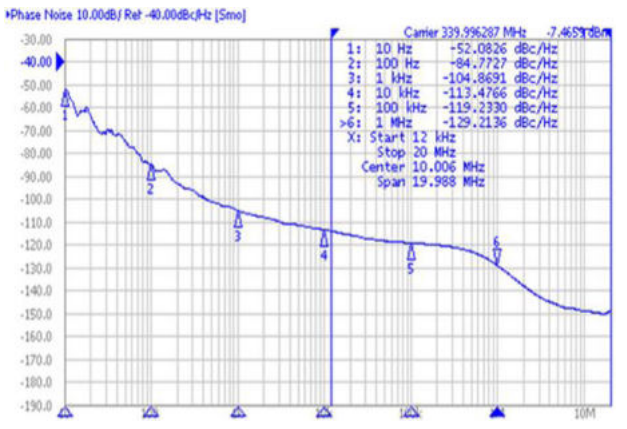
Waveform (LVPECL)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 340.000MHz

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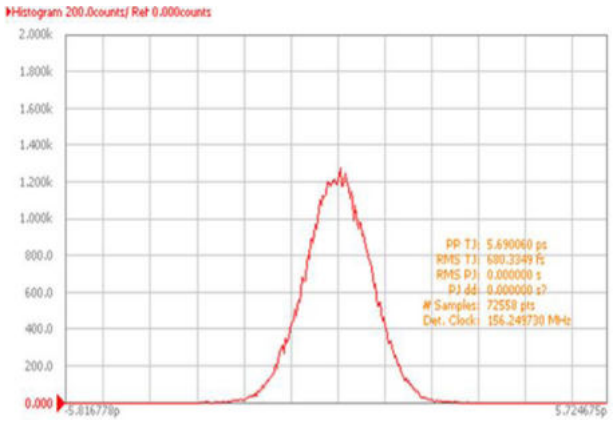
SUNTSU

Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

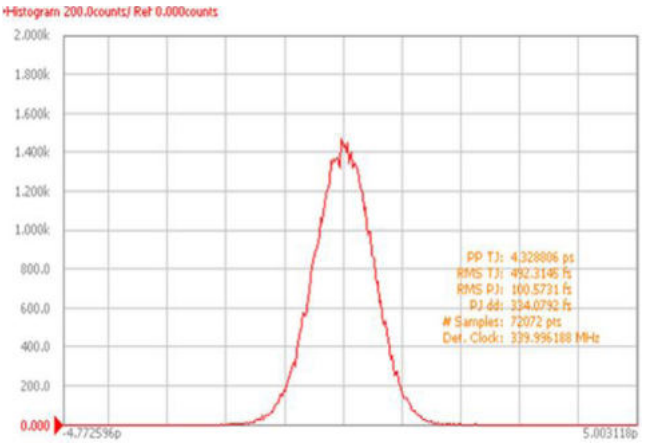
SQG53P Series

5.0mm x 3.2mm

Typical Jitter Performance (Measured By Agilent E5052A)

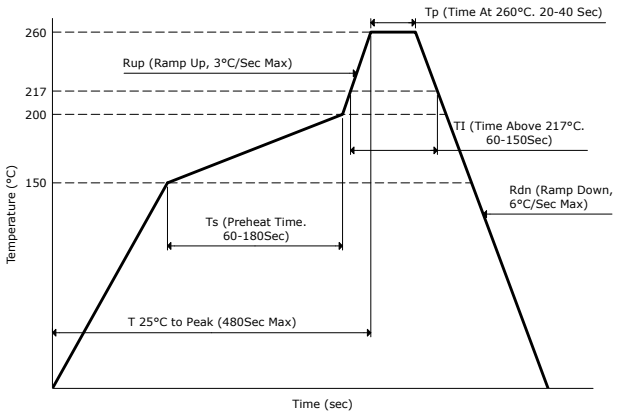


Frequency - 156.250MHz

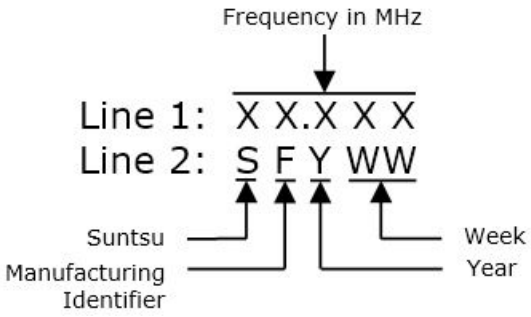


Frequency - 340.000MHz

Reflow Profile



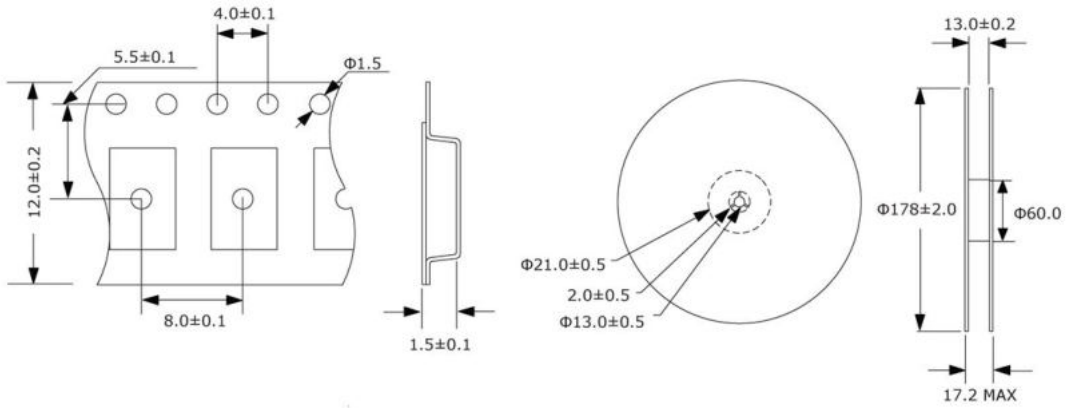
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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Specifications are subject to change without notice.

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142 TECHNOLOGY DR., SUITE 150
IRVINE, CA 92618

Call: +1-949-783-7300 | Fax: +1-949-783-7301

Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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IRVINE, CA 92618

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SUNTSU

Ceramic SMD Quick Turn 6 Pad CMOS Oscillator

SQG75C Series

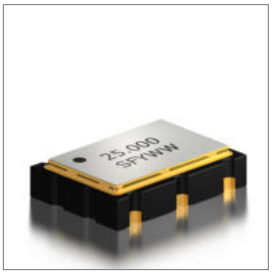
7.0mm x 5.0mm

Features

- ±20ppm (Frequency Stability) Available
- Wide Frequency Range
- CMOS
- Programmed Oscillator
- Tape and Reel

Applications

- Micro Processors
- FPGA
- Storage Area/Networking
- Digital Video
- Portable Computers



Part Numbering Guide

SQG 75 C 3 A 48 1 - 25.000M

- **SUNTSU QUICK TURN OSC**
- **7.0mm x 5.0mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		250	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			35	
Current (I_{DD}) - 3.3V option	mA			45	
Output Load (CMOS)	pF			15	
Output Logic Levels High (V_{OH})	V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})	V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	ns			3	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps			1	

Suntsu Electronics, Inc.
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SUNTSU

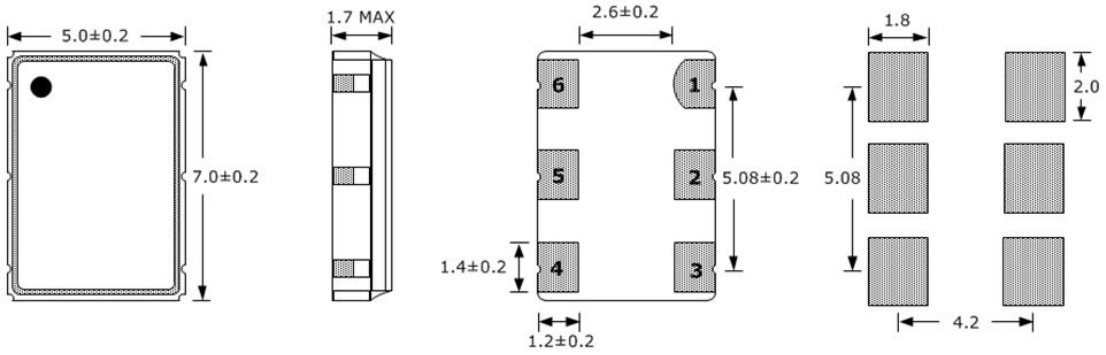
Ceramic SMD Quick Turn 6 Pad CMOS Oscillator

SQG75C Series

7.0mm x 5.0mm

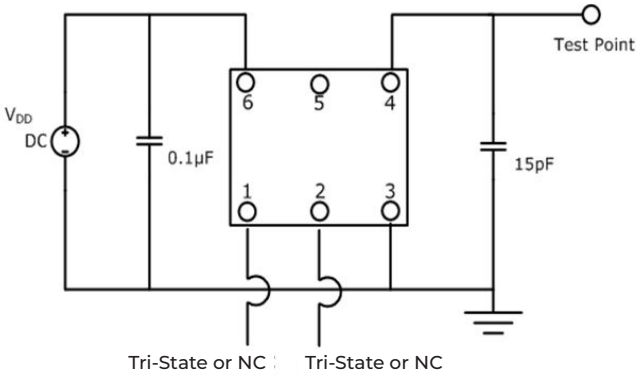
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

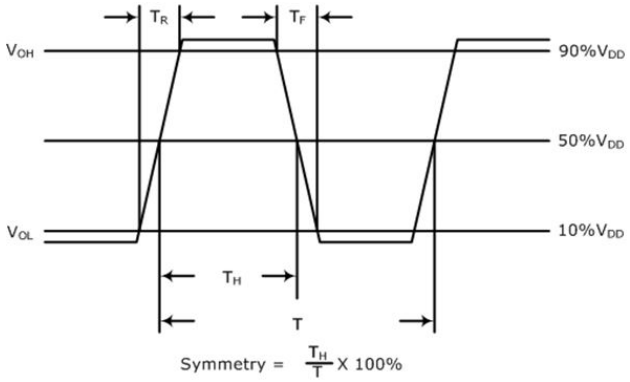


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	NC
6	V_{DD}

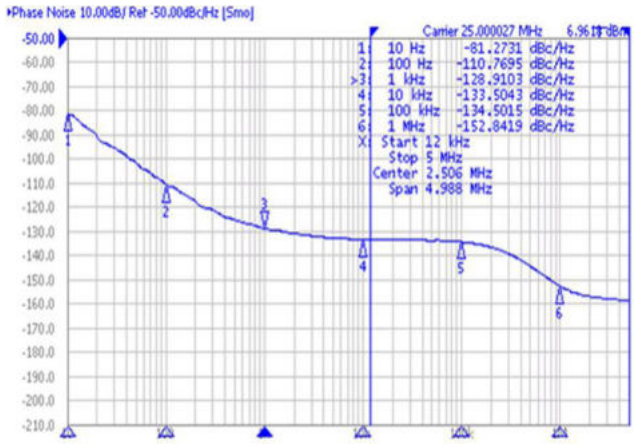
Test Circuit (CMOS)



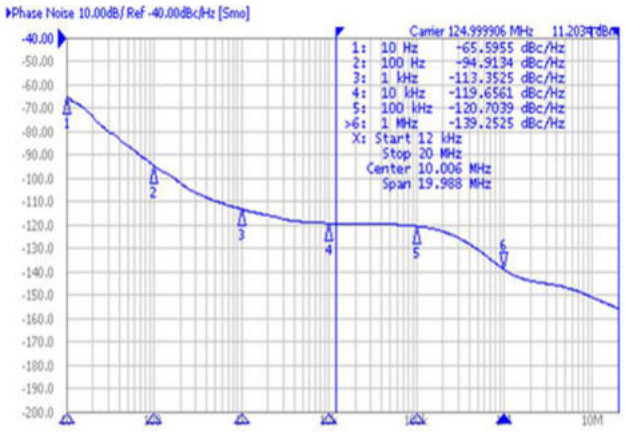
Waveform (CMOS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 25.000MHz



Frequency - 125.000MHz

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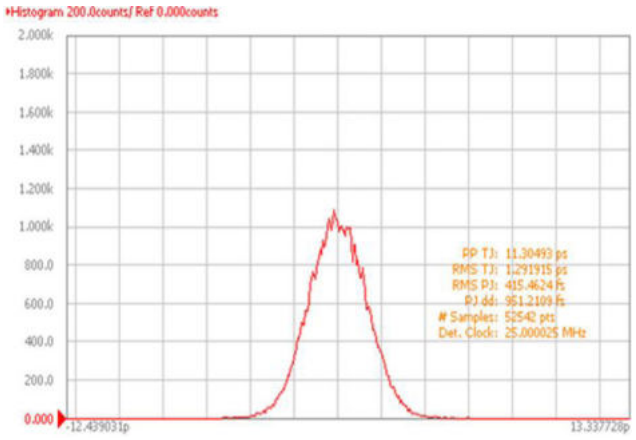
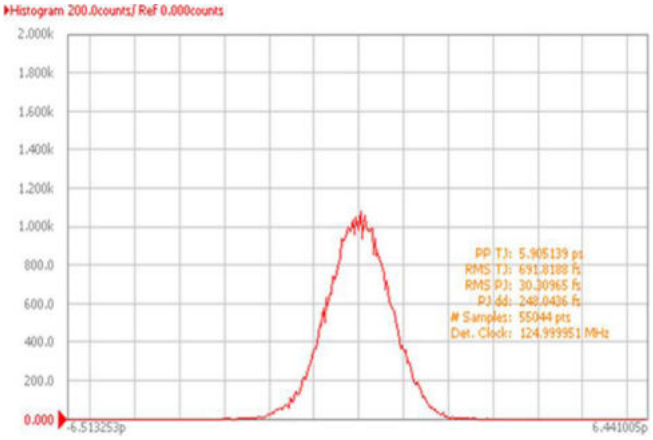
Typical Jitter Performance (Measured By Agilent E5052A)

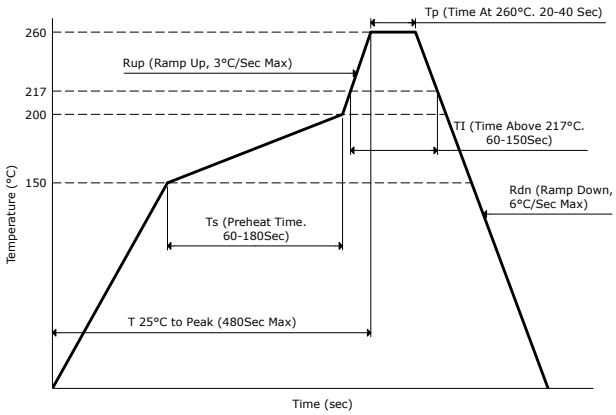


Frequency - 25.000MHz

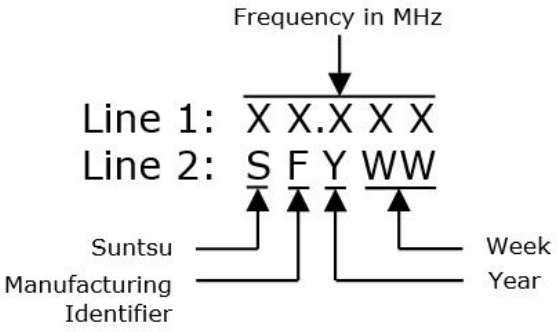


Frequency - 125.000MHz

Reflow Profile



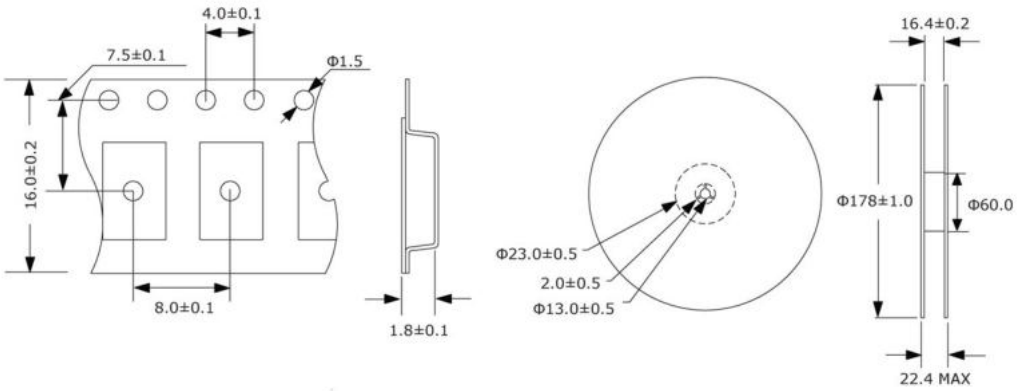
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 6 Pad LVDS Oscillator

SQG75L Series

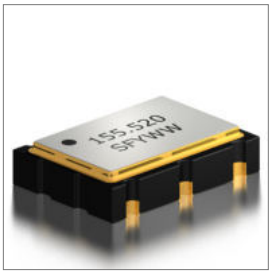
7.0mm x 5.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVDS
- Programmed Oscillator
- Tape and Reel

Applications

- Micro Processors
- FPGA
- Storage Area/Networking
- Digital Video
- SONET/SDH



Part Numbering Guide

SQG 75 L 3 A 48 1 - 155.520M

- **SUNTSU QUICK TURN OSC**
- **7.0mm x 5.0mm**
- **LVDS**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		1500	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			50	
Current (I_{DD}) - 3.3V option	mA			60	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	330	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV			50	
Rise (TR) and Fall (TF) Time	ns			1	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.7	1.5	

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SUNTSU

Ceramic SMD Quick Turn 6 Pad LVDS Oscillator

SQG75L Series

7.0mm x 5.0mm

Outline Drawing & Land Pattern

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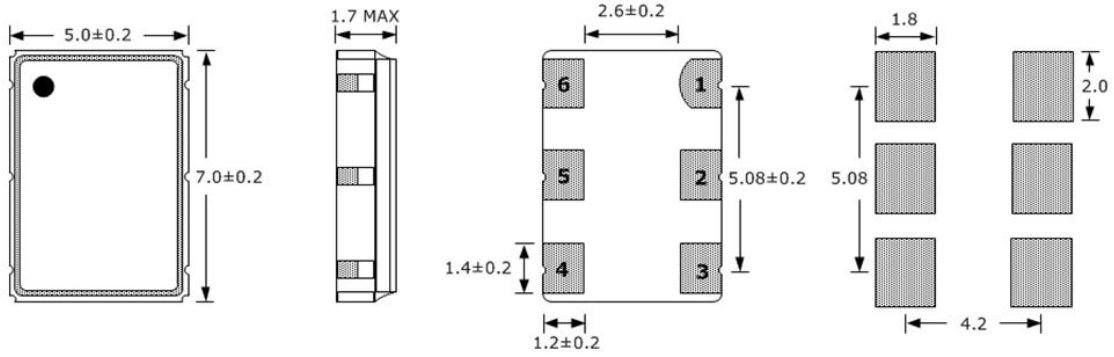
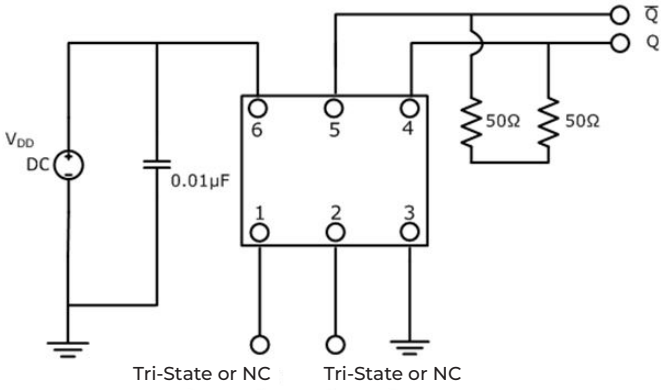
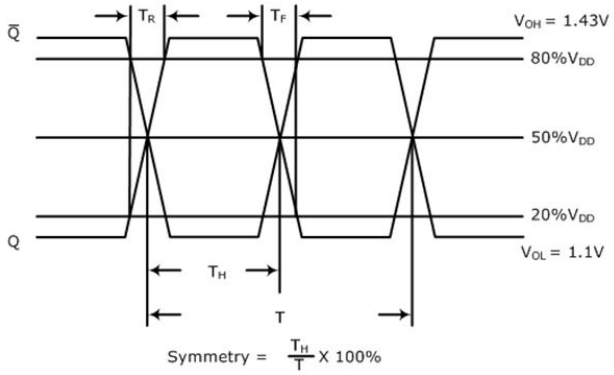


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

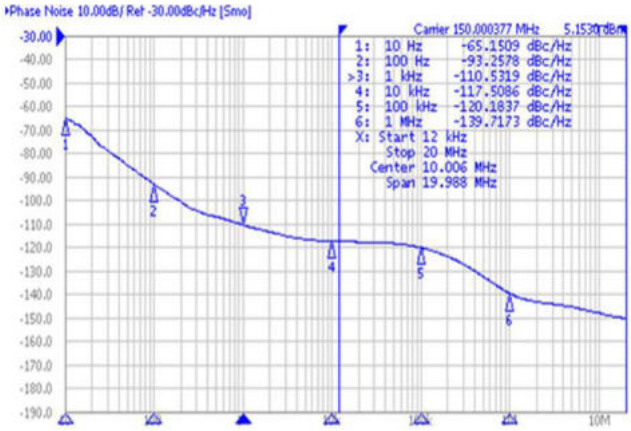
Test Circuit (LVDS)



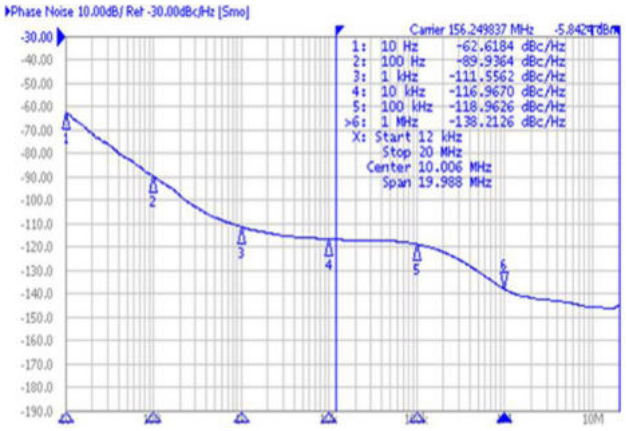
Waveform (LVDS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 150.000MHz



Frequency - 156.250MHz

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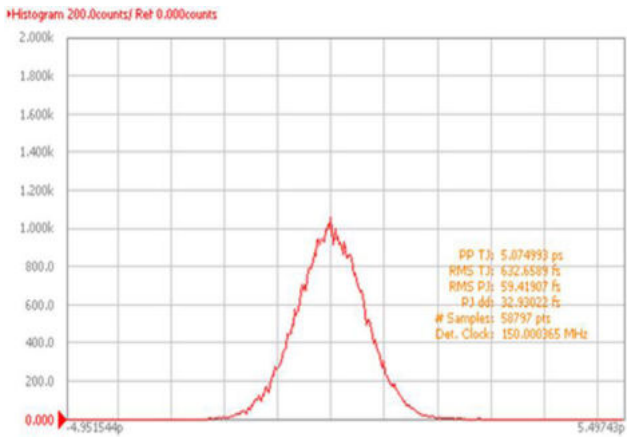
SUNTSU

Ceramic SMD Quick Turn 6 Pad LVDS Oscillator

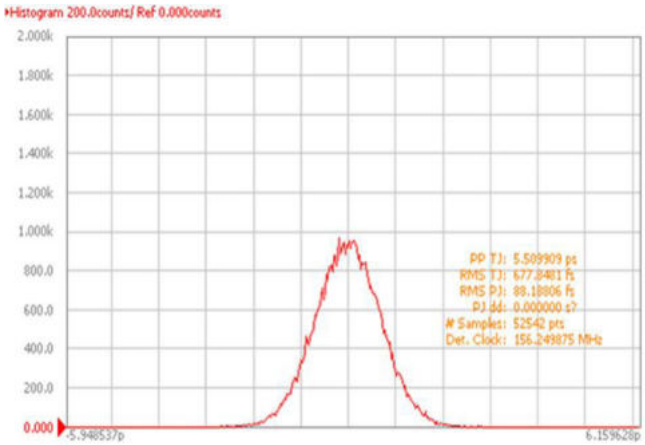
SQG75L Series

7.0mm x 5.0mm

Typical Jitter Performance (Measured By Agilent E5052A)

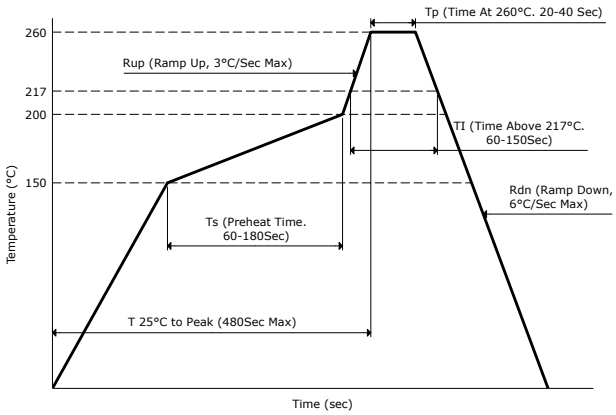


Frequency - 150.000MHz

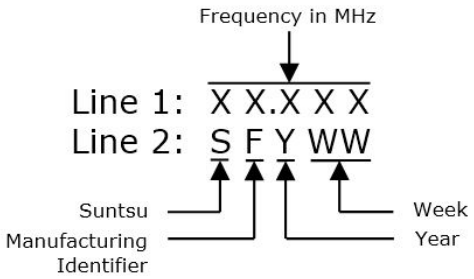


Frequency - 156.250MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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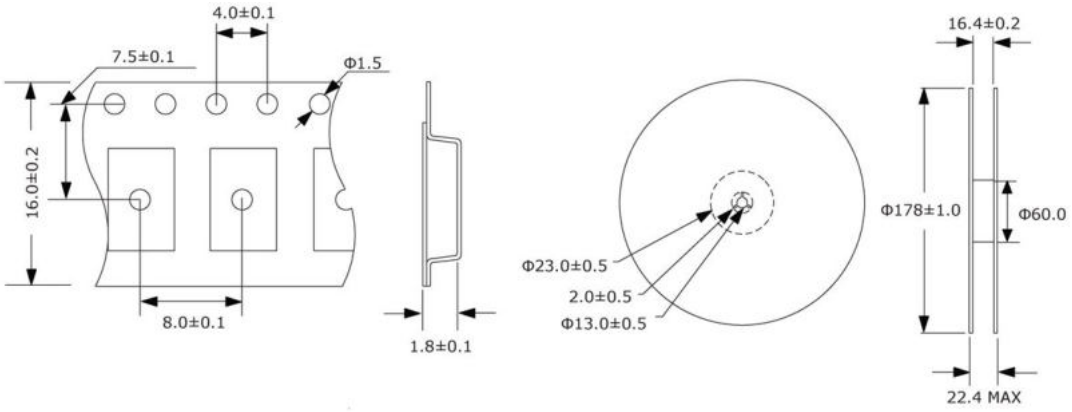
1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

SQG75P Series

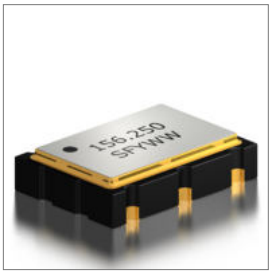
7.0mm x 5.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVPECL
- Programmed Oscillator
- Tape and Reel

Applications

- Micro Processors
- FPGA
- Storage Area/Networking
- Digital Video
- SONET/SDH



Part Numbering Guide

SQG 75 P 3 A 48 1 - 156.250M

- **SUNTSU QUICK TURN OSC**
- **7.0mm x 5.0mm**
- **LVPECL**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY** MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	8		1500	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			65	
Current (I_{DD}) - 3.3V option	mA			70	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH})	V	V_{DD}-1.025			
Output Logic Levels Low (V_{OL})	V			V_{DD}-1.620	
Rise (TR) and Fall (TF) Time	ns			1	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.7	1.5	

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SUNTSU

Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

SQG75P Series

7.0mm x 5.0mm

Outline Drawing & Land Pattern

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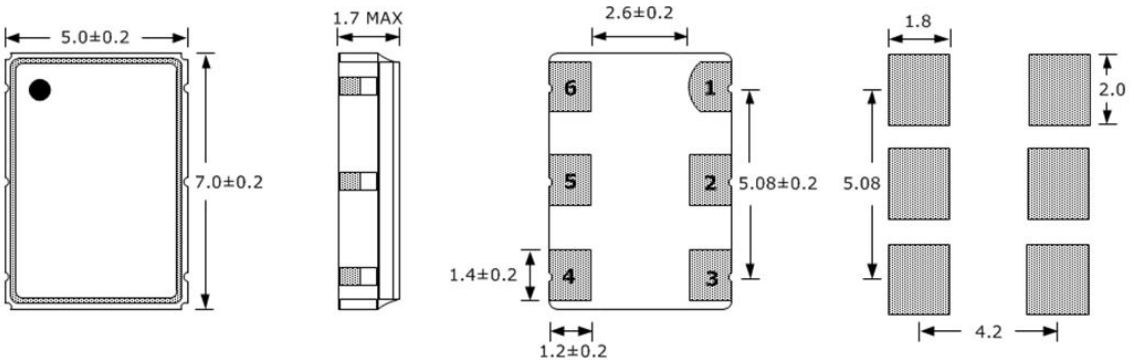
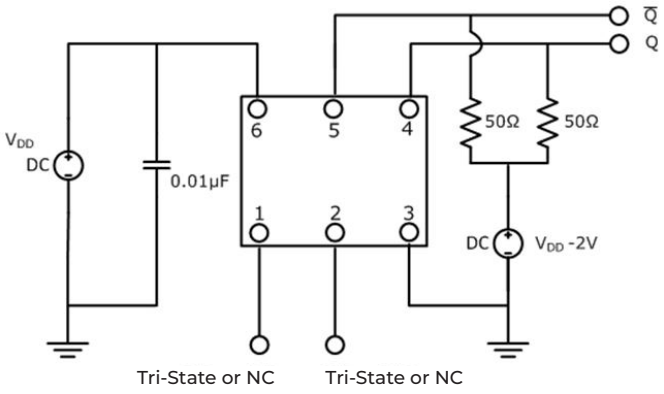
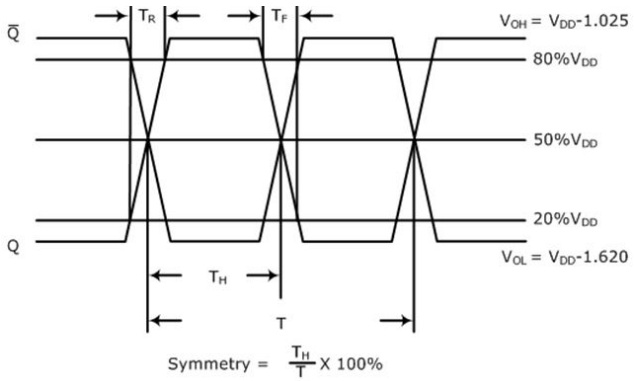


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

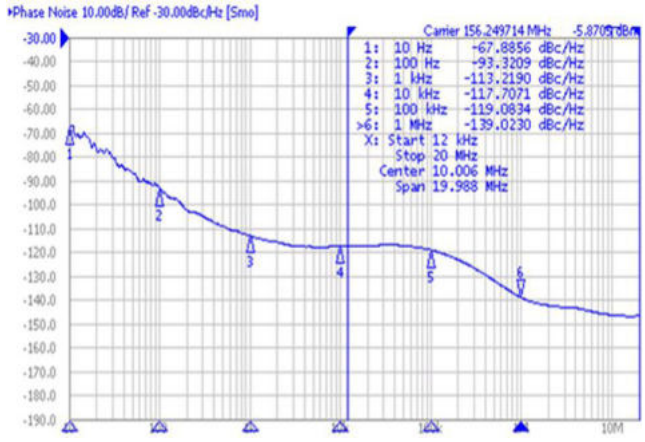
Test Circuit (LVPECL)



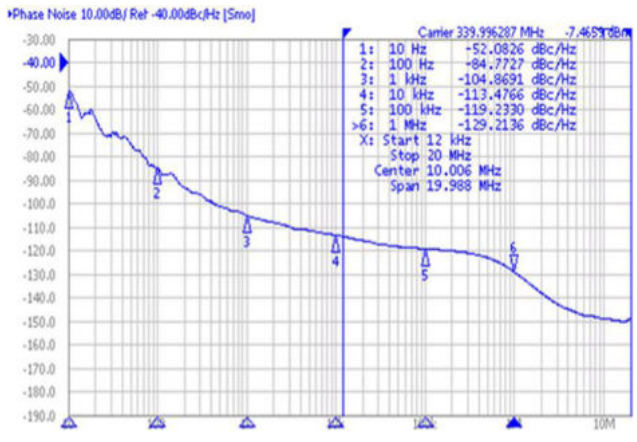
Waveform (LVPECL)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 340.000MHz

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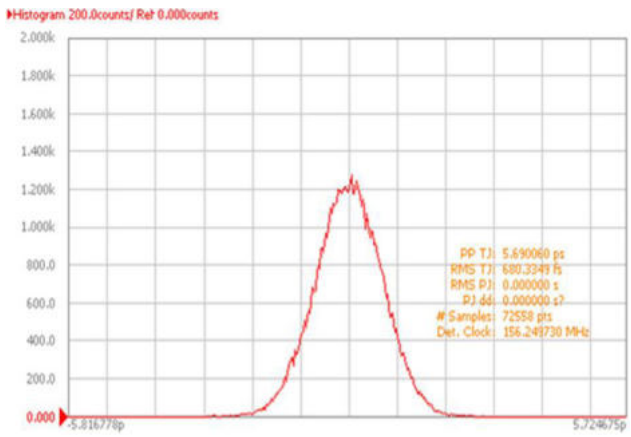
SUNTSU

Ceramic SMD Quick Turn 6 Pad LVPECL Oscillator

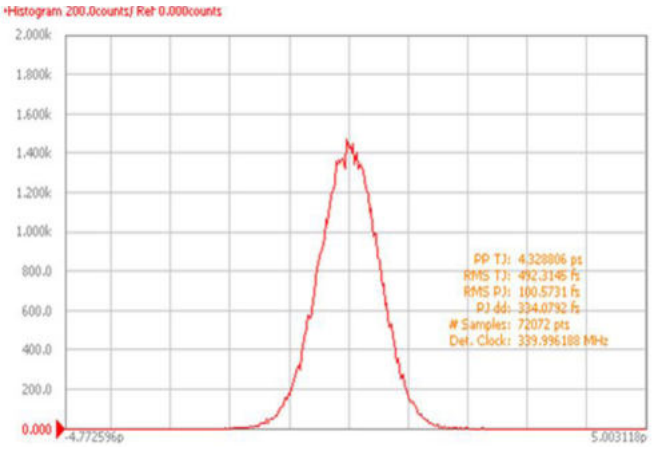
SQG75P Series

7.0mm x 5.0mm

Typical Jitter Performance (Measured By Agilent E5052A)

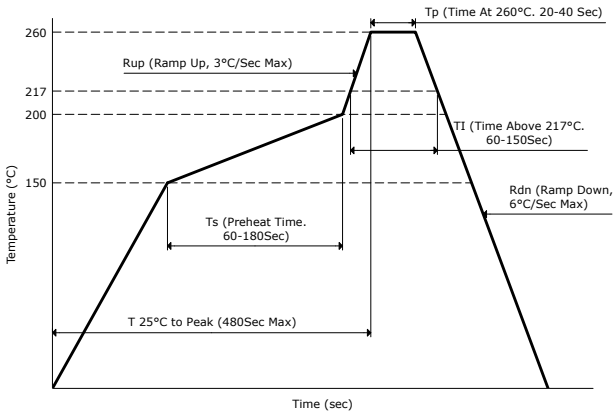


Frequency - 156.250MHz

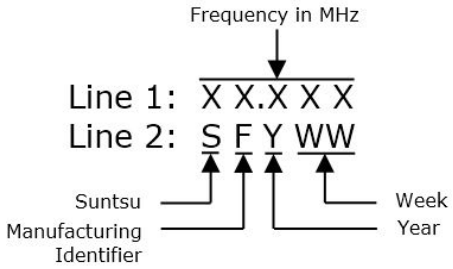


Frequency - 340.000MHz

Reflow Profile



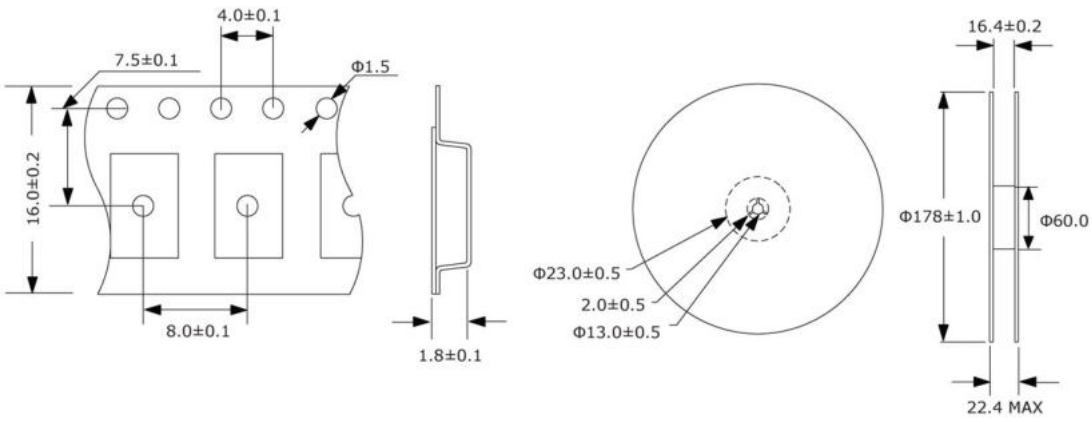
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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Specifications are subject to change without notice.

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IRVINE, CA 92618

Call: +1-949-783-7300 | Fax: +1-949-783-7301

Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Ultra Low Jitter 6 Pad LVDS Oscillator

SUO22L Series

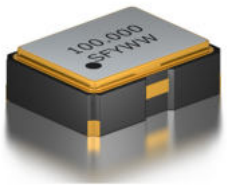
2.5mm x 2.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVDS
- Tape and Reel
- Ultra Low Phase Jitter

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SUO 22 L 3 A 48 1 - 100.000M

- **SUO** — SUNTSU ULTRA LOW JITTER OSC
- **22** — 2.5mm x 2.0mm
- **L** — LVDS
- **3** — SUPPLY VOLTAGE
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **A** — FREQUENCY STABILITY
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **48** — OPERATING TEMPERATURE RANGE
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **1** — TRI-STATE (ENABLE/DISABLE)
  - 1 : Pin 1
  - 2 : Pin 2
- **100.000M** — FREQUENCY MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	13.5		156.25	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V Option	V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD}) - 1.8V Option	mA			40	
Current (I_{DD}) - 2.5V Option	mA			40	
Current (I_{DD}) - 3.3V Option	mA			40	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	330	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV			50	
Rise (TR) and Fall (TF) Time	ns			1	20% - 80% Output Swing Level
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 5MHz)	ps		0.6	1.0	Freq. <40.000M
Phase Jitter (12kHz ~ 20MHz)	ps		0.4	0.8	Freq. 40.000M - 124.999M
Phase Jitter (12kHz ~ 20MHz)	ps		0.1	0.2	Freq. 125.000M - 156.250M

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SUNTSU

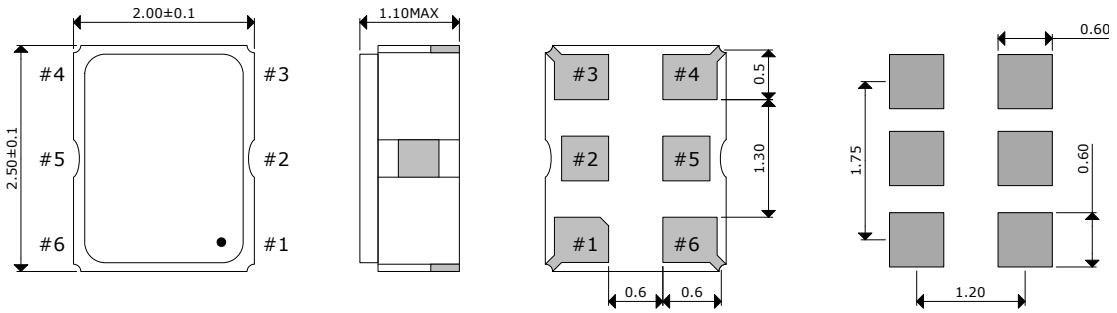
Ceramic SMD Ultra Low Jitter 6 Pad LVDS Oscillator

SUO22L Series

2.5mm x 2.0mm

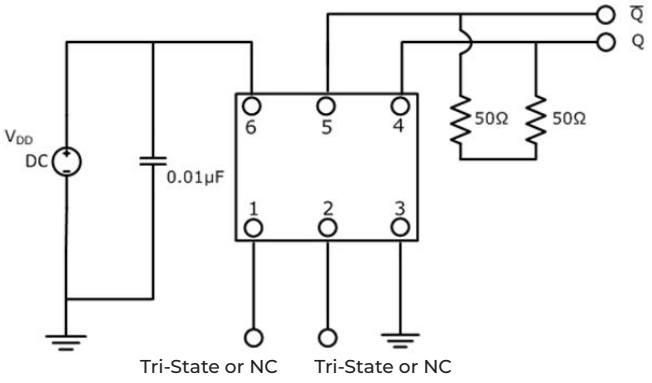
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

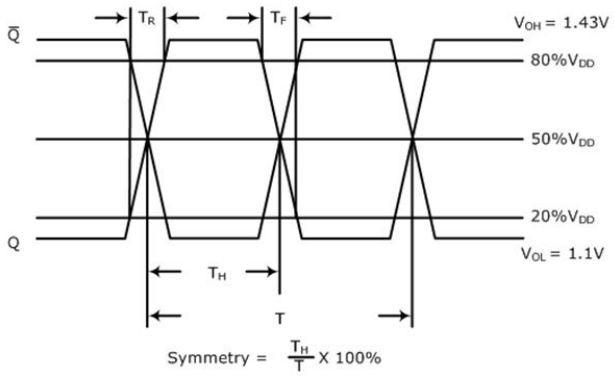


PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

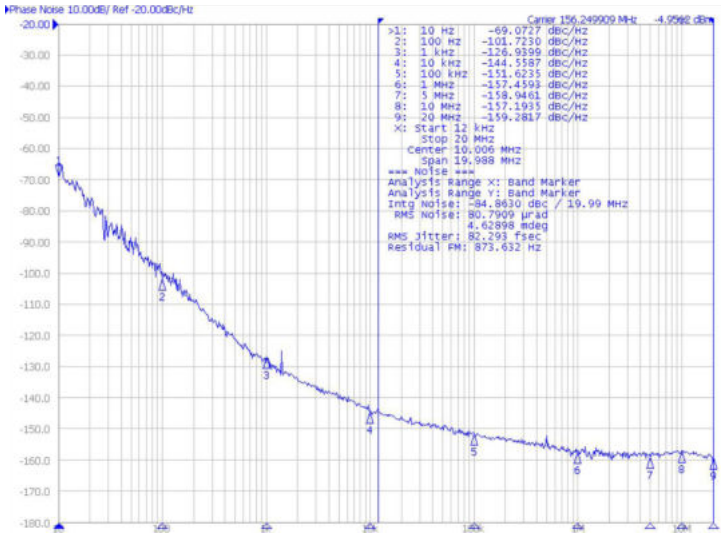
Test Circuit (LVDS)



Waveform (LVDS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz

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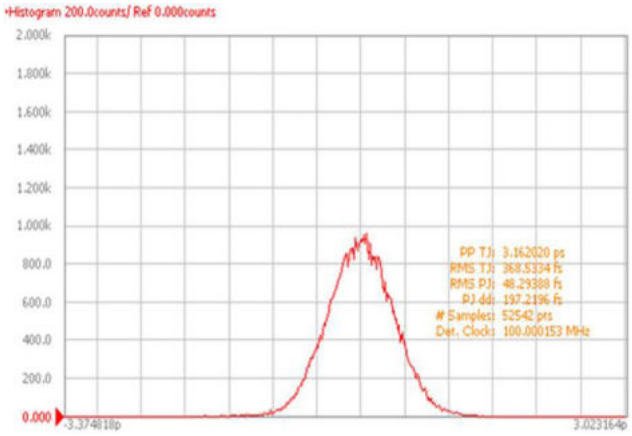
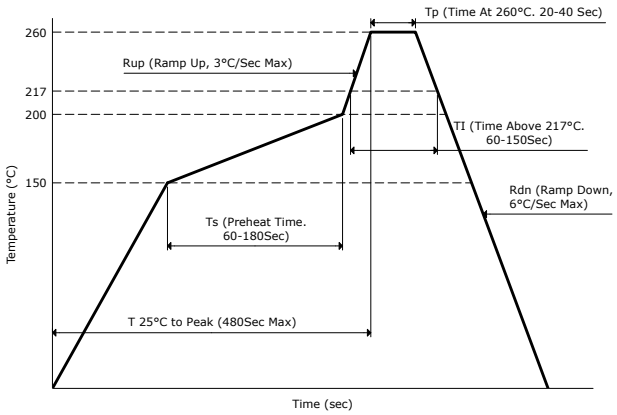
Typical Jitter Performance (Measured By Agilent E5052A)

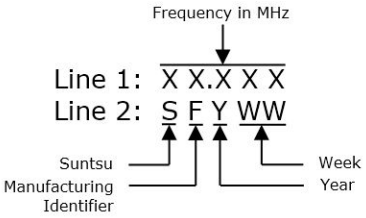


Frequency - 100.000MHz

Reflow Profile



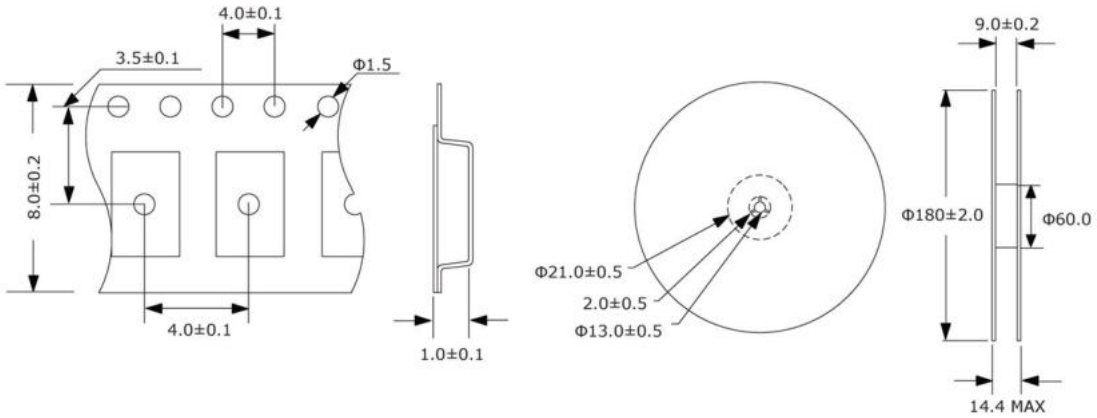
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

3,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Ultra Low Jitter 6 Pad LVPECL Oscillator

SUO22P Series

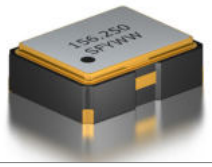
2.5mm x 2.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVPECL
- Tape and Reel
- Ultra Low Phase Jitter

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SUO 22 P 3 A 48 1 - 156.250M

- **SUO** — SUNTSU ULTRA LOW JITTER OSC
- **22** — 2.5mm x 2.0mm
- **P** — LVPECL
- **3** — SUPPLY VOLTAGE
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **A** — FREQUENCY STABILITY
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **48** — OPERATING TEMPERATURE RANGE
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **1** — TRI-STATE (ENABLE/DISABLE)
  - 1 : Pin 1
  - 2 : Pin 2
- **156.250M** — FREQUENCY MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	13.5		156.25	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			50	
Current (I_{DD}) - 3.3V option	mA			50	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH})	V	V_{DD}-1.025			
Output Logic Levels Low (V_{OL})	V			V_{DD}-1.62	
Rise (TR) and Fall (TF) Time	ns			1.0	
Symmetry (Duty Cycle)	%	45	50	55	20% - 80% Output Swing Level
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 5MHz)	ps		0.6	1.0	Freq. <40.000M
Phase Jitter (12kHz ~ 20MHz)	ps		0.4	0.8	Freq. 40.000M - 124.999M
Phase Jitter (12kHz ~ 20MHz)	ps		0.1	0.2	Freq. 125.000M - 156.250M

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SUNTSU

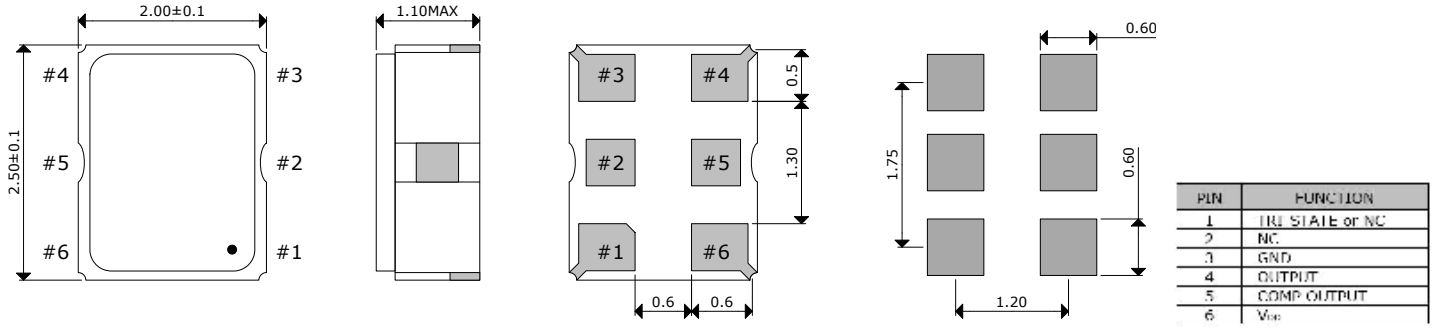
Ceramic SMD Ultra Low Jitter 6 Pad LVPECL Oscillator

SUO22P Series

2.5mm x 2.0mm

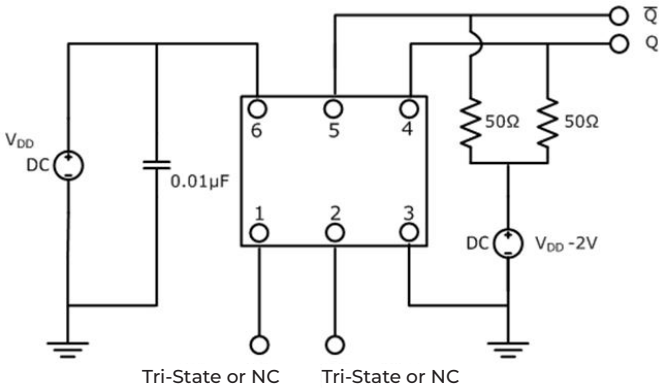
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

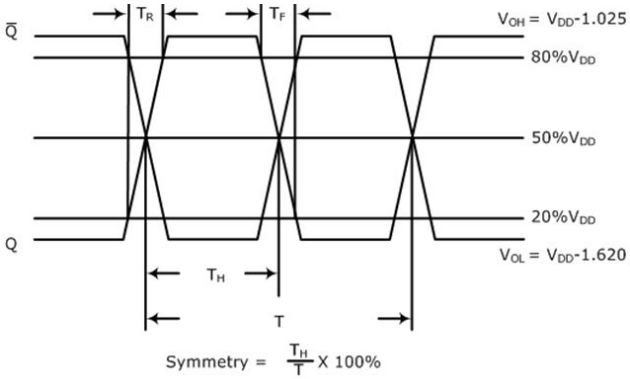


PIN	FUNCTION
1	TRI STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

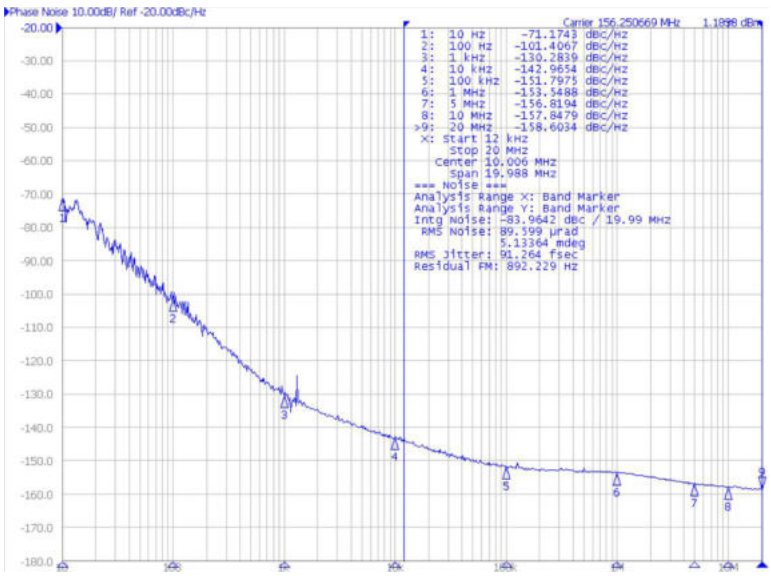
Test Circuit (LVPECL)



Waveform (LVPECL)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz

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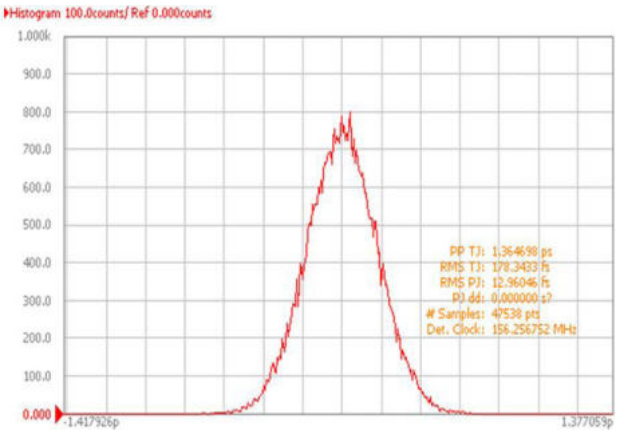
SUO22P Series

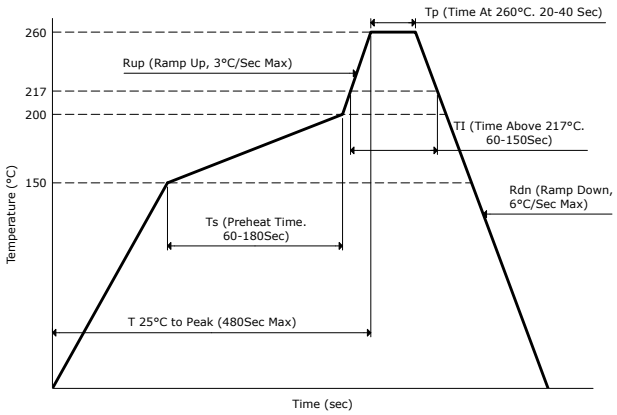
2.5mm x 2.0mm

Typical Jitter Performance (Measured By Agilent E5052A)

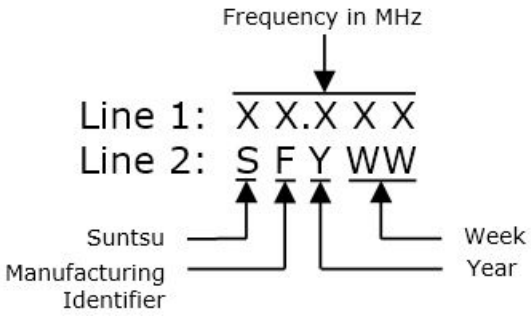


Frequency - 156.250MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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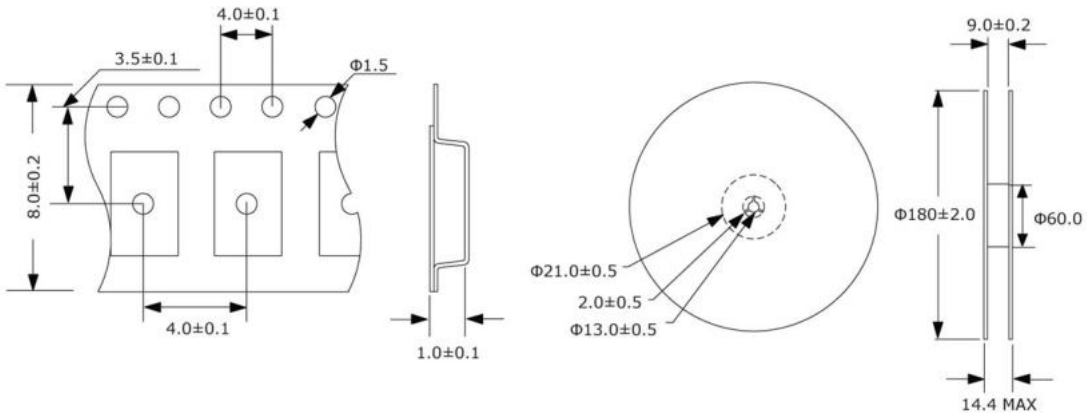
3,000pcs/Reel



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Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Ultra Low Jitter 6 Pad LVDS Oscillator

SUO32L Series

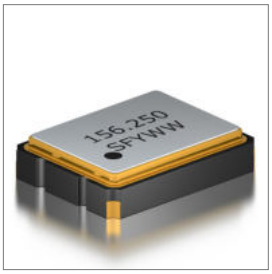
3.2mm x 2.5mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVDS
- Ultra Low Phase Jitter (67fs Typical)
- Tape and Reel
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SUO 32 L 3 A 48 1 - 156.250M

- **SUNTSU ULTRA LOW JITTER OSC**
- **3.2mm x 2.5mm**
- **LVDS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		320	135~175MHz(1.8V), 100~320MHz(2.5&3.3V)
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V Option	V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})	mA			35	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	350	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV			50	
Rise (TR) and Fall (TF) Time	ns		0.25	0.5	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5.0	
Phase Jitter (12kHz ~ 20MHz)	fs		67	100	

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SUNTSU

Ceramic SMD Ultra Low Jitter 6 Pad LVDS Oscillator

SUO32L Series

3.2mm x 2.5mm

Outline Drawing & Land Pattern

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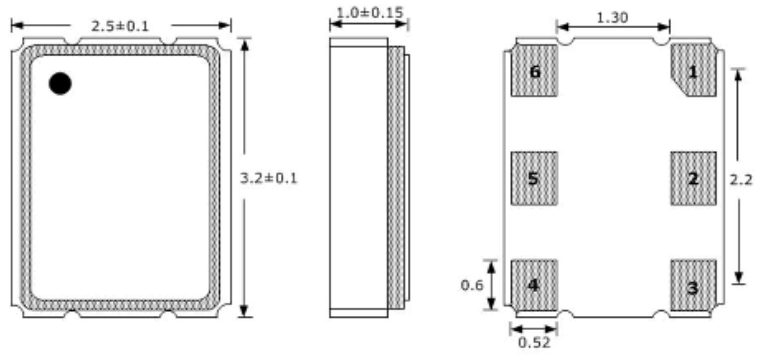
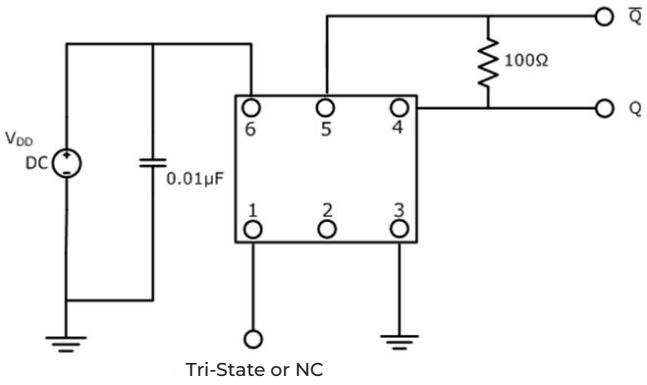


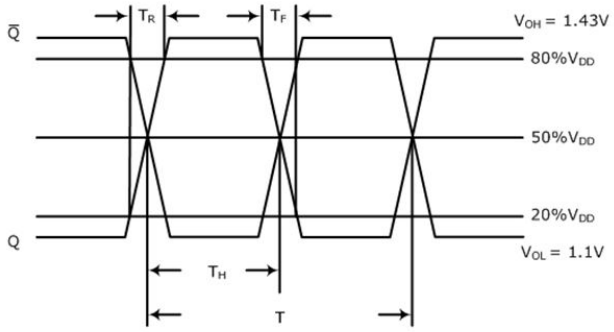
PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVDS)



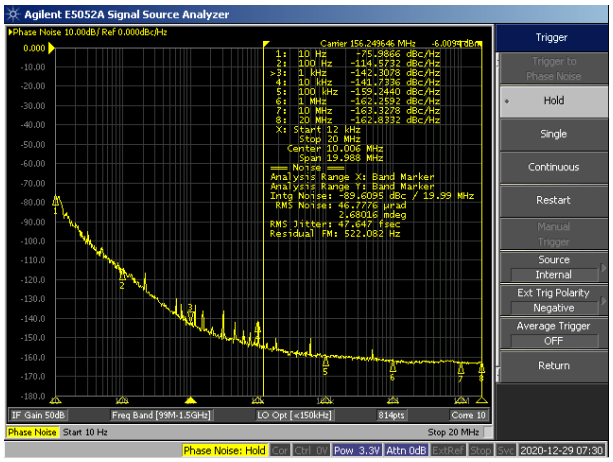
Tri-State or NC

Waveform (LVDS)

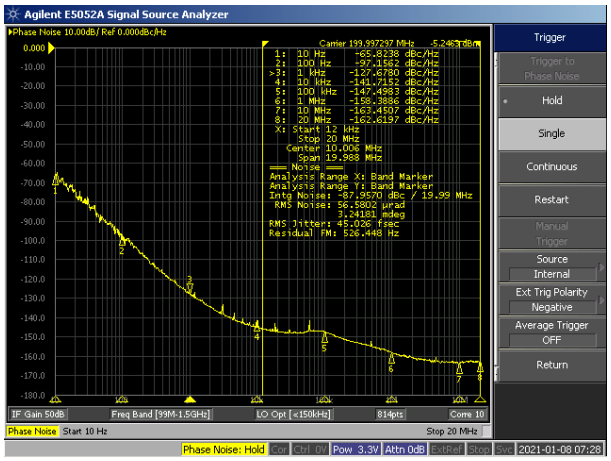


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 200.000MHz

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Specifications are subject to change without notice.

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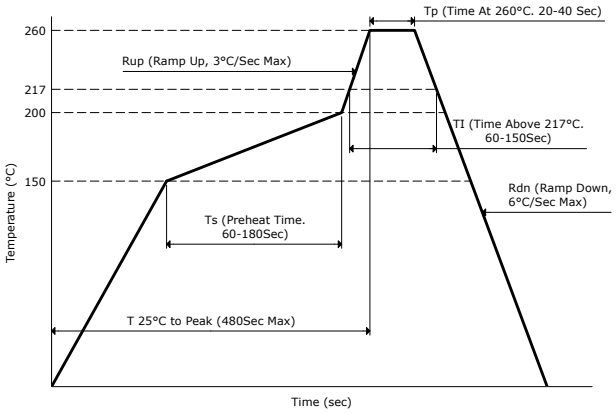
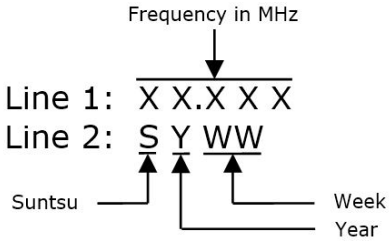
Reflow Profile



Part Marking



Tape And Reel Dimensions

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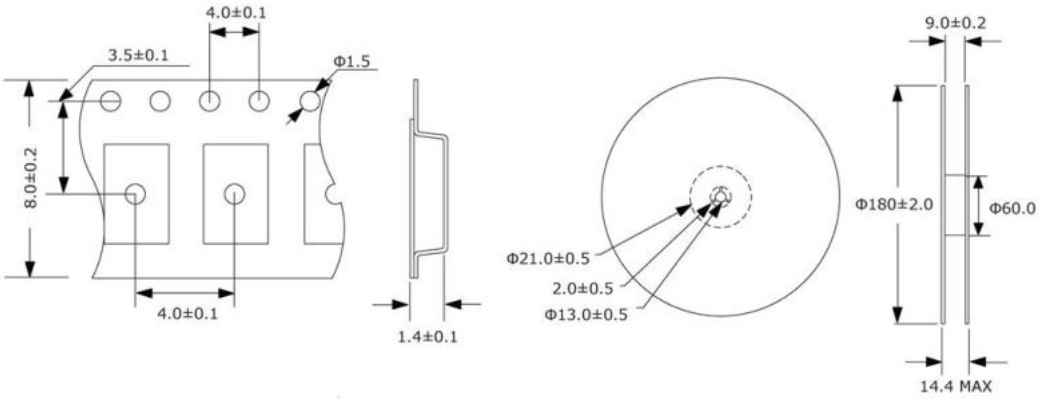
3,000pcs/Reel



Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Ultra Low Jitter 6 Pad LVPECL Oscillator

SUO32P Series

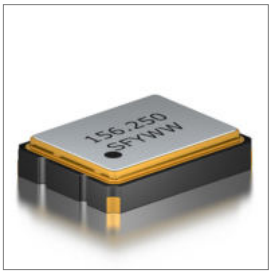
3.2mm x 2.5mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVPECL
- Ultra Low Phase Jitter (47fs Typical)
- Tape and Reel
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SUO 32 P 3 A 48 1 - 156.250M

- **SUNTSU ULTRA LOW JITTER OSC**
- **3.2mm x 2.5mm**
- **LVPECL**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		320	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})	mA			70	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH} at 2.5V)	V	1.415		1.760	
Output Logic Levels Low (V_{OL} at 2.5V)	V	0.670		1.195	
Output Logic Levels High (V_{OH} at 3.3V)	V	2.215		2.420	
Output Logic Levels Low (V_{OL} at 3.3V)	V	1.470		1.745	
Rise (TR) and Fall (TF) Time	ns		0.15	0.3	Measured at 20% to 80% of Waveform
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5	
Phase Jitter (12kHz ~ 20MHz)	fs		47	100	

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SUNTSU

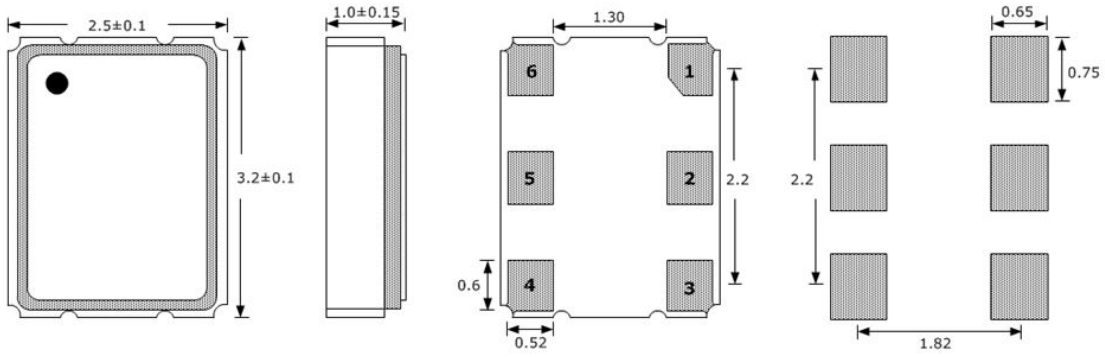
Ceramic SMD Ultra Low Jitter 6 Pad LVPECL Oscillator

SUO32P Series

3.2mm x 2.5mm

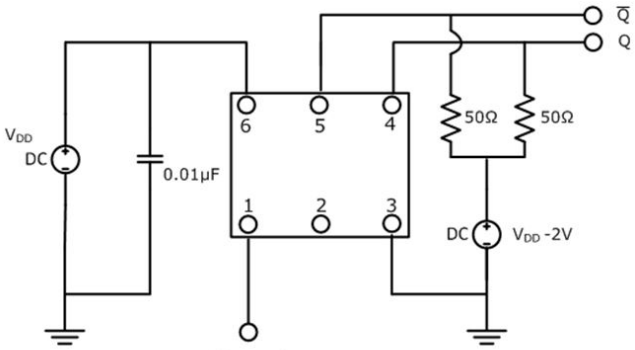
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.



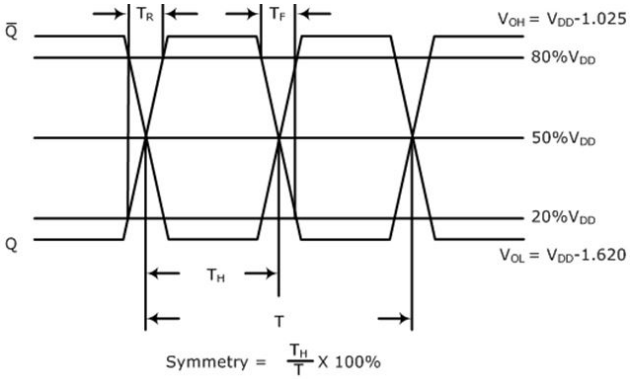
PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVPECL)



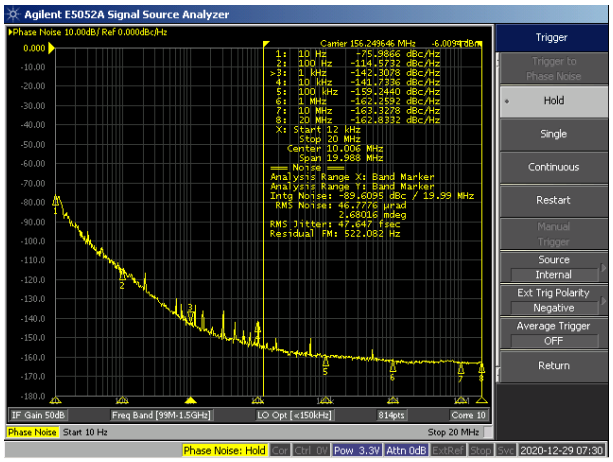
Tri-State or NC

Waveform (LVPECL)

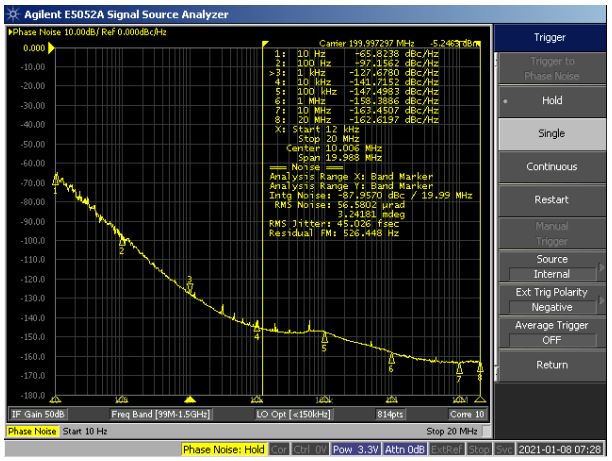


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 200.000MHz

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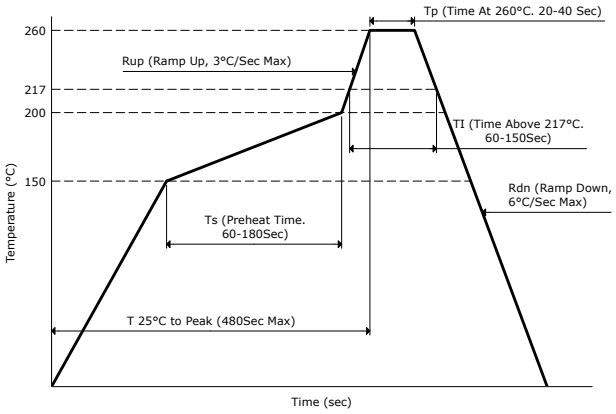
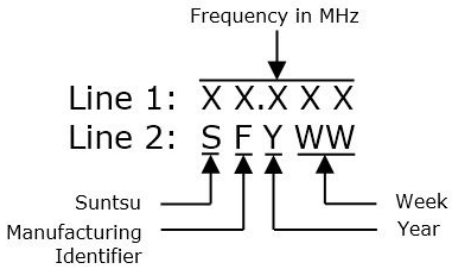
Reflow Profile



Part Marking



Tape And Reel Dimensions

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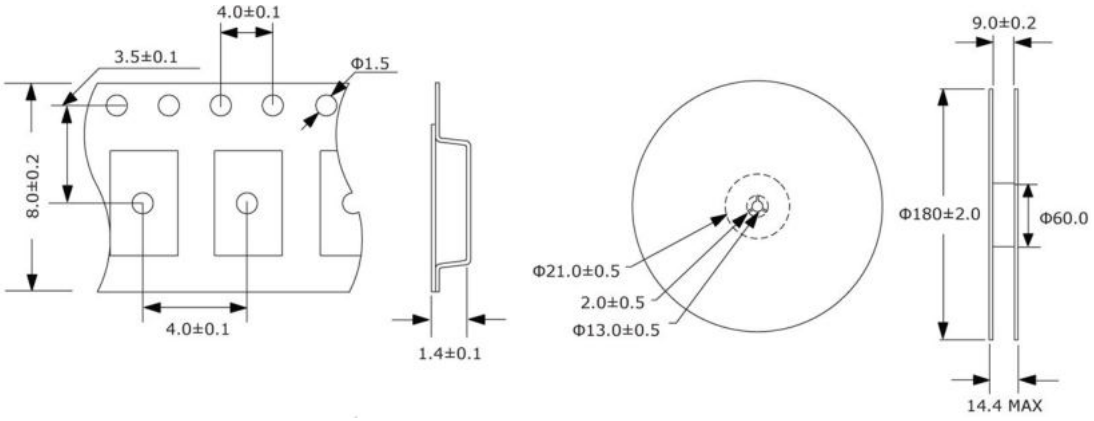
3,000pcs/Reel



Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
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Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Ultra Low Jitter 6 Pad LVDS Oscillator

SUO53L Series

5.0mm x 3.2mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVDS
- Ultra Low Phase Jitter (67fs Typical)
- Tape and Reel
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express

Part Numbering Guide

SUO 53 L 3 A 48 1 - 156.250M

- **SUNTSU ULTRA LOW JITTER OSC**
- **5.0mm x 3.2mm**
- **LVDS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
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  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		320	135~175MHz(1.8V), 100~320MHz(2.5&3.3V)
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V Option	V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})	mA			35	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	350	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV	-50		50	
Rise (TR) and Fall (TF) Time	ns		0.25	0.5	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5.0	
Phase Jitter (12kHz ~ 20MHz)	fs		67	100	

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SUNTSU

Ceramic SMD Ultra Low Jitter 6 Pad LVDS Oscillator

SUO53L Series

5.0mm x 3.2mm

Outline Drawing & Land Pattern

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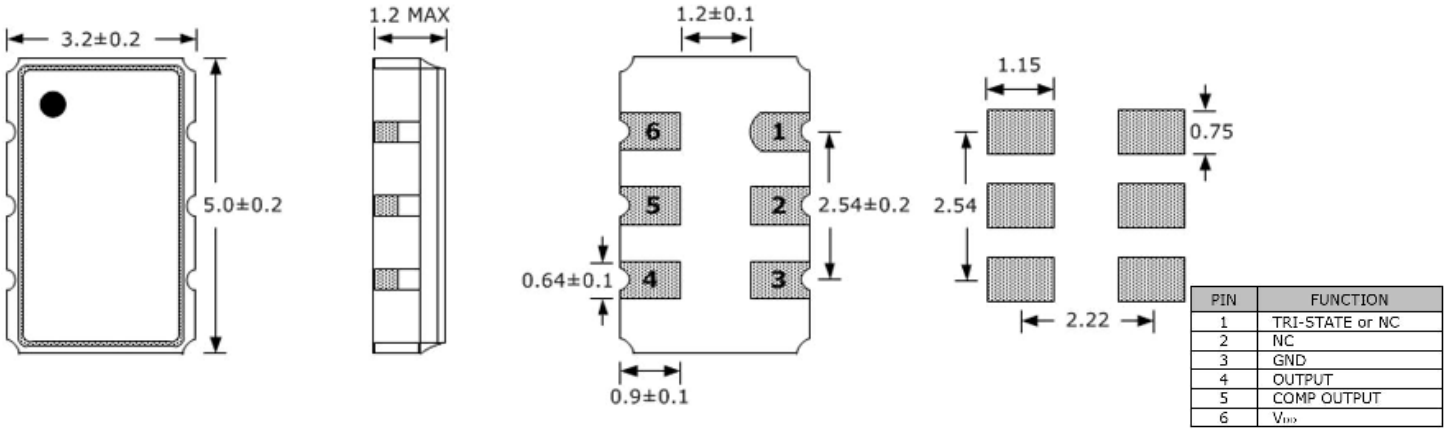
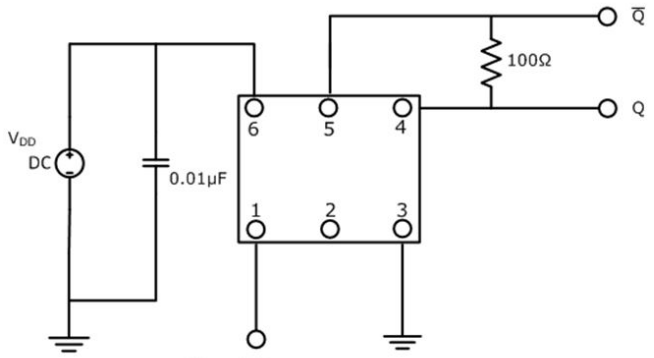


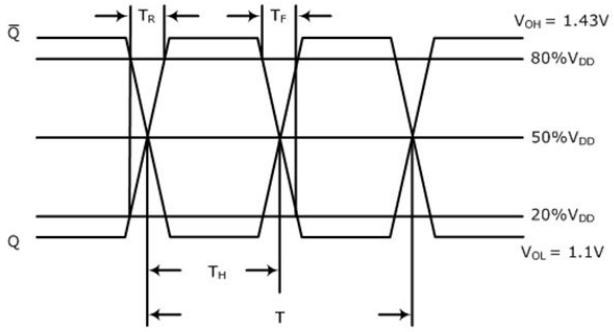
PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVDS)



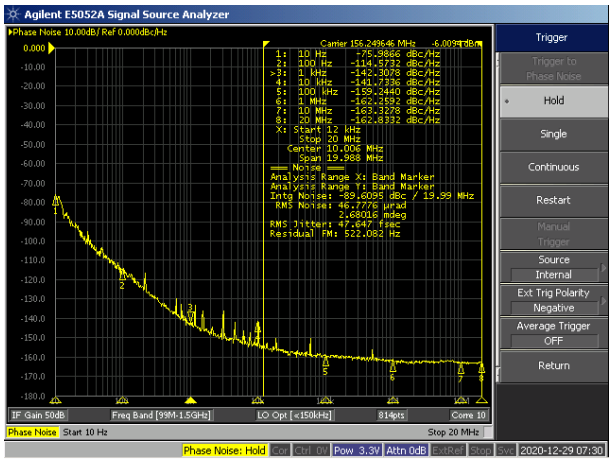
Tri-State or NC

Waveform (LVDS)

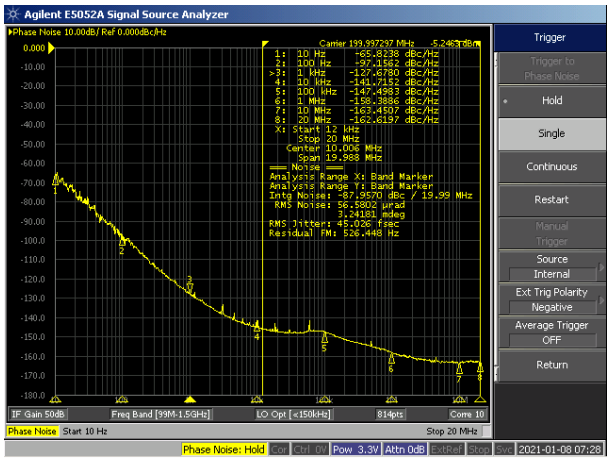


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 200.000MHz

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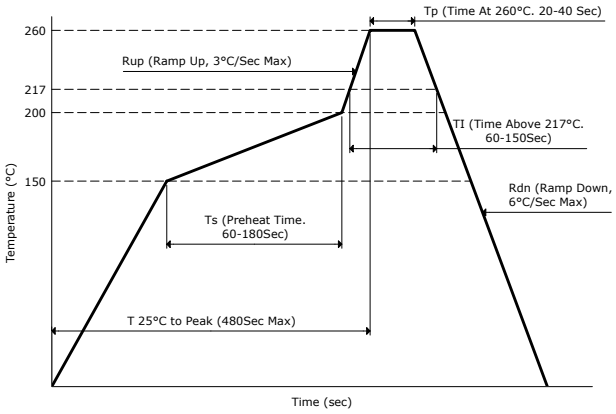
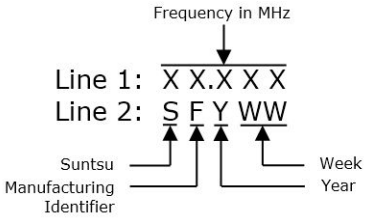
Reflow Profile



Part Marking



Tape And Reel Dimensions

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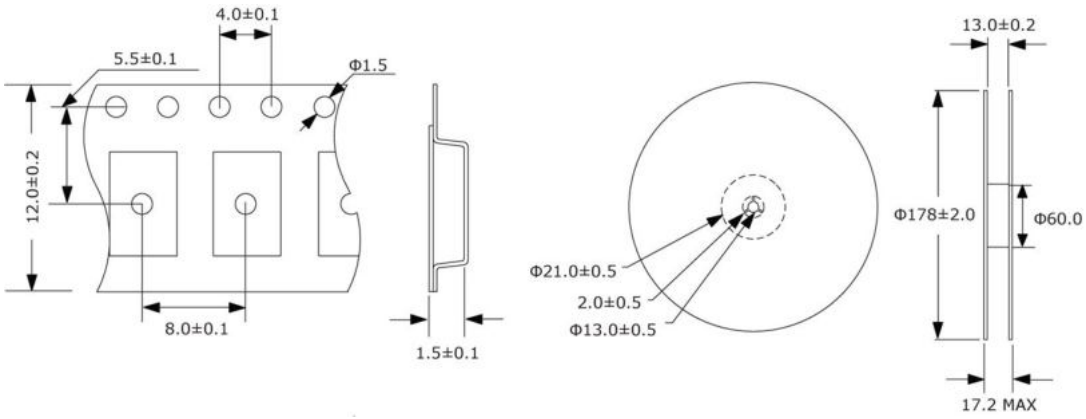
1,000pcs/Reel



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Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
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Ceramic SMD Ultra Low Jitter 6 Pad LVPECL Oscillator

SUO53P Series

5.0mm x 3.2mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVPECL
- Ultra Low Phase Jitter (47fs Typical)
- Tape and Reel
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express

Part Numbering Guide

SUO 53 P 3 A 48 1 - 156.250M

- **SUNTSU ULTRA LOW JITTER OSC**
- **5.0mm x 3.2mm**
- **LVPECL**
- **SUPPLY VOLTAGE**
  - 2 : 2.5±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

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* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		320	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})	mA			70	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH} at 2.5V)	V	1.415		1.760	
Output Logic Levels Low (V_{OL} at 2.5V)	V	0.670		1.195	
Output Logic Levels High (V_{OH} at 3.3V)	V	2.215		2.420	
Output Logic Levels Low (V_{OL} at 3.3V)	V	1.470		1.745	
Rise (TR) and Fall (TF) Time	ns		0.15	0.3	Measured at 20% to 80% of Waveform
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5	
Phase Jitter (12kHz ~ 20MHz)	fs		47	100	

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SUO53P Series

5.0mm x 3.2mm

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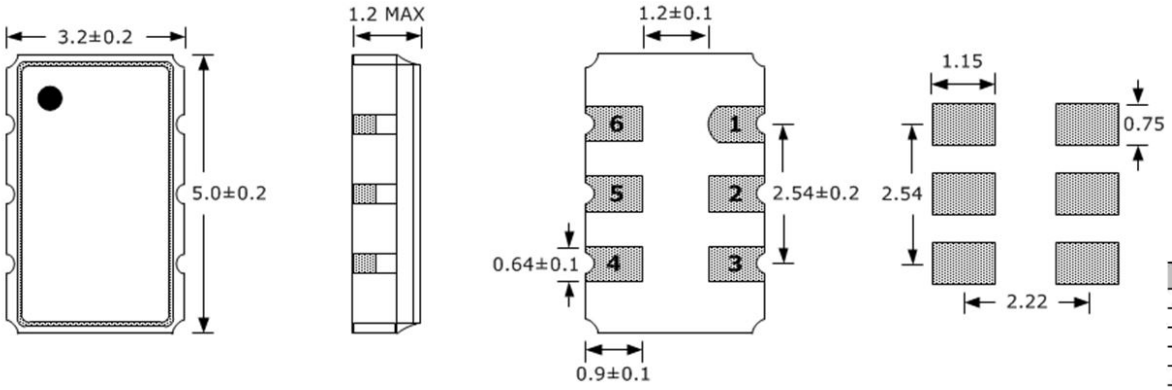
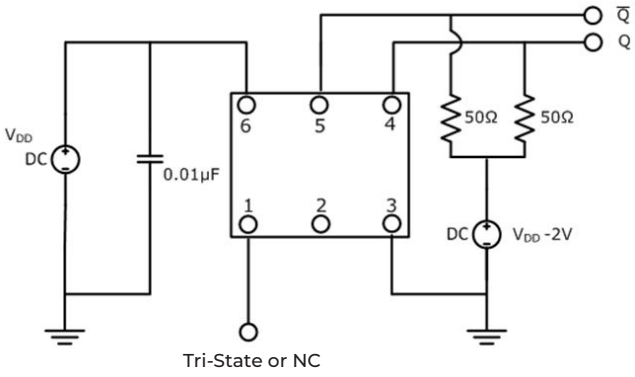


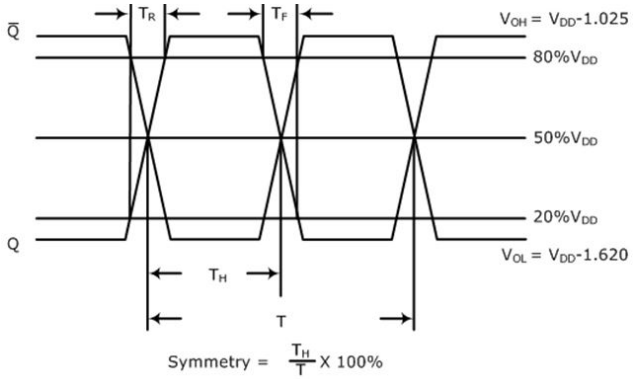
PIN	FUNCTION
1	TRI STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVPECL)



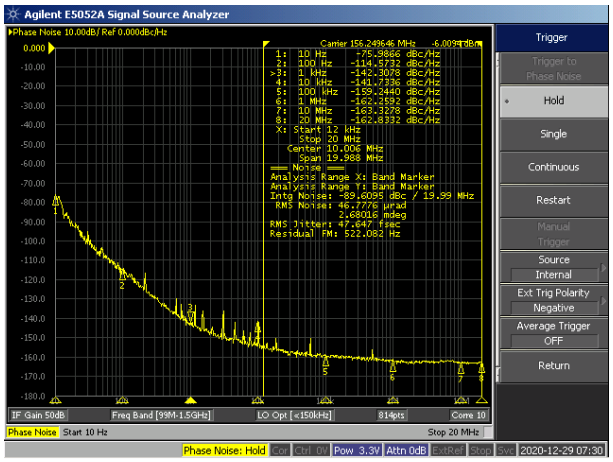
Tri-State or NC

Waveform (LVPECL)

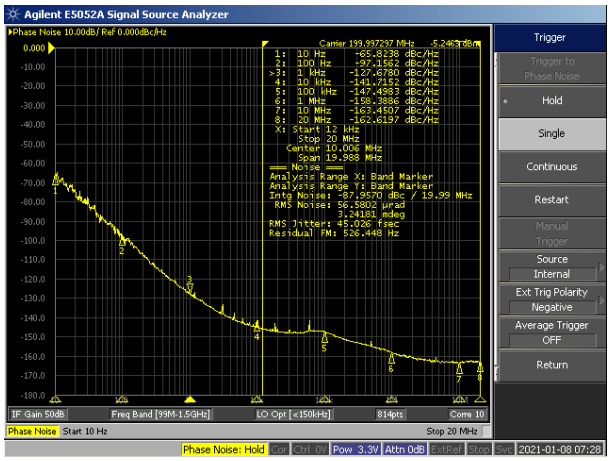


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 200.000MHz

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Specifications are subject to change without notice.

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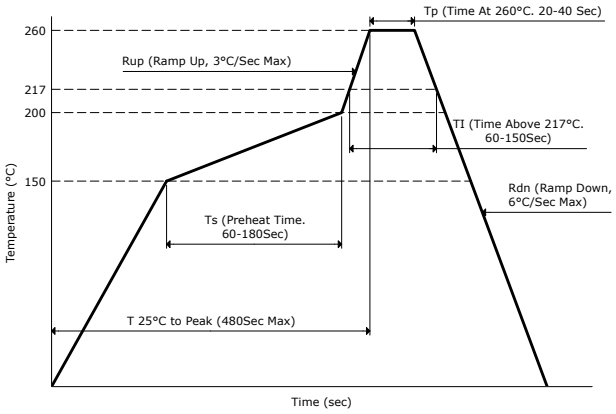
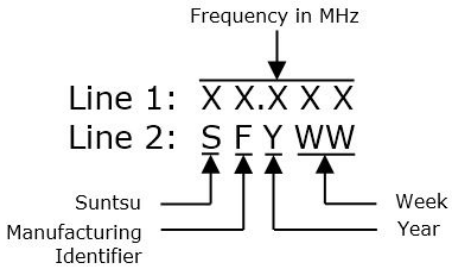
Reflow Profile



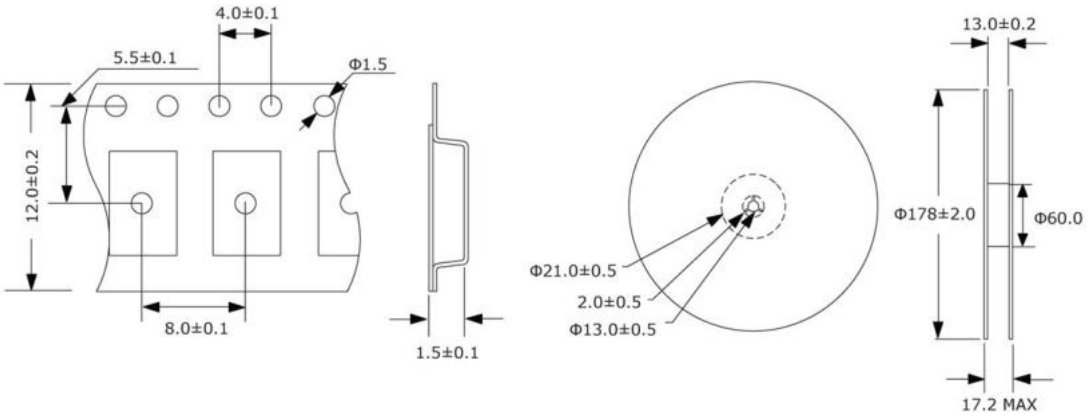
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Ultra Low Jitter 6 Pad LVDS Oscillator

SUO75L Series

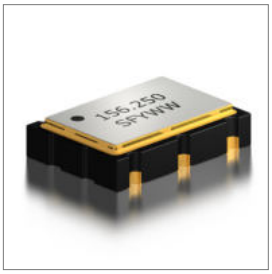
7.0mm x 5.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVDS
- Ultra Low Phase Jitter (67fs Typical)
- Tape and Reel
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SUO 75 L 3 A 48 1 - 156.250M

- **SUNTSU ULTRA LOW JITTER OSC**
- **7.0mm x 5.0mm**
- **LVDS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range*	MHz	100		320	135~175MHz(1.8V), 100~320MHz(2.5&3.3V)
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V Option	V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})*	mA			35	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	350	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV			50	
Rise (TR) and Fall (TF) Time	ns		0.25	0.5	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5.0	
Phase Jitter (12kHz ~ 20MHz)	fs		67	100	

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SUNTSU

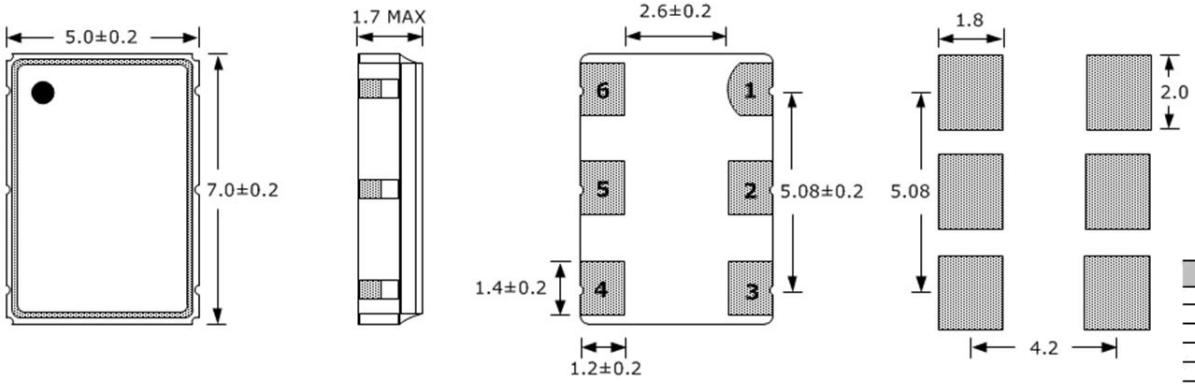
Ceramic SMD Ultra Low Jitter 6 Pad LVDS Oscillator

SUO75L Series

7.0mm x 5.0mm

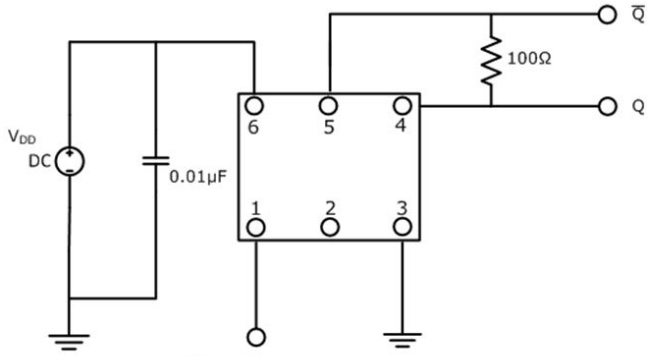
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.



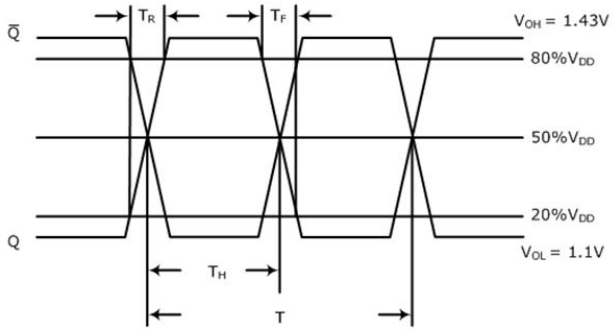
PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	Vcc

Test Circuit (LVDS)



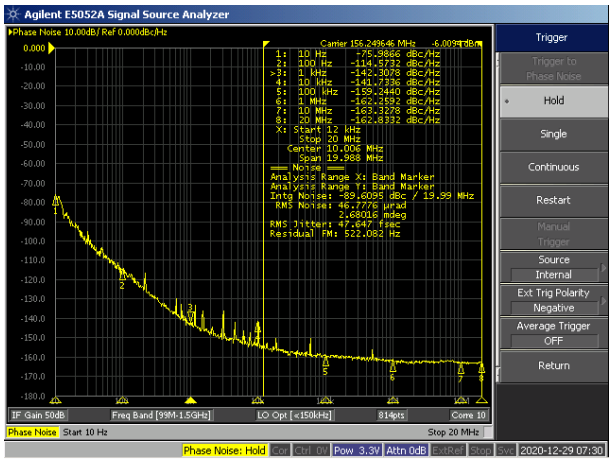
Tri-State or NC

Waveform (LVDS)

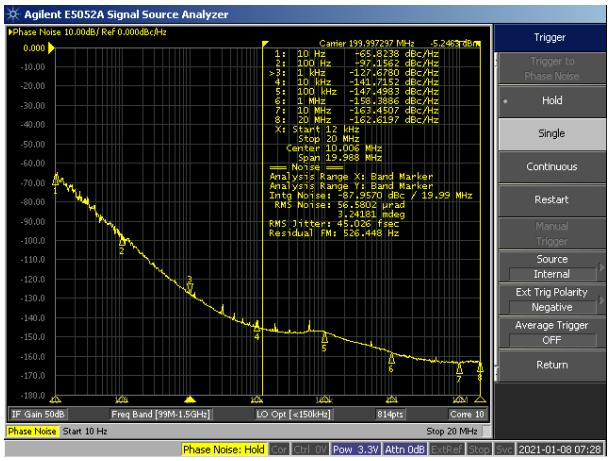


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 200.000MHz

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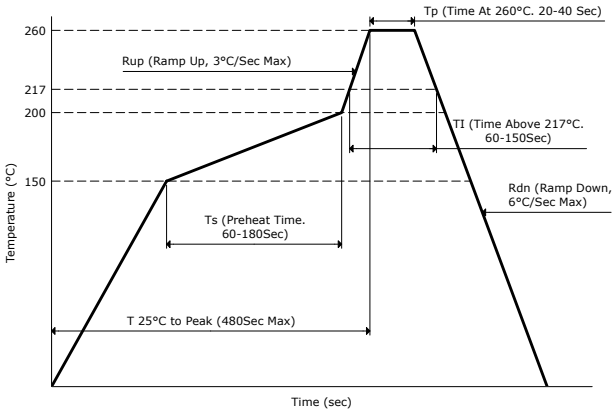
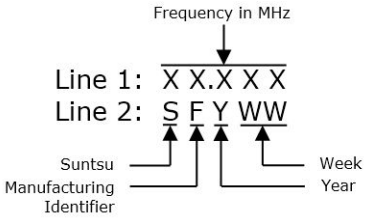
Reflow Profile



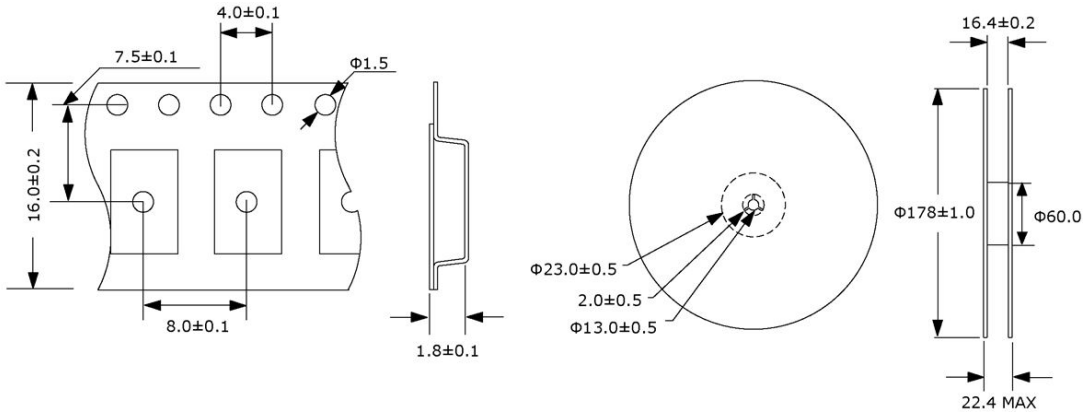
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD Ultra Low Jitter 6 Pad LVPECL Oscillator

SUO75P Series

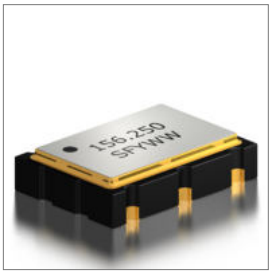
7.0mm x 5.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVPECL
- Ultra Low Phase Jitter (47fs Typical)
- Tape and Reel
- Fundamental or 3rd Overtone Crystal Design

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SUO 75 P 3 A 48 1 - 156.250M

- **SUNTSU ULTRA LOW JITTER OSC**
- **7.0mm x 5.0mm**
- **LVPECL**
- **SUPPLY VOLTAGE**
  - 2: 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		320	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD})	mA			70	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH} at 2.5V)	V	1.415		1.760	
Output Logic Levels Low (V_{OL} at 2.5V)	V	0.670		1.195	
Output Logic Levels High (V_{OH} at 3.3V)	V	2.215		2.420	
Output Logic Levels Low (V_{OL} at 3.3V)	V	1.470		1.745	
Rise (TR) and Fall (TF) Time	ns		0.15	0.3	Measured at 20% to 80% of Waveform
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5	
Phase Jitter (12kHz ~ 20MHz)	fs		47	100	

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SUNTSU

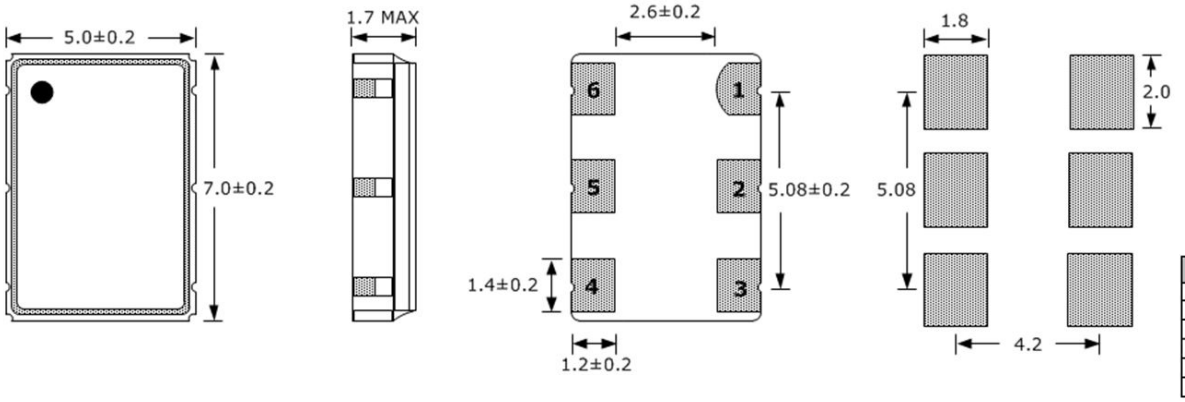
Ceramic SMD Ultra Low Jitter 6 Pad LVPECL Oscillator

SUO75P Series

7.0mm x 5.0mm

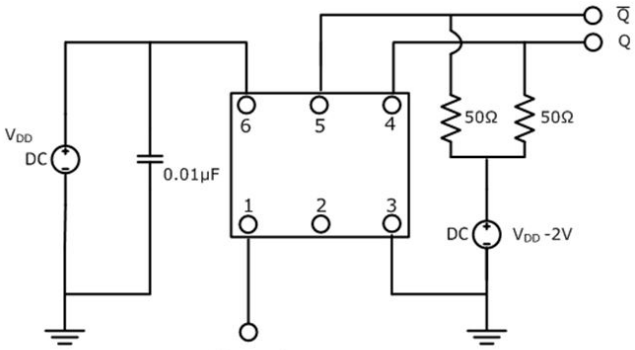
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.



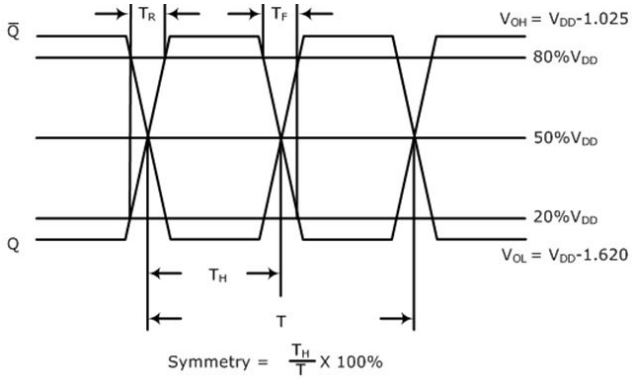
PIN	FUNCTION
1	TRI-STATE or NC
2	NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVPECL)



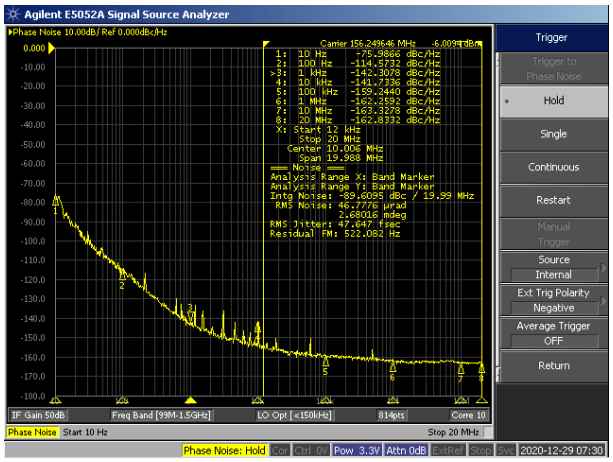
Tri-State or NC

Waveform (LVPECL)

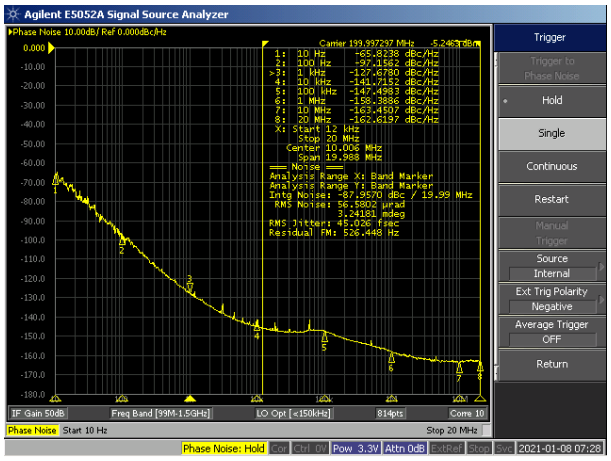


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 200.000MHz

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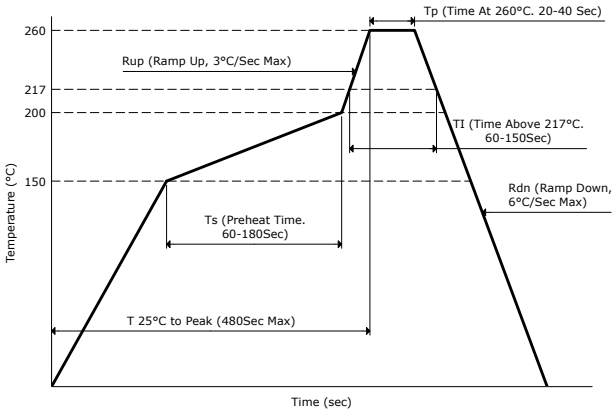
SUNTSU

Ceramic SMD Ultra Low Jitter 6 Pad LVPECL Oscillator

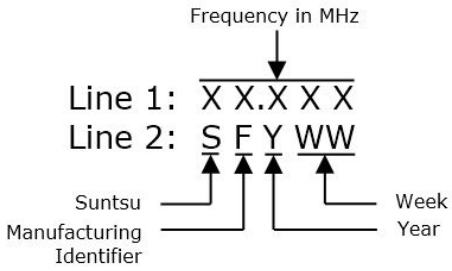
SUO75P Series

7.0mm x 5.0mm

Reflow Profile



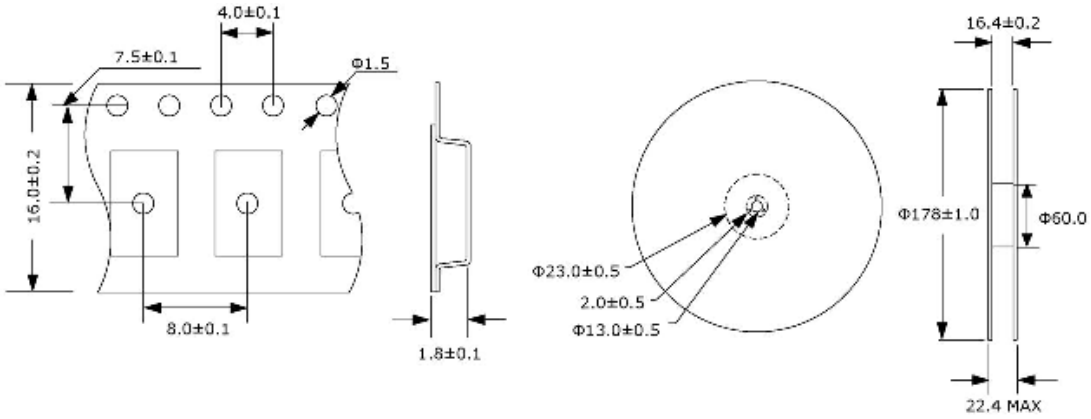
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD 4 Pad CMOS Oscillator

SXO11C Series

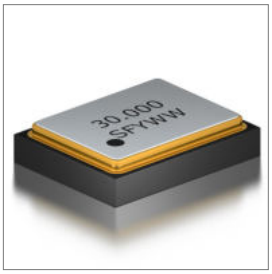
1.6mm x 1.2mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- CMOS
- Tape and Reel

Applications

- Mobile Communication
- Portable Electronics
- PDA



Part Numbering Guide

SXO 11 C 3 A 48 1 - 30.000M

- **SUNTSU OSC**
- **1.6mm x 1.2mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	1		133	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V option	V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.135	3.3	3.465	
Current (I_{DD})	mA			10	
Output Load (CMOS)	pF			15	
Output Logic Levels High (V_{OH})	V	V_{DD}-0.4			
Output Logic Levels Low (V_{OL})	V			V_{DD}+0.4	
Rise (TR) and Fall (TF) Time	ns			4.5	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			5.0	
Phase Jitter (12kHz ~ 20MHz)	ps			1	

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SUNTSU

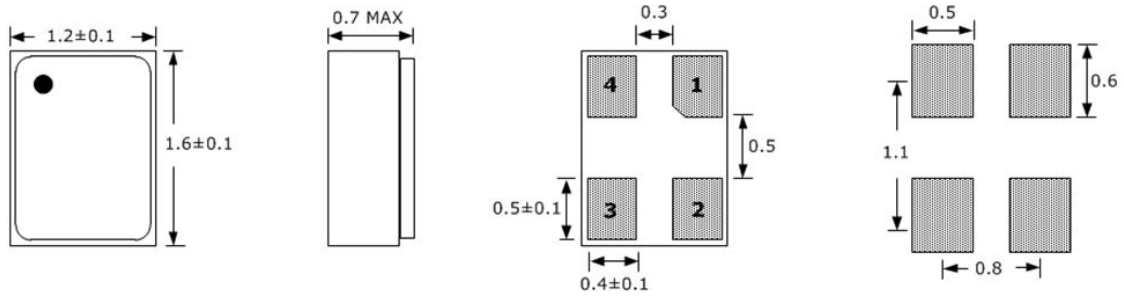
Ceramic SMD 4 Pad CMOS Oscillator

SXO11C Series

1.6mm x 1.2mm

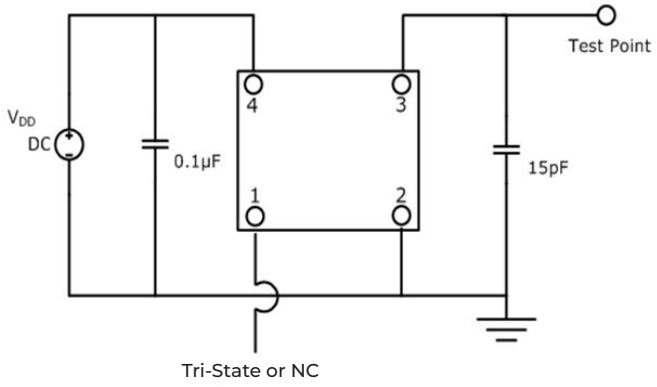
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

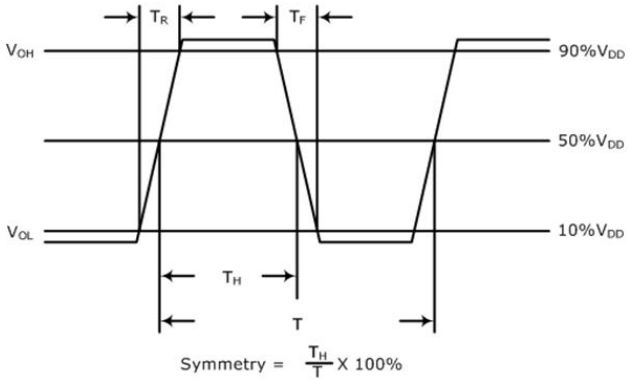


PIN	FUNCTION
1	TRI-STATE or NC
2	GND
3	OUTPUT
4	V_{DD}

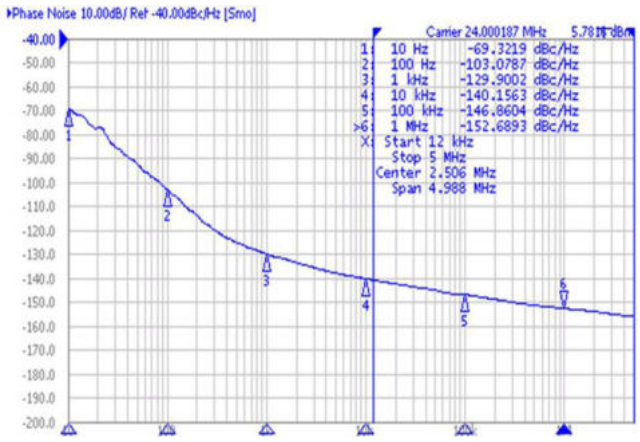
Test Circuit (CMOS)



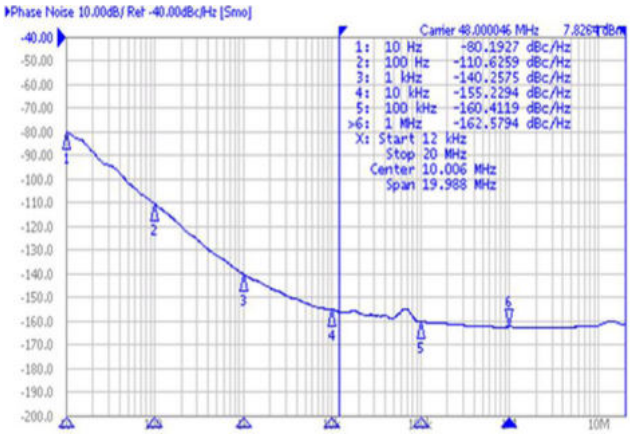
Waveform (CMOS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 24.000MHz



Frequency - 48.000MHz

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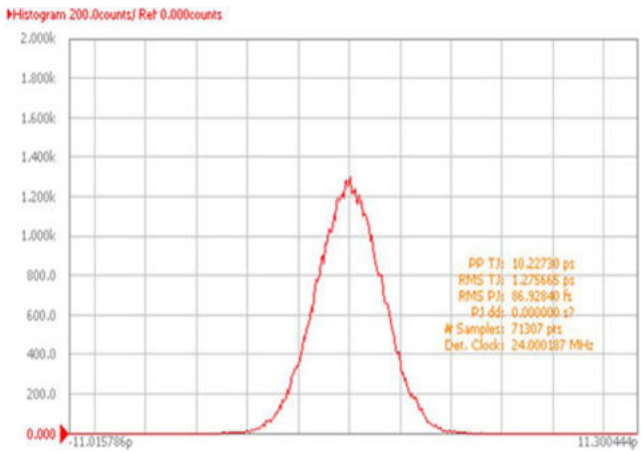
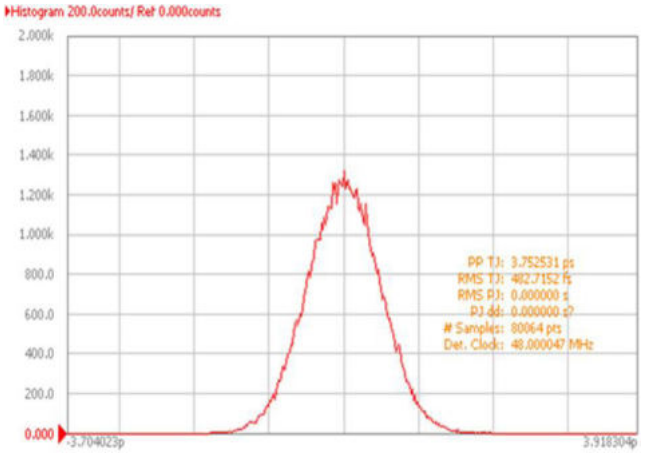
Typical Jitter Performance (Measured By Agilent E5052A)

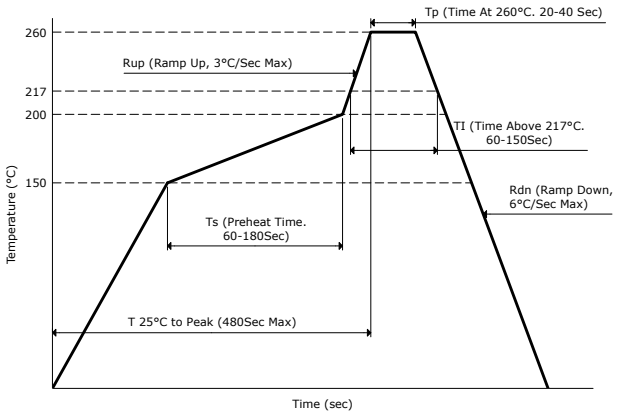


Frequency - 24.000MHz

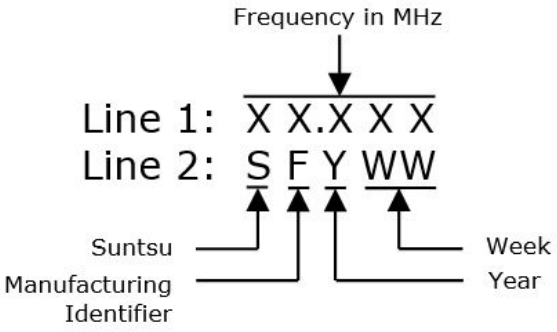


Frequency - 48.000MHz

Reflow Profile



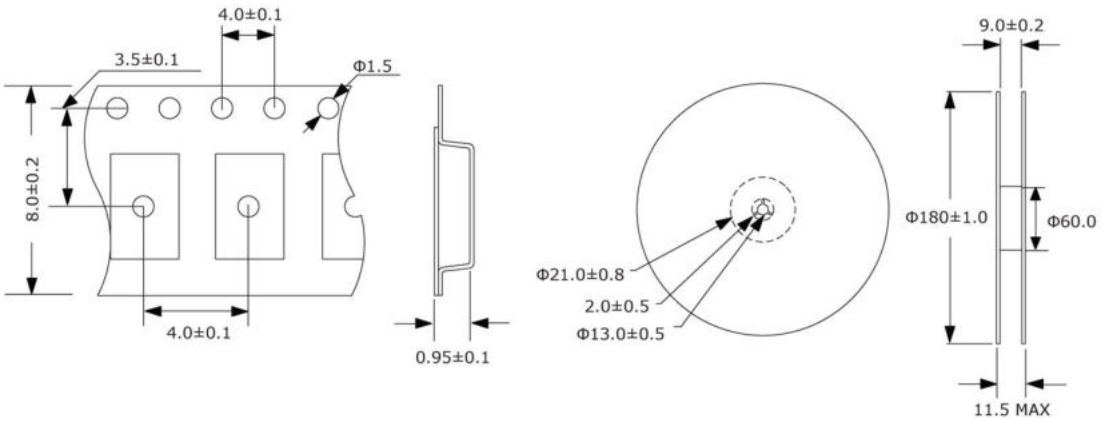
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

3,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD 4 Pad CMOS Oscillator

SXO21C Series

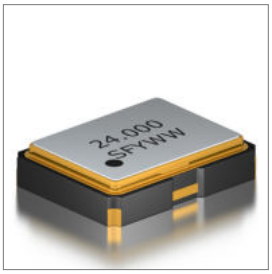
2.0mm x 1.6mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- CMOS
- Tape and Reel

Applications

- Mobile Communication
- Portable Electronics
- PDA



Part Numbering Guide

SXO 21 C 3 A 48 1 - 24.000M

- **SUNTSU OSC**
- **2.0mm x 1.6mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	KHz	22.000	32.768	87.000	
Frequency Range	MHz	1		60	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V option	V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.135	3.3	3.465	
Current (I_{DD}) - 1.8V option	mA			10	240µA max. from 22.000kHz to 87.000kHz
Current (I_{DD}) - 2.5V option	mA			10	240µA max. from 22.000kHz to 87.000kHz
Current (I_{DD}) - 3.3V option	mA			15	240µA max. from 22.000kHz to 87.000kHz
Standby Current	µA			10	From 22.000kHz to 87.000kHz
Output Load (CMOS)	pF			15	
Output Logic Levels High (V_{OH})	V	0.9*V_{DD}			V_{DD} -0.4 min. from 22.000kHz to 87.000kHz
Output Logic Levels Low (V_{OL})	V			0.1*V_{DD}	0.4 max. from 22.000kHz to 87.000kHz
Rise (TR) and Fall (TF) Time	ns			10	200ns max. from 22.000kHz to 87.000kHz
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	5ms max. from 22.000kHz to 87.000kHz
Phase Jitter (12kHz ~ 20MHz)	ps			1	N/A from 22.000kHz to 87.000kHz

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SUNTSU

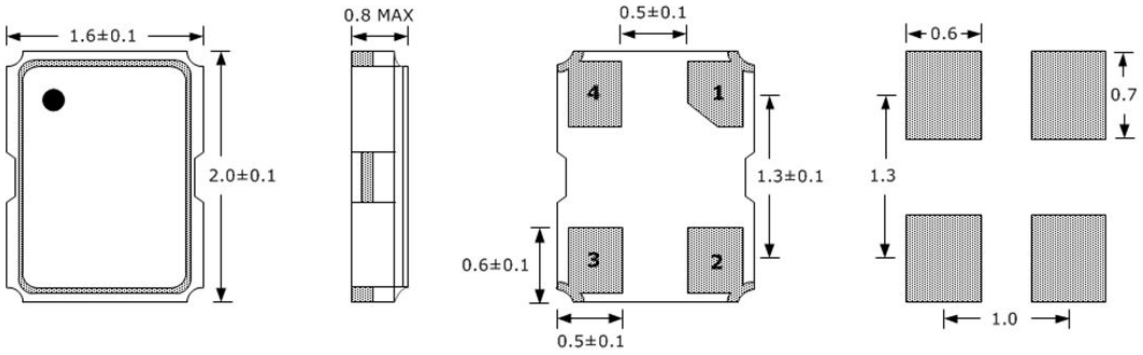
Ceramic SMD 4 Pad CMOS Oscillator

SXO21C Series

2.0mm x 1.6mm

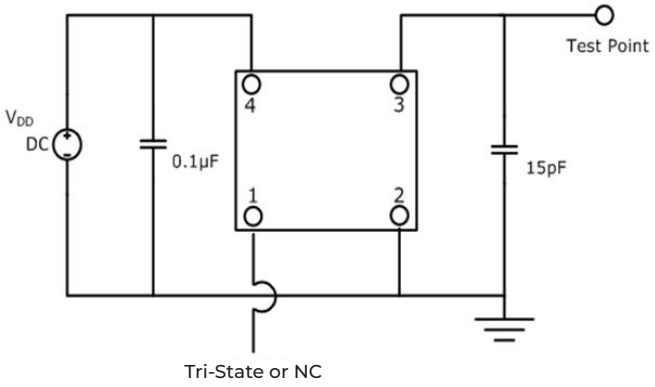
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

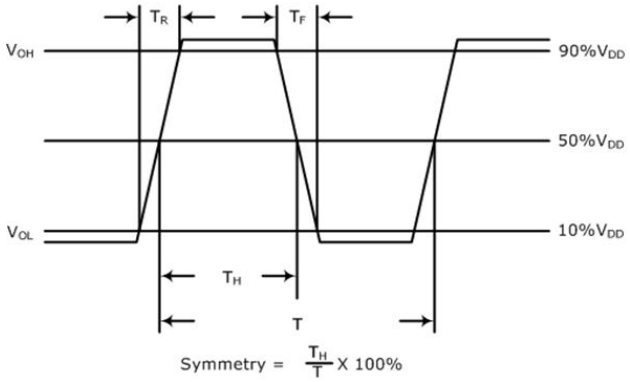


PIN	FUNCTION
1	TRI-STATE or NC
2	GND
3	OUTPUT
4	V_{DD}

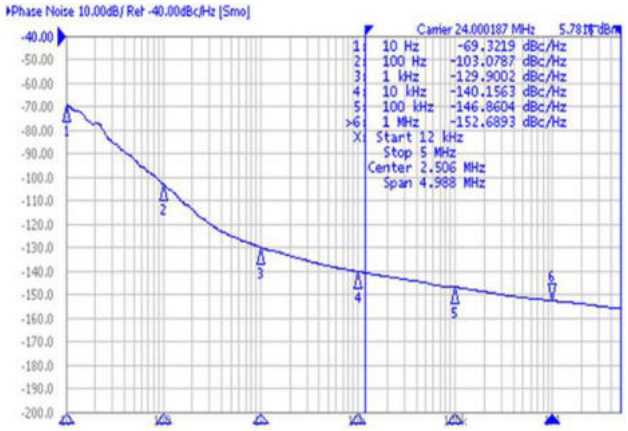
Test Circuit (CMOS)



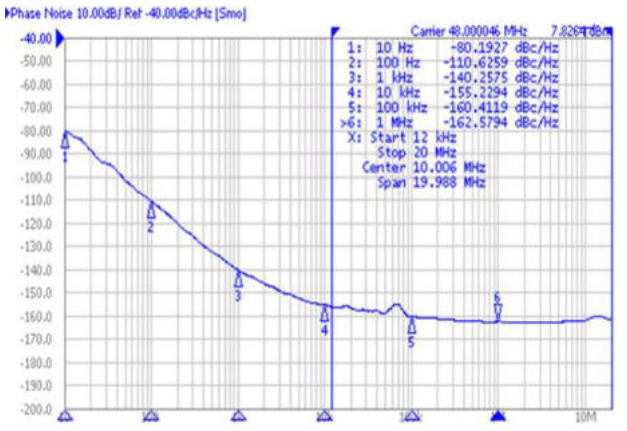
Waveform (CMOS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 24.000MHz



Frequency - 48.000MHz

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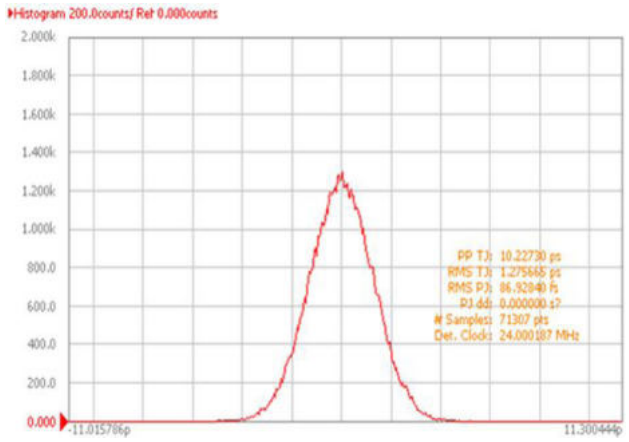
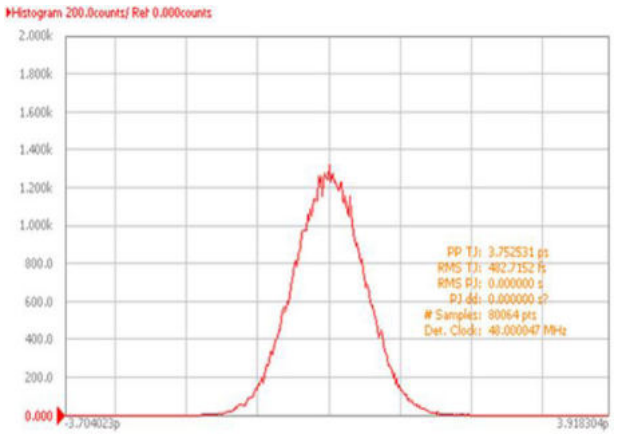
Typical Jitter Performance (Measured By Agilent E5052A)

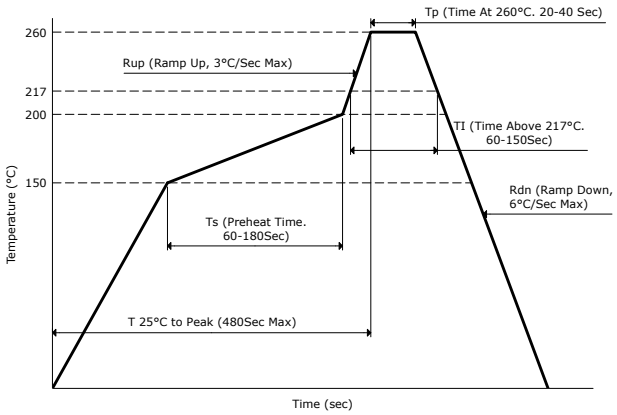


Frequency - 24.000MHz

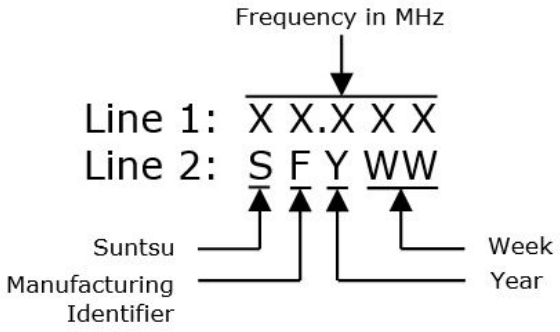


Frequency - 48.000MHz

Reflow Profile



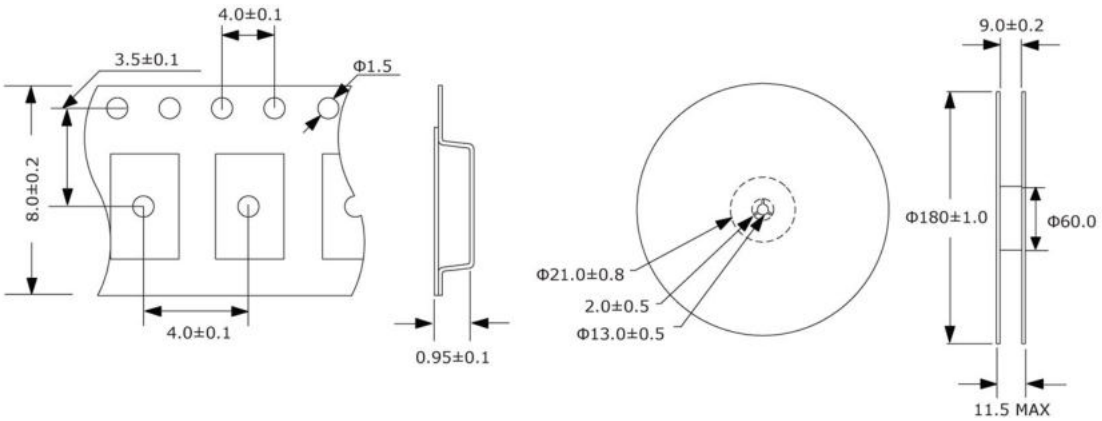
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

3,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD 4 Pad CMOS Oscillator

SXO22C Series

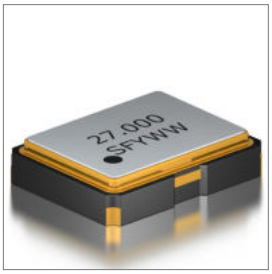
2.5mm x 2.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- CMOS
- Tape and Reel

Applications

- Micro Processors
- SONET/SDH/DWDM
- Storage Area/Networking
- Digital Video
- Base Stations



Part Numbering Guide

SXO 22 C 3 A 48 1 - 27.000M

- **SUNTSU OSC**
- **2.5mm x 2.0mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters		Units	Minimum	Typical	Maximum	Remarks
Frequency Range		KHz	32.768			
Frequency Range		MHz	1		110	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)		ppm	-20		+20	See part numbering guide for options
Operating Temperature		°C	-40		+85	See part numbering guide for options
Storage Temperature		°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V option		V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V option		V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option		V	3.135	3.3	3.465	
	Frequency Range		**1.8V**	**2.5V**	**3.3V**	
Current (I_{DD})	32.768KHz	mA	3	4	5	Maximum Value
	1.0000MHz - 15.999MHz	mA	3	5	7	Maximum Value
	16.000MHz - 39.999MHz	mA	5	7	10	Maximum Value
	40.000MHz - 59.999MHz	mA	10	13	15	Maximum Value
	60.000MHz - 110.000MHz	mA	15	20	35	Maximum Value
Output Load (CMOS)		pF			15	
Output Logic Levels High (V_{OH})		V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})		V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	32.768KHz	ns			200	
	1.0000MHz - 15.999MHz	ns			10	
	16.000MHz - 39.999MHz	ns			8	
	40.000MHz - 59.999MHz	ns			6	
	60.000MHz - 110.000MHz	ns			4	
Symmetry (Duty Cycle)		%	45	50	55	
Tri-State Input Voltage - Enable		V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable		V			0.3*V_{DD}	
Start-Up Time		ms			10	
Phase Jitter (12kHz ~ 20MHz)		ps			1	

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SUNTSU

Ceramic SMD 4 Pad CMOS Oscillator

SXO22C Series

2.5mm x 2.0mm

Outline Drawing & Land Pattern

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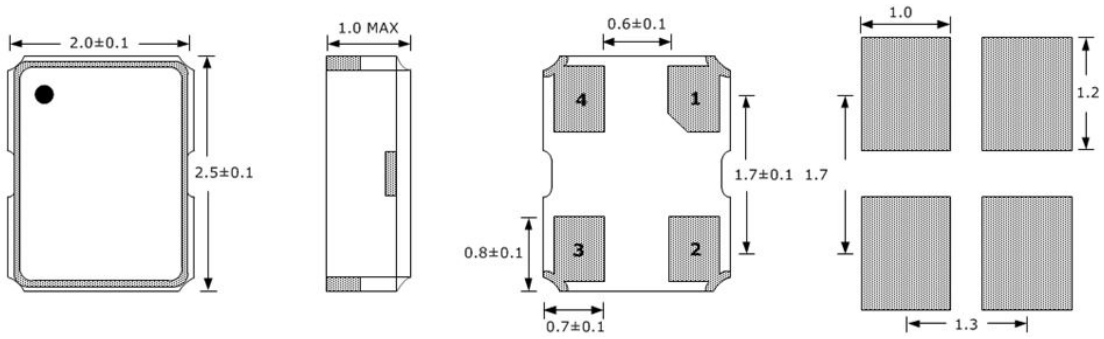
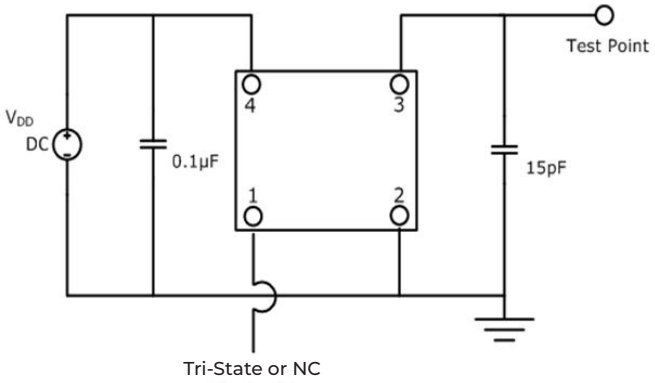
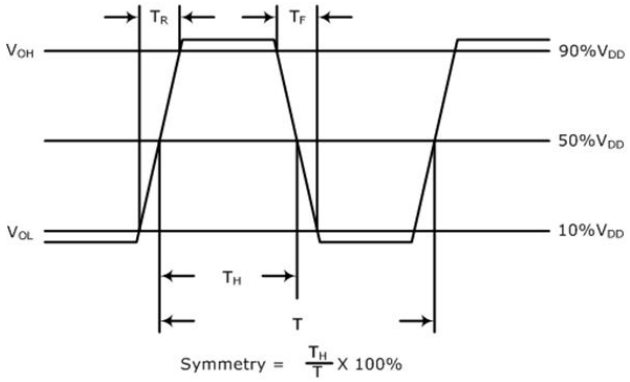


PIN	FUNCTION
1	TRI-STATE or NC
2	GND
3	OUTPUT
4	V_{DD}

Test Circuit (CMOS)

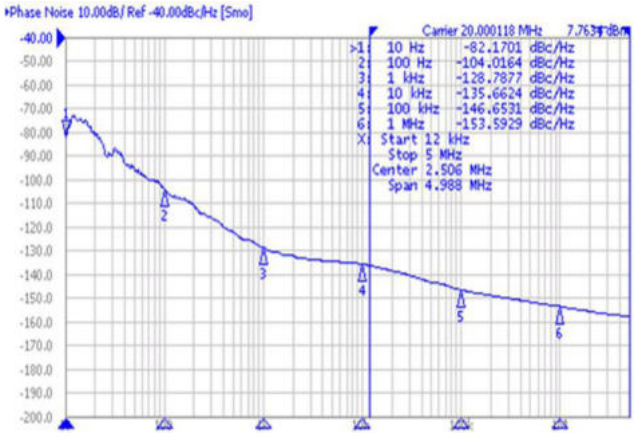


Waveform (CMOS)

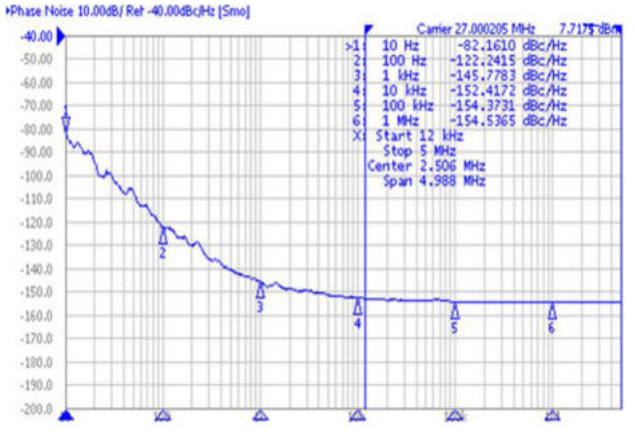


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 20.000MHz



Frequency - 27.000MHz

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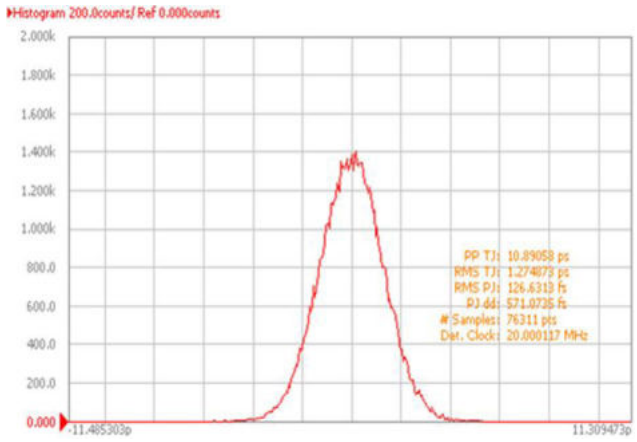
SUNTSU

Ceramic SMD 4 Pad CMOS Oscillator

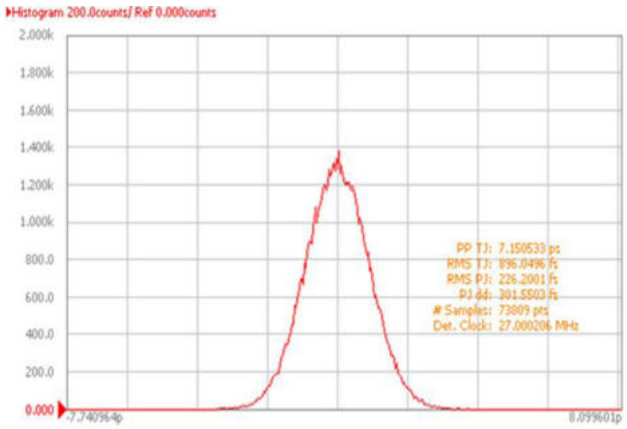
SXO22C Series

2.5mm x 2.0mm

Typical Jitter Performance (Measured By Agilent E5052A)

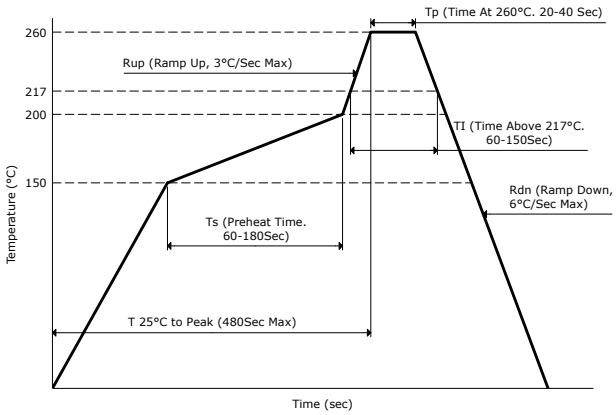


Frequency - 20.000MHz

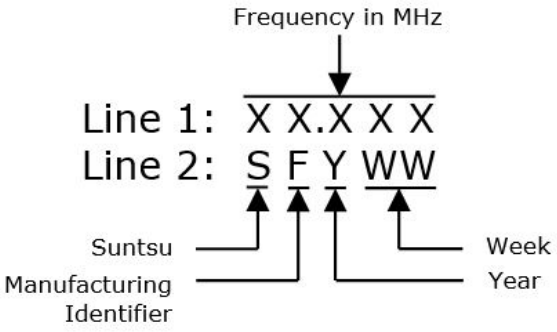


Frequency - 27.000MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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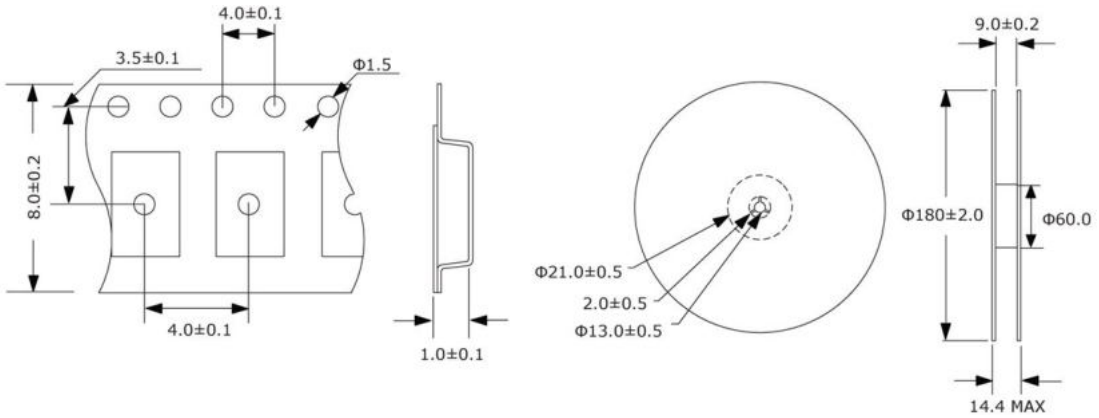
3,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD 4 Pad CMOS Oscillator

SXO32C Series

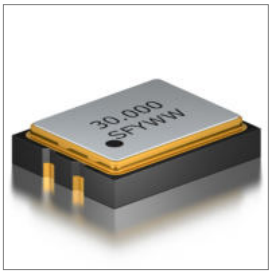
3.2mm x 2.5mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- CMOS
- Tape and Reel

Applications

- Micro Processors
- SONET/SDH/DWDM
- Storage Area/Networking
- Digital Video
- Base Stations



Part Numbering Guide

SXO 32 C 3 A 48 1 X - 30.000M

- **SUNTSU OSC**
- **3.2mm x 2.5mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **LOAD**
  - BLANK : 15pF
  - X : 30pF
  - Y : 50pF
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

** For operating temperatures up to -55-125°C contact a Suntsu representative.

Electrical Parameters		Units	Minimum	Typical	Maximum	Remarks
Frequency Range		KHz	32.768			
Frequency Range		MHz	1		133	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)		ppm	-20		+20	See part numbering guide for options
Operating Temperature		°C	-40		+85	See part numbering guide for options
Storage Temperature		°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V option		V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V option		V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option		V	3.135	3.3	3.465	
	Frequency Range		**1.8V**	**2.5V**	**3.3V**	
Current (I_{DD})	32.768KHz	mA	3	5	5	Maximum Value
	1.0000MHz - 29.999MHz	mA	4	8	10	Maximum Value
	30.000MHz - 74.999MHz	mA	6	15	17	Maximum Value
	75.000MHz - 133.000MHz	mA	12	20	25	Maximum Value
Output Load (CMOS)		pF			15	See part numbering guide for options
Output Logic Levels High (V_{OH})		V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})		V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	32.768KHz	ns			200	
	1.0000MHz - 29.999MHz	ns			10	
	30.000MHz - 74.999MHz	ns			8	
	75.000MHz - 133.000MHz	ns			5	
Symmetry (Duty Cycle)		%	45	50	55	
Tri-State Input Voltage - Enable		V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable		V			0.3*V_{DD}	
Start-Up Time		ms			10	
Phase Jitter (12kHz ~ 20MHz)		ps			1	

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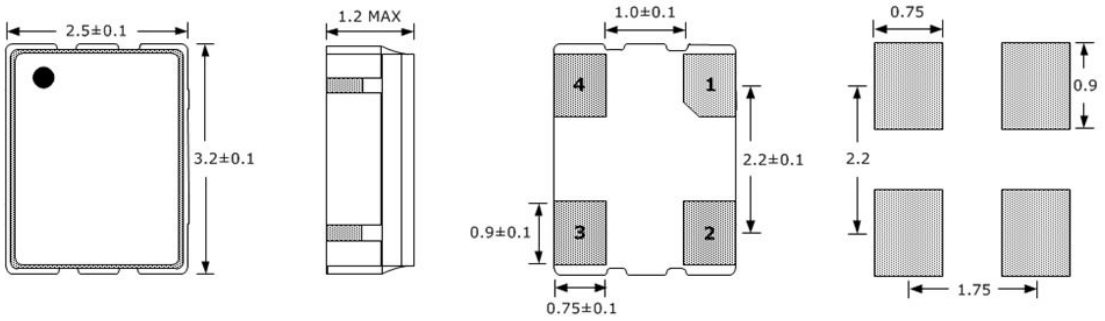
SXO32C Series

3.2mm x 2.5mm

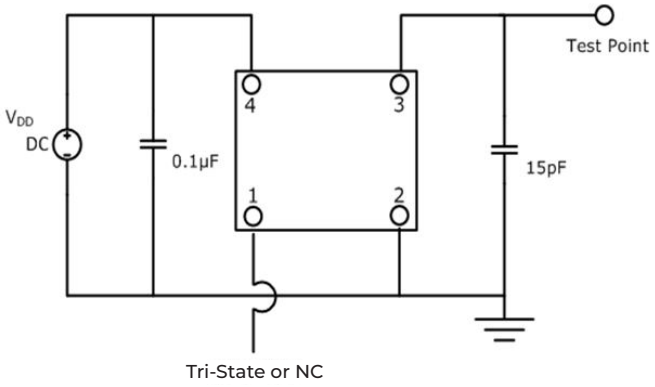
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

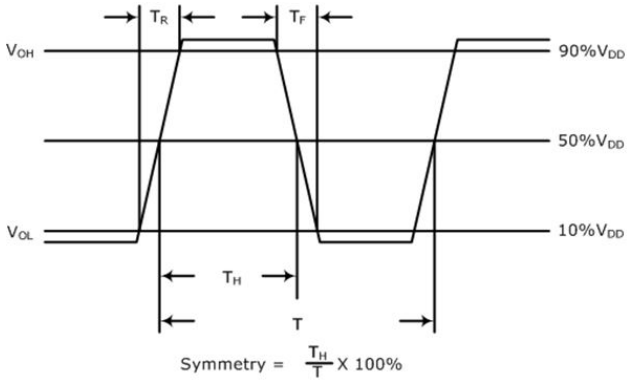


PIN	FUNCTION
1	TRI-STATE or NC
2	GND
3	OUTPUT
4	V_{DD}

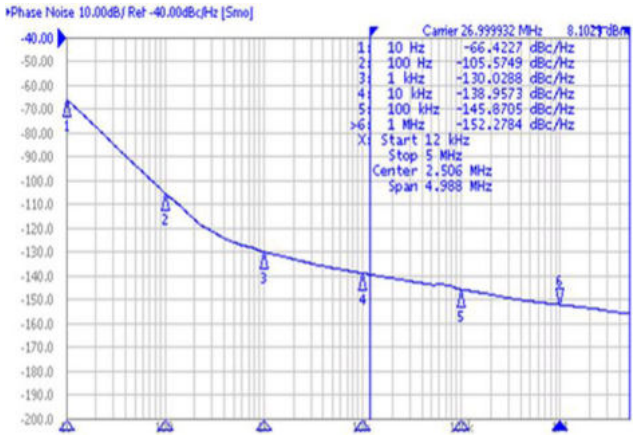
Test Circuit (CMOS)



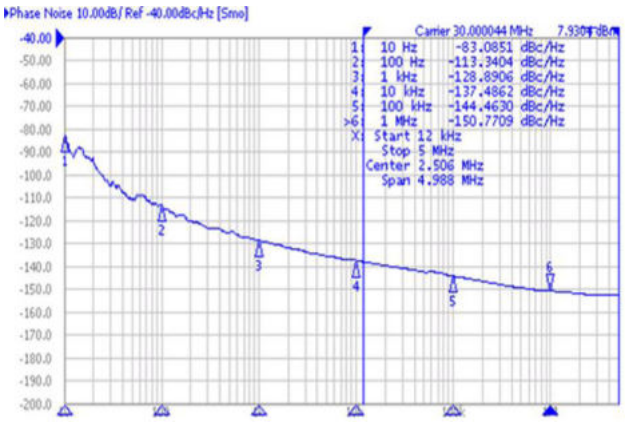
Waveform (CMOS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 27.000MHz



Frequency - 30.000MHz

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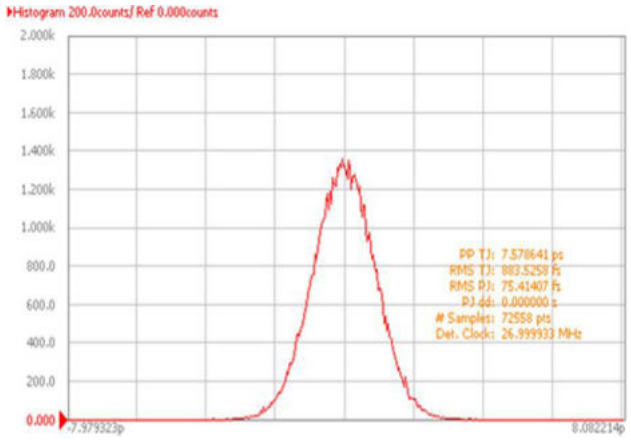
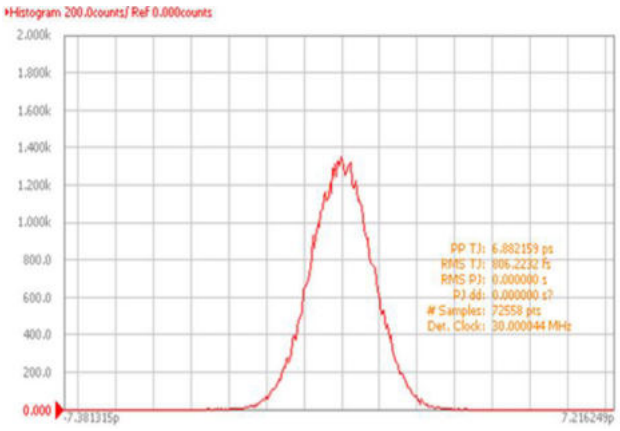
Typical Jitter Performance (Measured By Agilent E5052A)

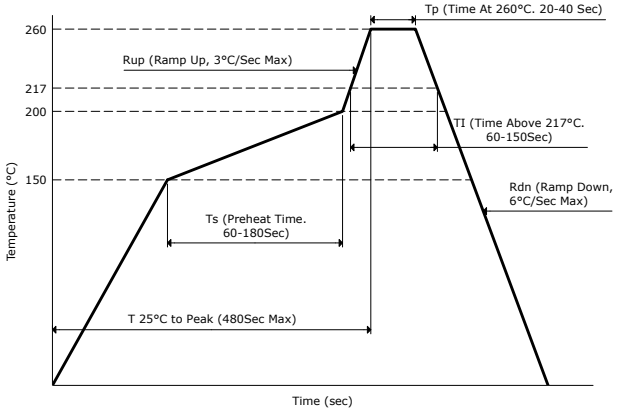


Frequency - 27.000MHz

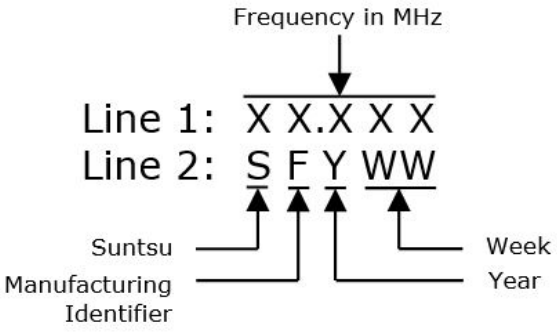


Frequency - 30.000MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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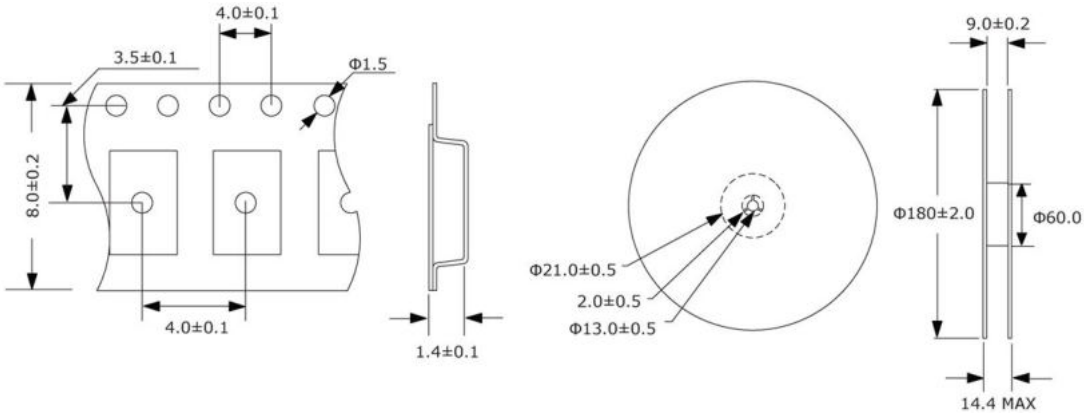
3,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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- Tape and Reel

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- Micro Processors
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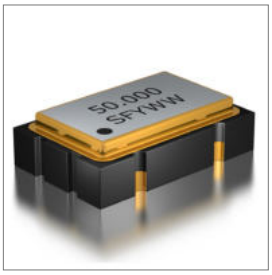
- Storage Area/Networking
- Digital Video
- Base Stations



Part Numbering Guide

SXO 53 C 3 A 48 1 X - 50.000M

- **SUNTSU OSC**
- **5.0mm x 3.2mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  1 : 1.8V±5%
  2 : 2.5V±5%
  3 : 3.3V±5%
- **FREQUENCY STABILITY**
  A : ±50ppm
  B : ±30ppm
  C : ±25ppm
  *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  07 : 0°C - +70°C
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  27 : -20°C - +70°C
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- **TRI-STATE (ENABLE/DISABLE)**
  BLANK : No Connection
  1 : Pin 1
- **LOAD**
  BLANK : 15pF
  X : 30pF
  Y : 50pF
- **FREQUENCY**
  MHz

RoHS COMPLIANT

Cage Code : 4GUT4

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Electrical Parameters		Units	Minimum	Typical	Maximum	Remarks
Frequency Range		KHz	32.768			
Frequency Range		MHz	1		200	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)		ppm	-20		+20	See part numbering guide for options
Operating Temperature		°C	-40		+85	See part numbering guide for options
Storage Temperature		°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V option		V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V option		V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option		V	3.135	3.3	3.465	
	Frequency Range		**1.8V**	**2.5V**	**3.3V**	
Current (I_{DD})	32.768KHz	mA	5	5	5	Maximum Value
	1.0000MHz - 34.999MHz	mA	8	10	16	Maximum Value
	35.000MHz - 59.999MHz	mA	10	20	25	Maximum Value
	60.000MHz - 99.000MHz	mA	25	30	40	Maximum Value
	100.000MHz - 160.000MHz	mA	35	40	50	Maximum Value
Output Load (CMOS)		pF			15	See part numbering guide for options
Output Logic Levels High (V_{OH})		V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})		V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	32.768KHz	ns			200	
	1.0000MHz - 34.999MHz	ns			10	
	35.000MHz - 99.999MHz	ns			6	
	100.000MHz - 160.000MHz	ns			3	
Symmetry (Duty Cycle)		%	45	50	55	
Tri-State Input Voltage - Enable		V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable		V			0.3*V_{DD}	
Start-Up Time		ms			10	
Phase Jitter (12kHz ~ 20MHz)		ps			1	

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5.0mm x 3.2mm

Outline Drawing & Land Pattern

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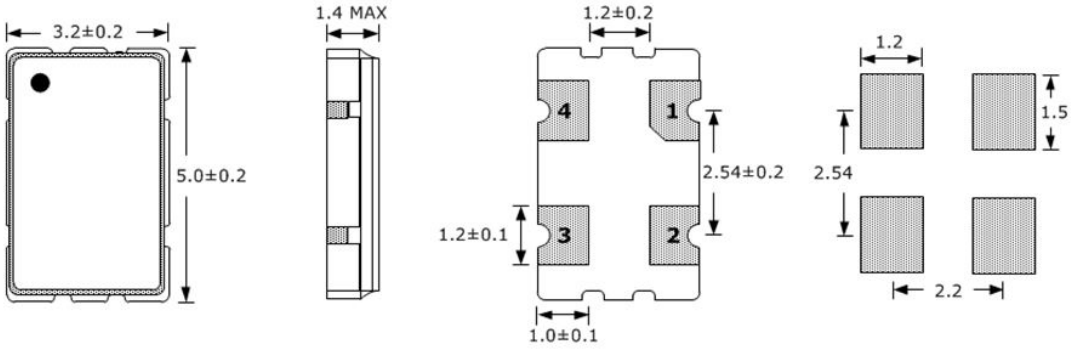
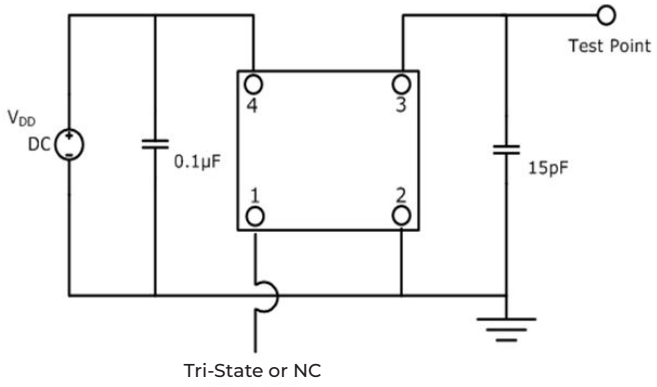
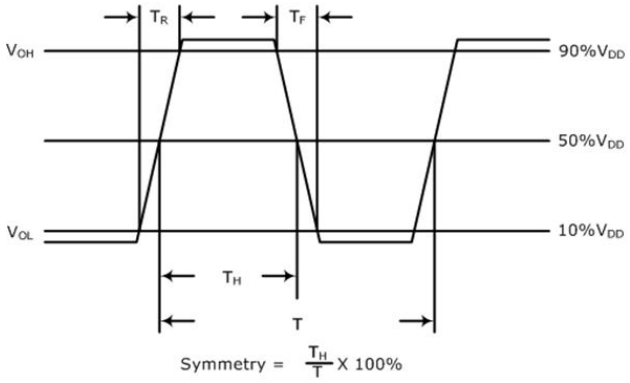


PIN	FUNCTION
1	TRI-STATE or NC
2	GND
3	OUTPUT
4	V_{DD}

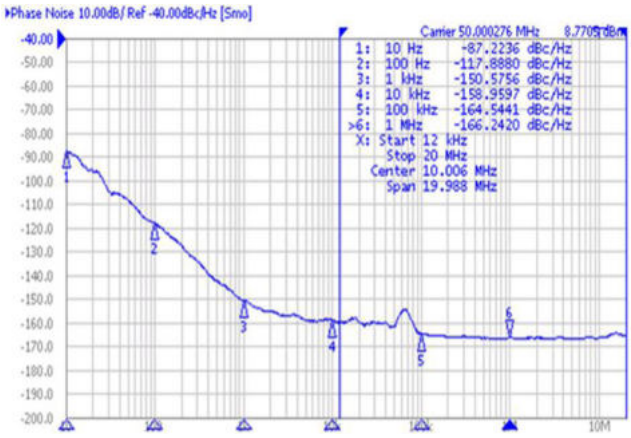
Test Circuit (CMOS)



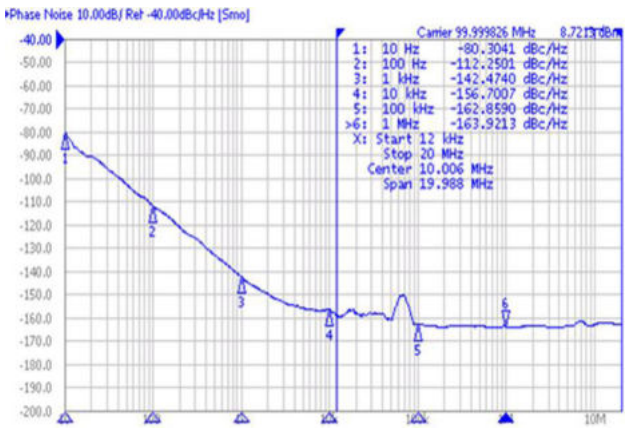
Waveform (CMOS)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 50.000MHz



Frequency - 100.000MHz

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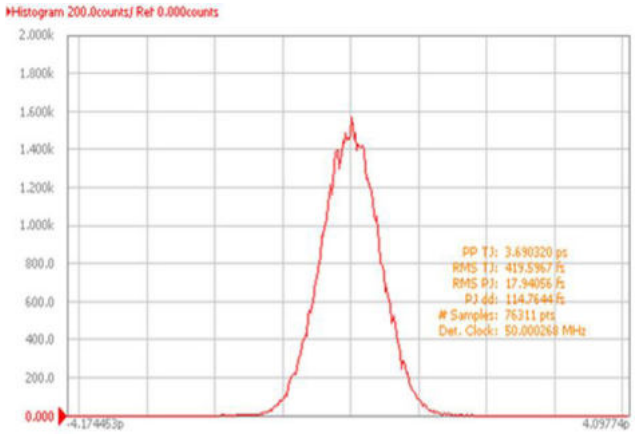
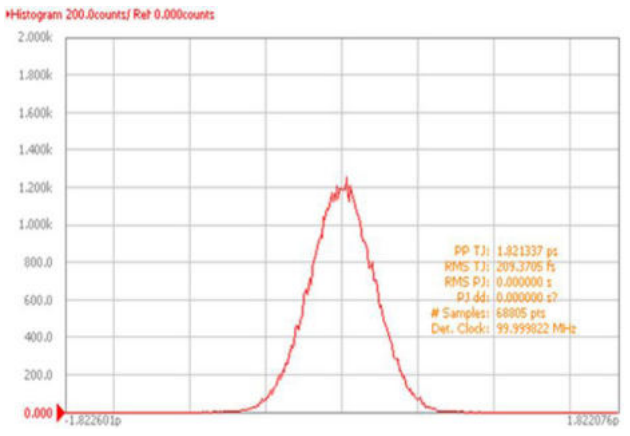
Typical Jitter Performance (Measured By Agilent E5052A)

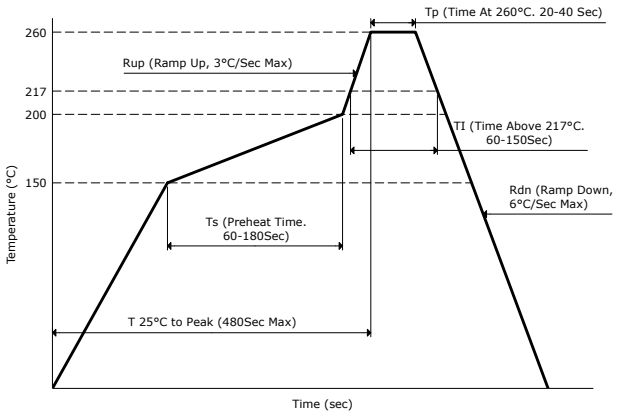


Frequency - 50.000MHz

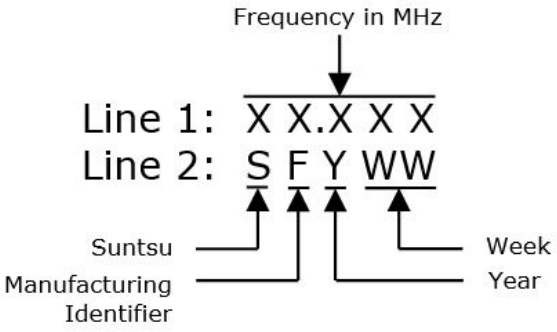


Frequency - 100.000MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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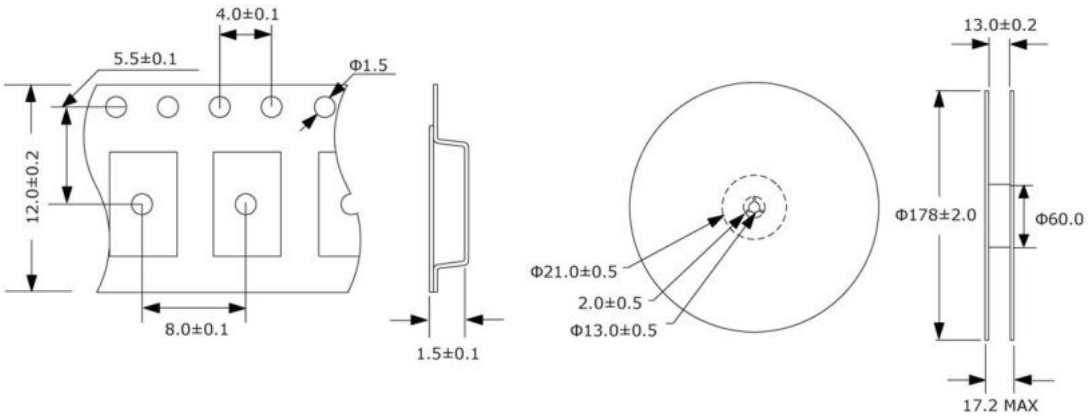
1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD 6 Pad HCSL Oscillator

SXO53H Series

5.0mm x 3.2mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- HCSL
- Programmed Oscillator
- Tape and Reel

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express

Part Numbering Guide

SXO 53 H 3 A 48 1 - 125.000M

- **SUNTSU OSC**
- **5.0mm x 3.2mm**
- **HCSL**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

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Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		125	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			60	
Current (I_{DD}) - 3.3V option	mA			80	
Output Load (HCSL)	Ω			50	
Output Logic Levels High (V_{OH})	mV	600		900	
Output Logic Levels Low (V_{OL})	V	0		50	
Rise (TR) and Fall (TF) Time	ns		0.4	0.7	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.5	1	

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5.0mm x 3.2mm

Outline Drawing & Land Pattern

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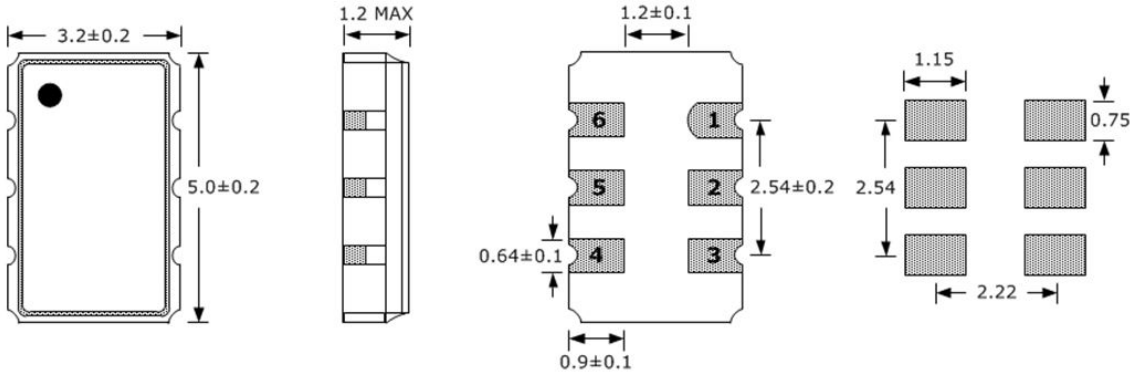
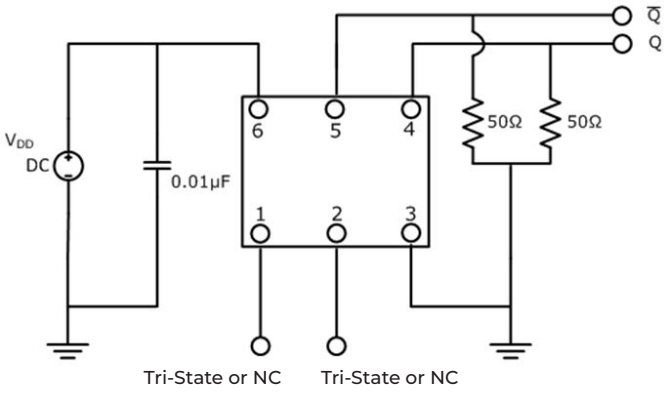
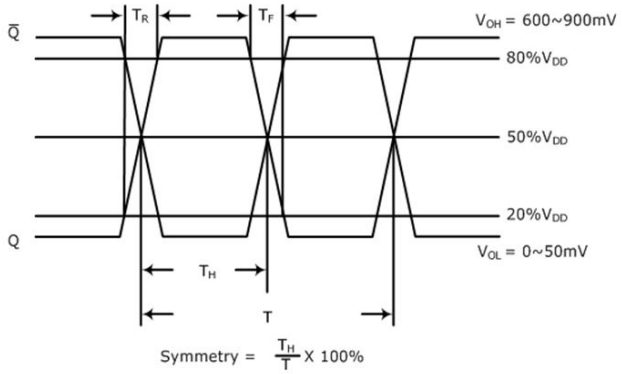


PIN	FUNCTION
1	E/D or NC
2	E/D or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (HCSL)



Waveform (HCSL)



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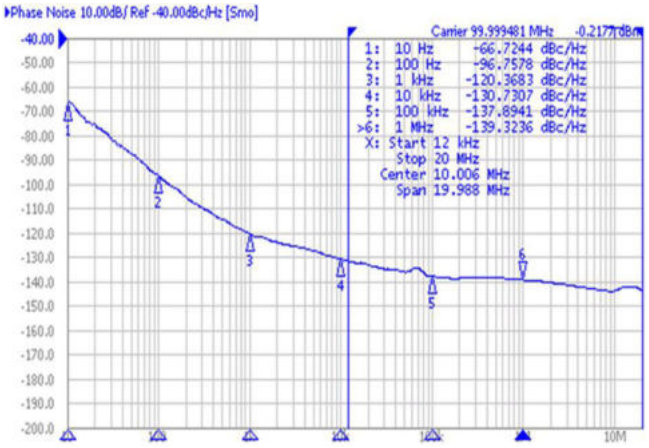
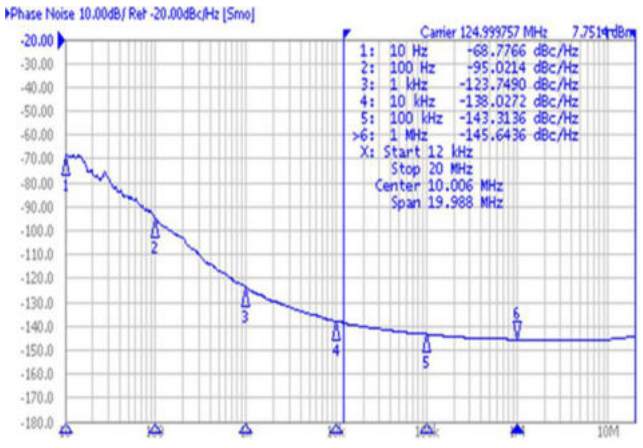


Frequency - 100.000MHz



Frequency - 125.000MHz

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Specifications are subject to change without notice.

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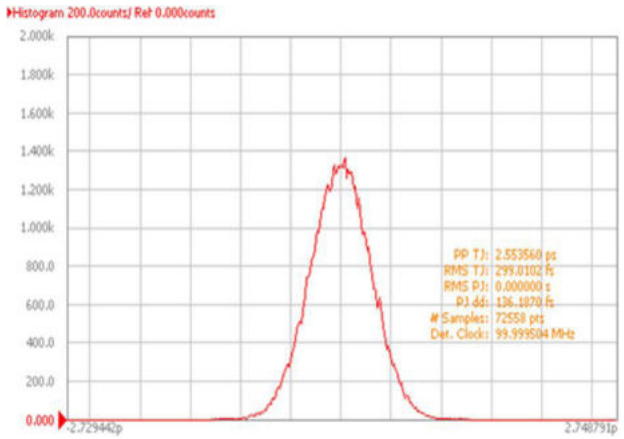
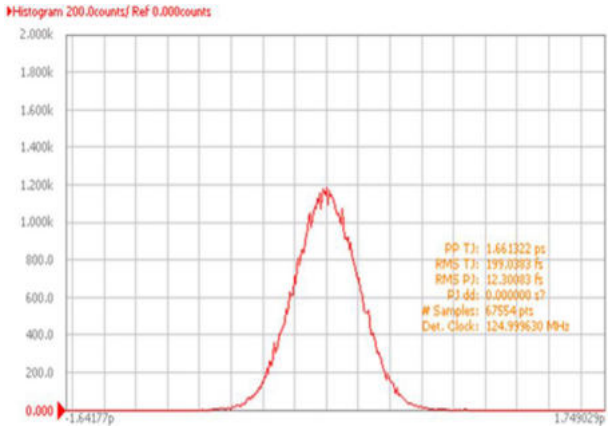
Typical Jitter Performance (Measured By Agilent E5052A)

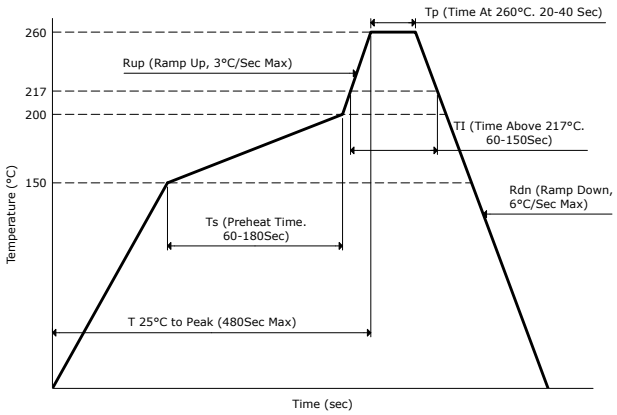


Frequency - 100.000MHz

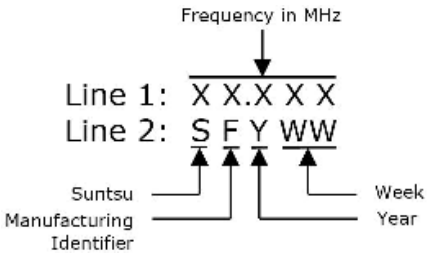


Frequency - 125.000MHz

Reflow Profile



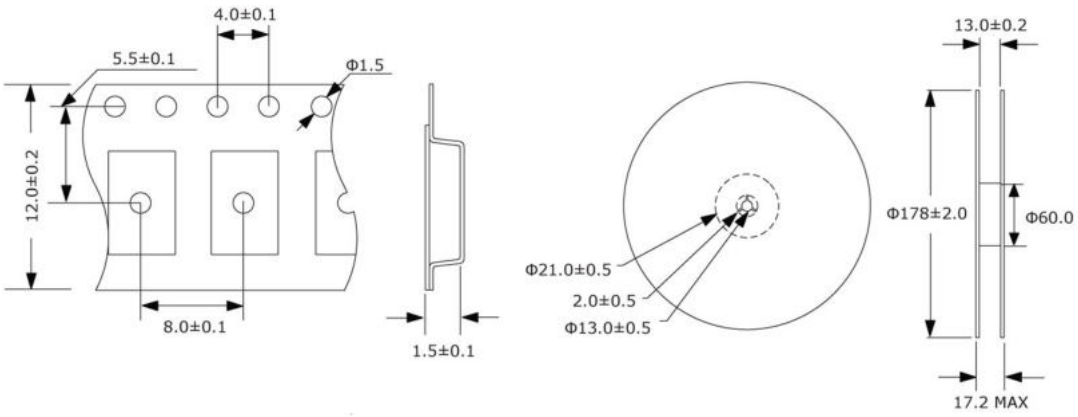
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD 6 Pad LVDS Oscillator

SXO53L Series

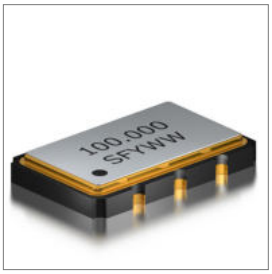
5.0mm x 3.2mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVDS
- Tape and Reel

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SXO 53 L 3 A 48 1 - 100.000M

- **SUNTSU OSC**
- **5.0mm x 3.2mm**
- **LVDS**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	80		170	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD}) - 2.5V Option	mA			50	
Current (I_{DD}) - 3.3V Option	mA			60	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	330	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV			50	
Rise (TR) and Fall (TF) Time	ns		0.4	0.8	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.4	1	

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SUNTSU

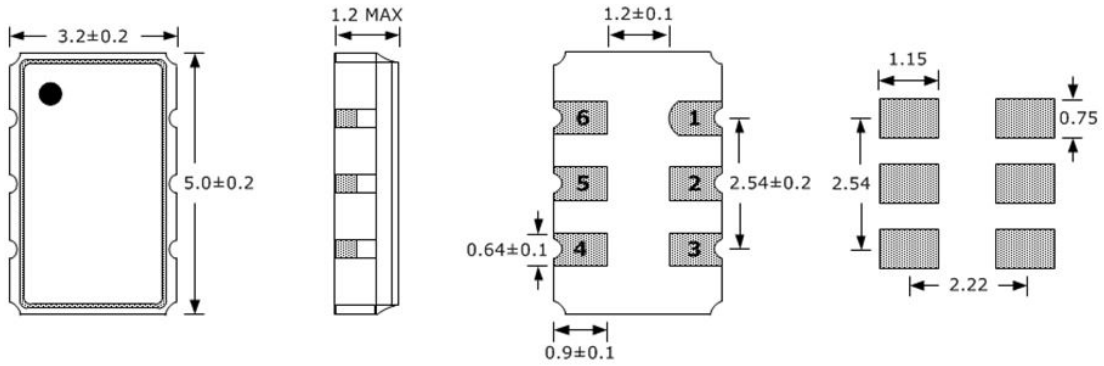
Ceramic SMD 6 Pad LVDS Oscillator

SXO53L Series

5.0mm x 3.2mm

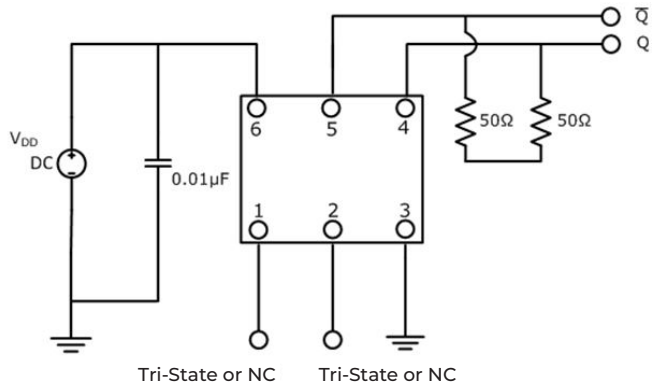
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

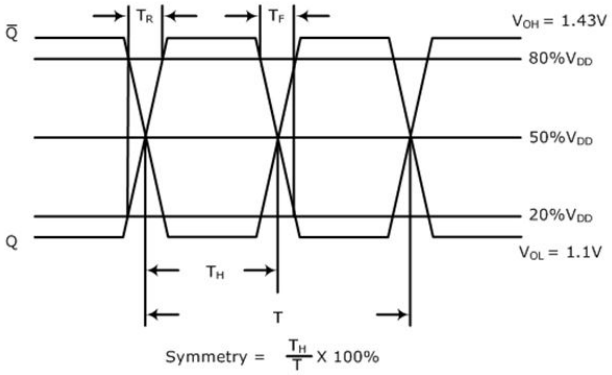


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVDS)

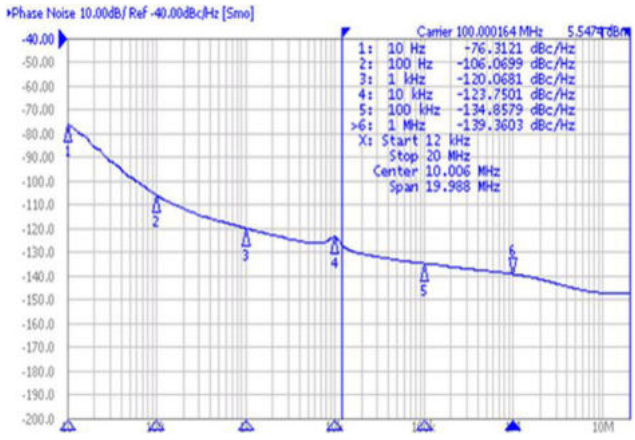


Waveform (LVDS)

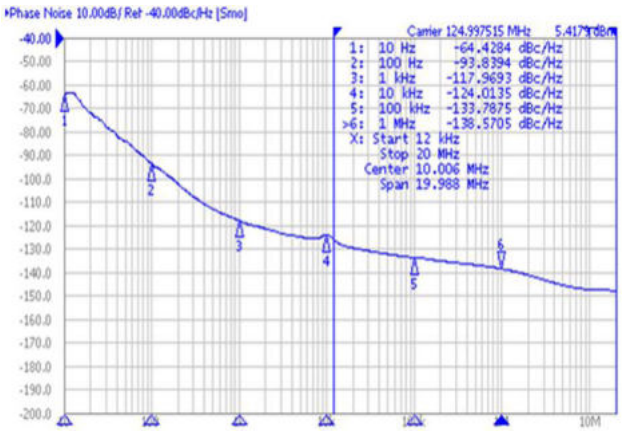


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 100.000MHz



Frequency - 125.000MHz

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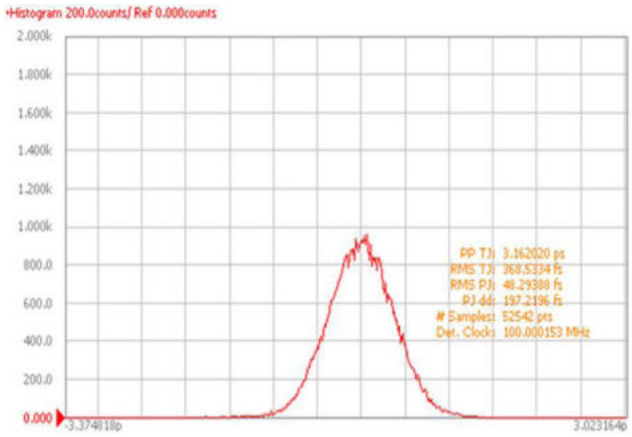
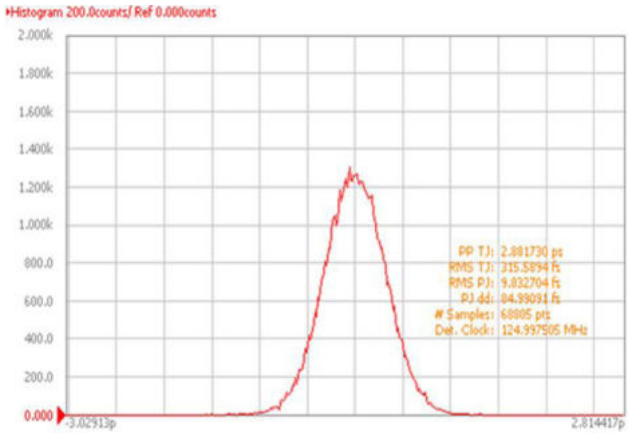
Typical Jitter Performance (Measured By Agilent E5052A)

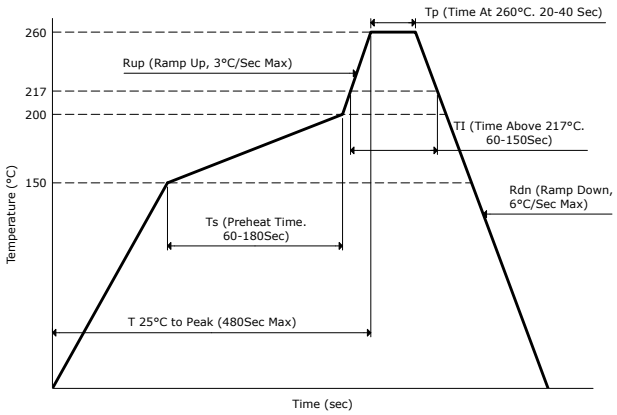


Frequency - 100.000MHz

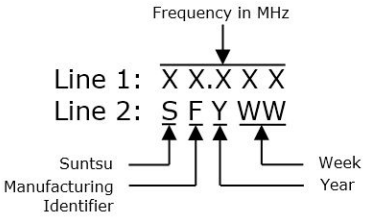


Frequency - 125.000MHz

Reflow Profile



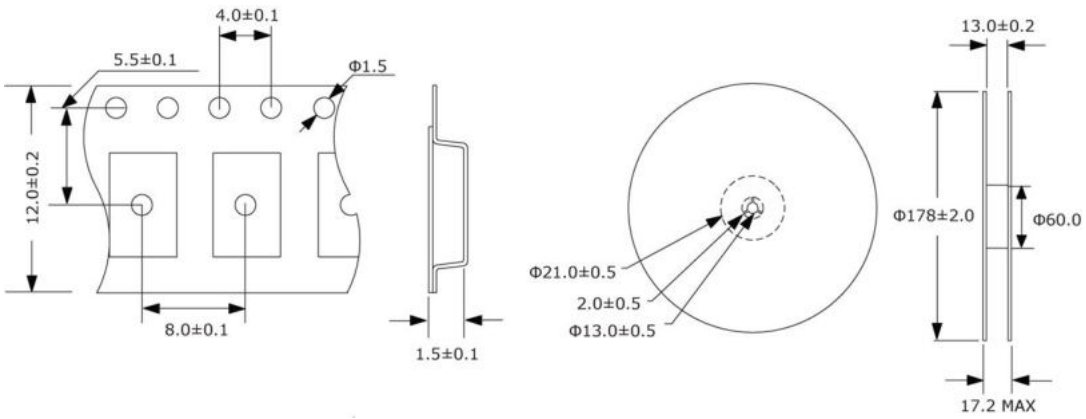
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD 6 Pad LVPECL Oscillator

SXO53P Series

5.0mm x 3.2mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVPECL
- Tape and Reel

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express

Part Numbering Guide

SXO 53 P 3 A 48 1 - 156.250M

- **SUNTSU OSC**
- **5.0mm x 3.2mm**
- **LVPECL**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	20		200	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			65	
Current (I_{DD}) - 3.3V option	mA			80	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH})	V	V_{DD}-1.025			
Output Logic Levels Low (V_{OL})	V			V_{DD}-1.62	
Rise (TR) and Fall (TF) Time	ns		0.4	0.8	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.4	1	

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SUNTSU

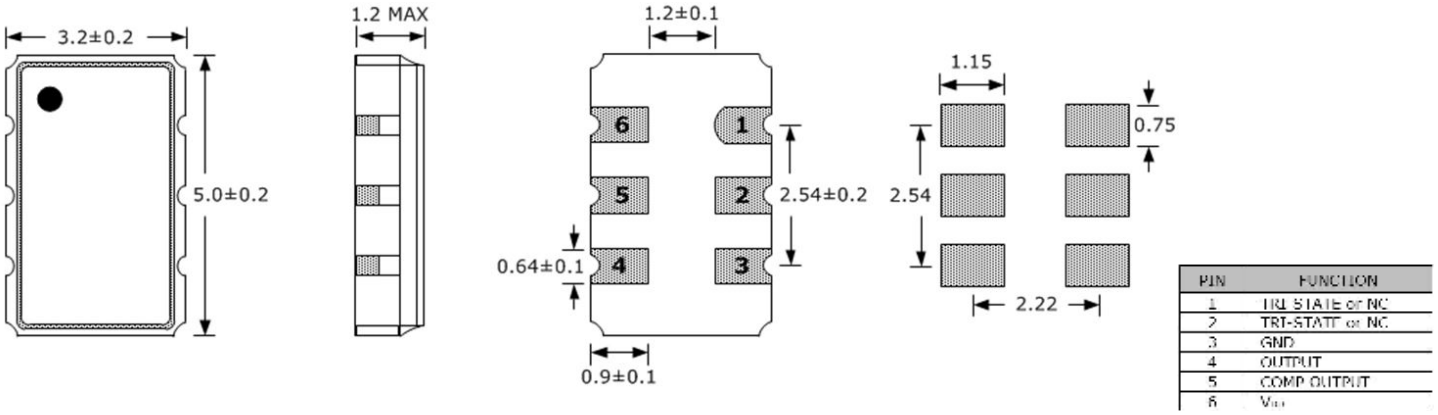
Ceramic SMD 6 Pad LVPECL Oscillator

SXO53P Series

5.0mm x 3.2mm

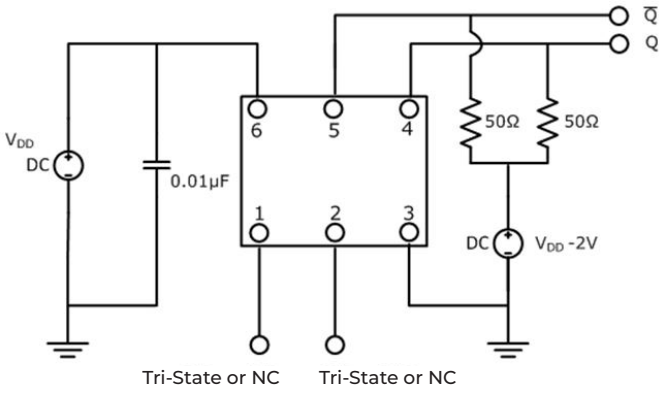
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

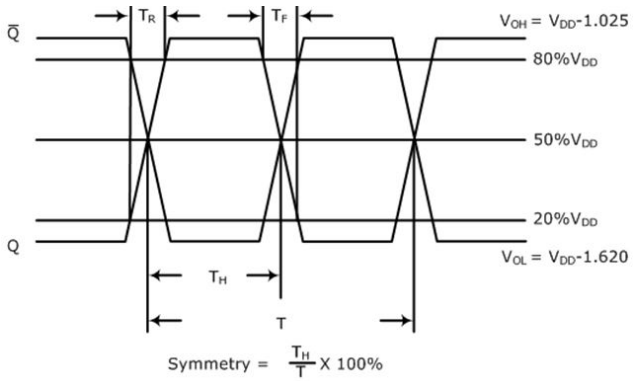


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

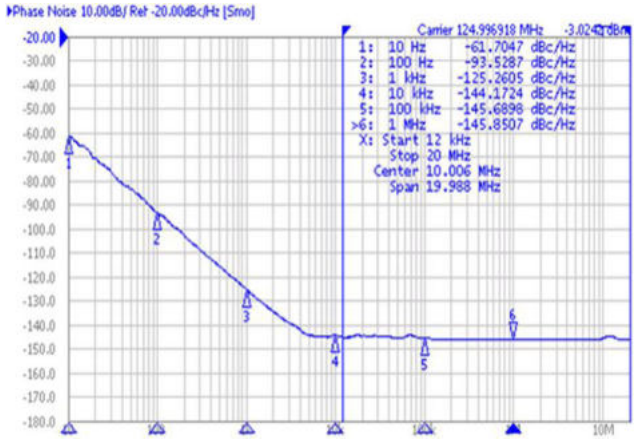
Test Circuit (LVPECL)



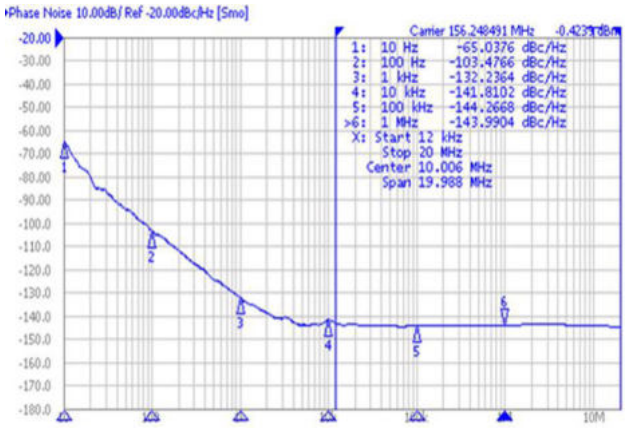
Waveform (LVPECL)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 125.000MHz



Frequency - 156.250MHz

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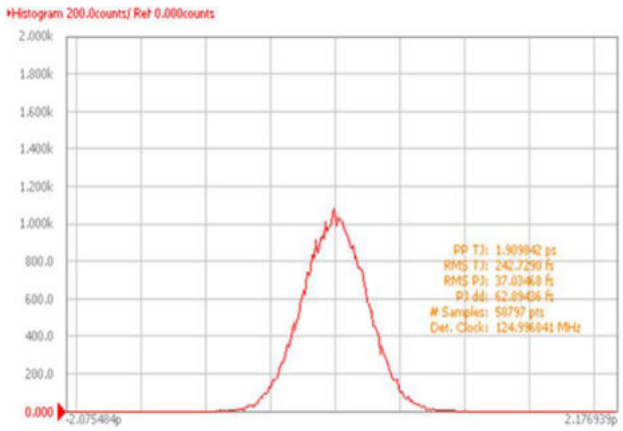
SUNTSU

Ceramic SMD 6 Pad LVPECL Oscillator

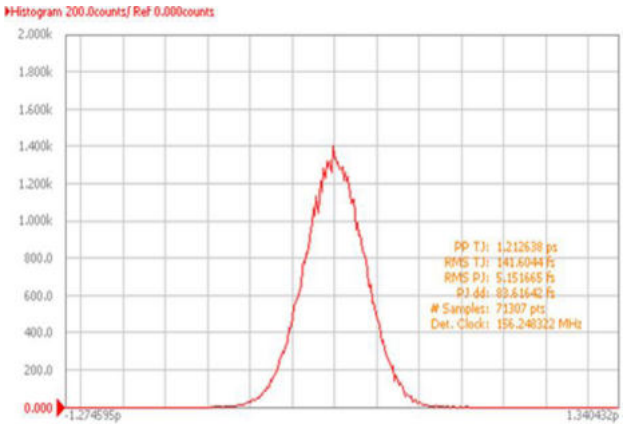
SXO53P Series

5.0mm x 3.2mm

Typical Jitter Performance (Measured By Agilent E5052A)

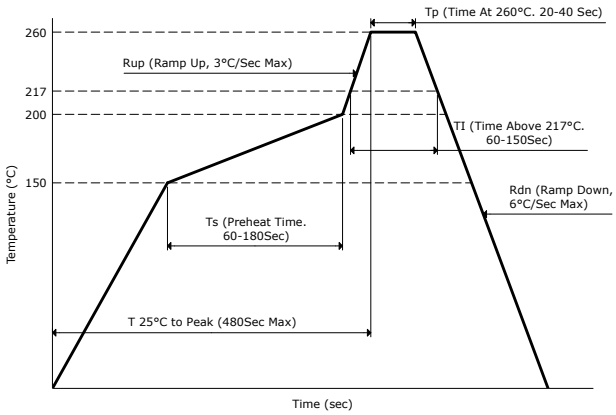


Frequency - 125.000MHz

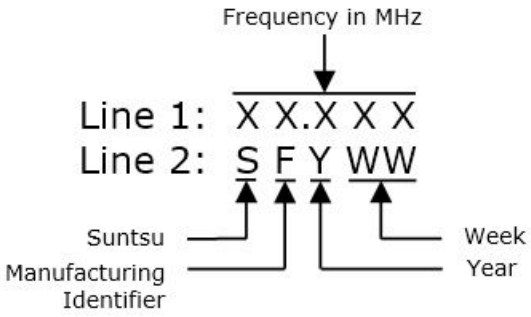


Frequency - 156.250MHz

Reflow Profile



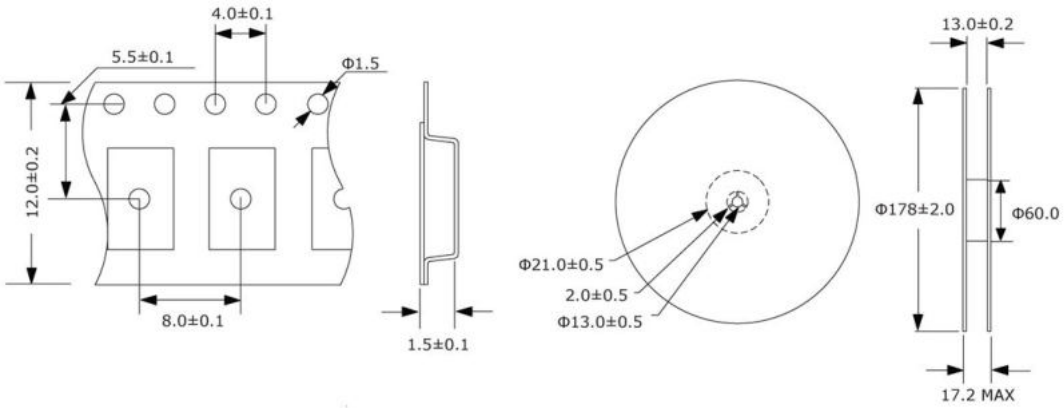
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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IRVINE, CA 92618

Call: +1-949-783-7300 | Fax: +1-949-783-7301

Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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IRVINE, CA 92618

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SUNTSU

Ceramic SMD 6 Pad HCSL Oscillator

SXO75H Series

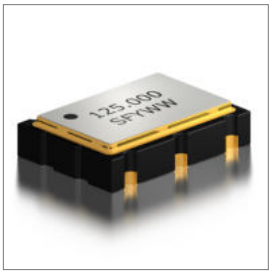
7.0mm x 5.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- HCSL
- Tape and Reel

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SXO 75 H 3 A 48 1 - 125.000M

- **SUNTSU OSC**
- **7.0mm x 5.0mm**
- **HCSL**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	100		125	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			60	
Current (I_{DD}) - 3.3V option	mA			80	
Output Load (HCSL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH})	mV	600		900	
Output Logic Levels Low (V_{OL})	V	0		50	
Rise (TR) and Fall (TF) Time	ns		0.4	0.7	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.5	1	

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IRVINE, CA 92618

Call: +1-949-783-7300 | Fax: +1-949-783-7301

SUNTSU

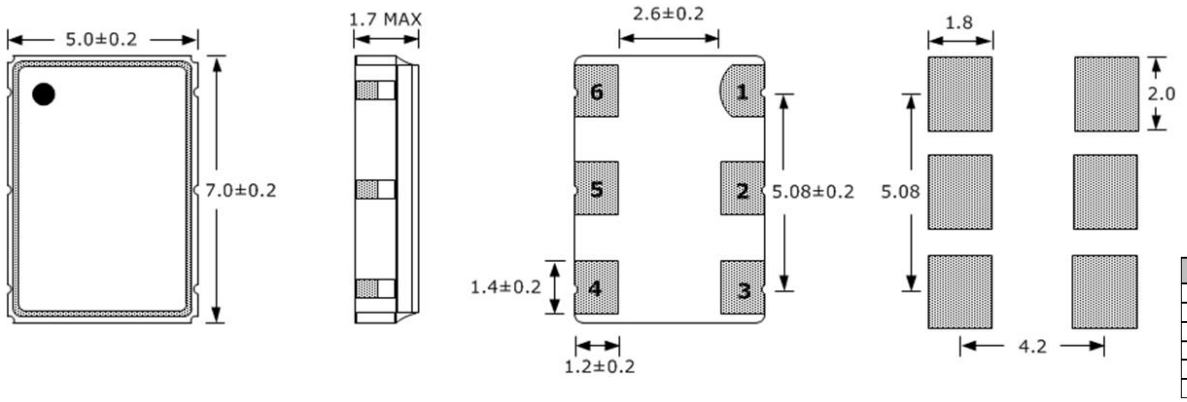
Ceramic SMD 6 Pad HCSL Oscillator

SXO75H Series

7.0mm x 5.0mm

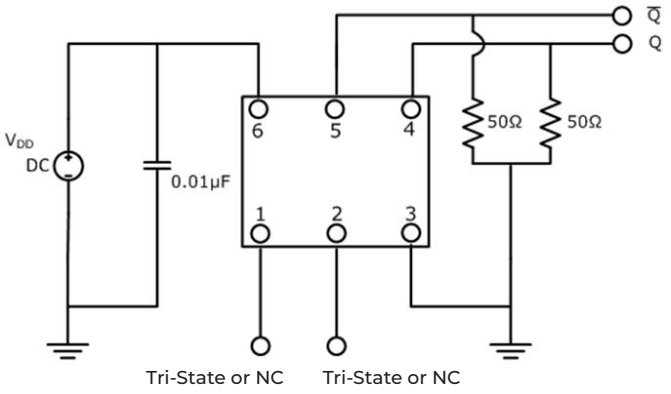
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

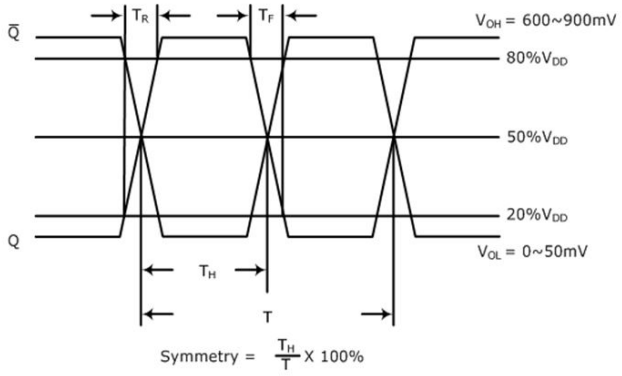


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

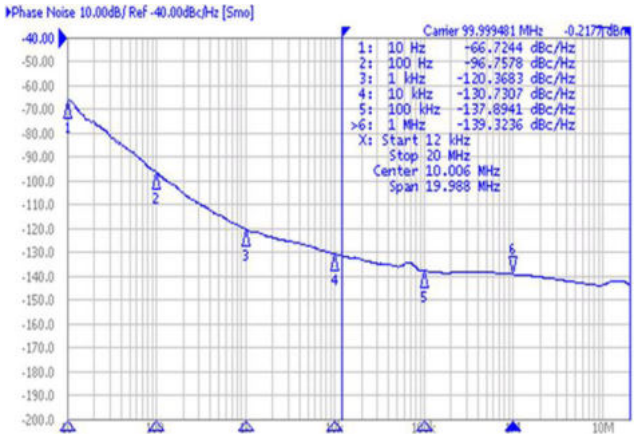
Test Circuit (HCSL)



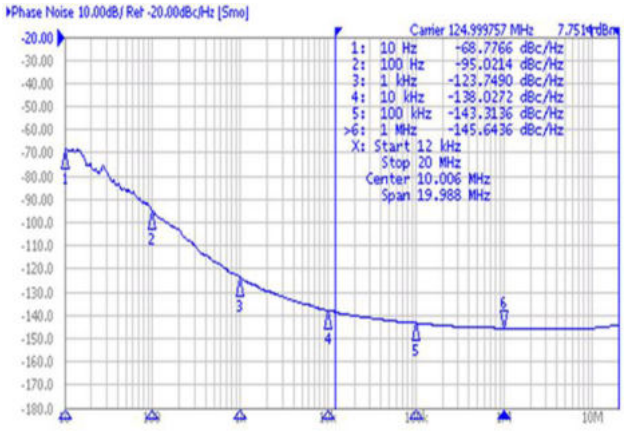
Waveform (HCSL)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 100.000MHz



Frequency - 125.000MHz

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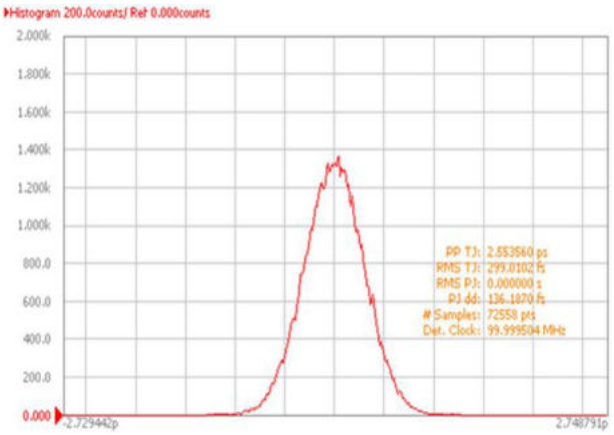
SUNTSU

Ceramic SMD 6 Pad HCSL Oscillator

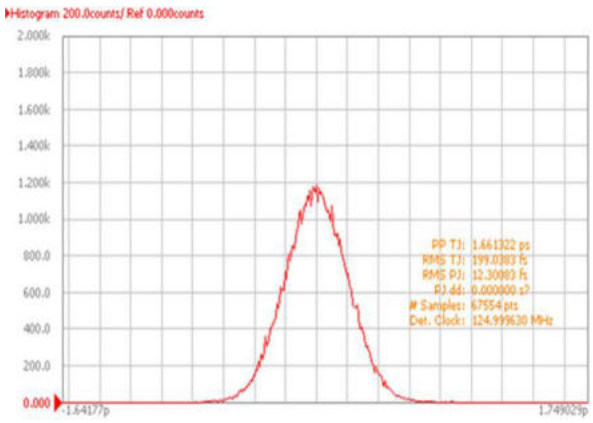
SXO75H Series

7.0mm x 5.0mm

Typical Jitter Performance (Measured By Agilent E5052A)

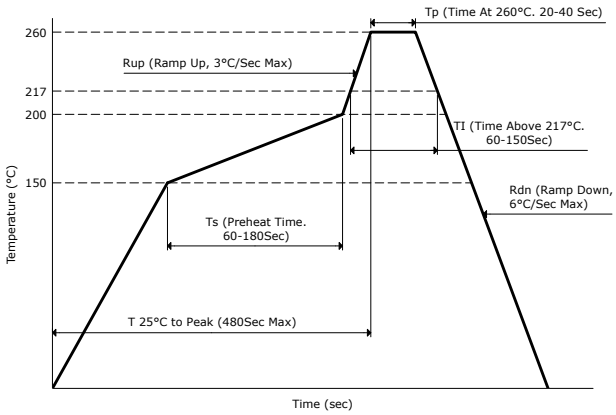


Frequency - 100.000MHz

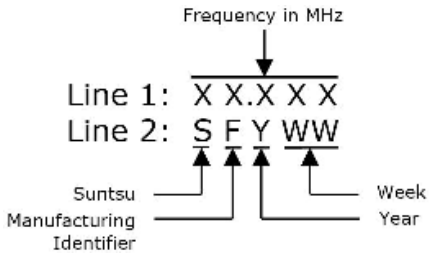


Frequency - 125.000MHz

Reflow Profile



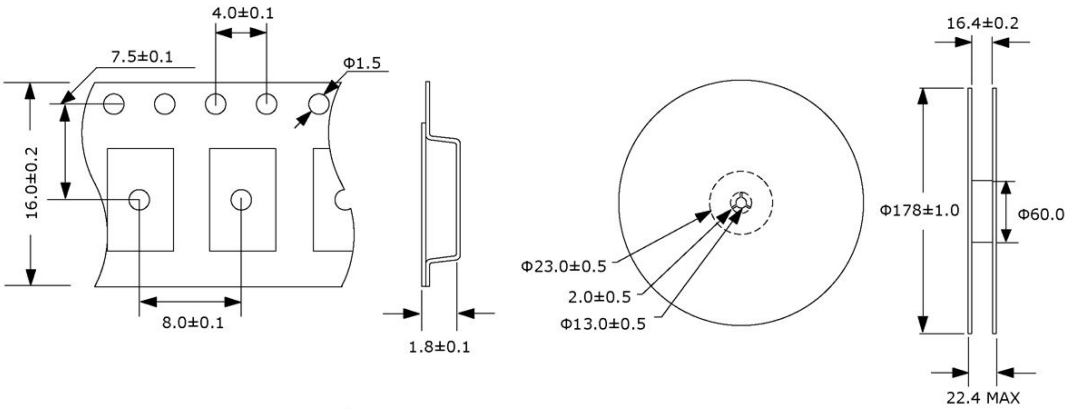
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD 4 Pad CMOS Oscillator

SXO75C Series

7.0mm x 5.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- CMOS
- Tape and Reel

Applications

- Micro Processors
- SONET/SDH/DWDM
- Storage Area/Networking
- Digital Video
- Base Stations

Part Numbering Guide

SXO 75 C 3 A 48 1 X - 25.000M

- **SUNTSU OSC**
- **7.0mm x 5.0mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
  - 5 : 5.0V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **LOAD**
  - BLANK : 15pF
  - X : 30pF
  - Y : 50pF
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

** For operating temperatures up to -55-125°C contact a Suntsu representative.

Electrical Parameters		Units	Minimum	Typical	Maximum	Remarks
Frequency Range		KHz	32.768*			(*32.768KHz not available in 5.0V)
Frequency Range		MHz	1		200*	(*125MHz Max for 5.0V Option)
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)		ppm	-20		+20	See part numbering guide for options
Operating Temperature		°C	-40		+85	See part numbering guide for options
Storage Temperature		°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V option		V	1.710	1.8	1.890	
Supply Voltage (V_{DD}) - 2.5V option		V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option		V	3.135	3.3	3.465	
Supply Voltage (V_{DD}) - 5.0V option		V	4.75	5.0	5.25	
	Frequency Range		**1.8V**	**2.5V**	**3.3V / 5.0V**	
Current (I_{DD})	32.768KHz	mA	5	5	5 / *NA	Maximum Value (*32.768KHz not available in 5.0V)
	1.0000MHz - 34.999MHz	mA	8	10	16 / 25	Maximum Value
	35.000MHz - 59.999MHz	mA	10	20	25 / 40	Maximum Value
	60.000MHz - 99.000MHz	mA	25	30	40 / 70	Maximum Value
	100.000MHz - 200.000MHz	mA	35	50	65 / 90*	Maximum Value (*at 125MHz Max for 5.0V)
Output Load (CMOS)		pF			15	See part numbering guide for options
Output Logic Levels High (V_{OH})		V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})		V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time	32.768KHz	ns			200	
	1.0000MHz - 34.999MHz	ns			10	
	35.000MHz - 99.999MHz	ns			6	
	100.000MHz - 200.000MHz	ns			3	
Symmetry (Duty Cycle)		%	45	50	55	
Tri-State Input Voltage - Enable		V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable		V			0.3*V_{DD}	
Start-Up Time		ms			10	
Phase Jitter (12kHz ~ 20MHz)		ps			1	

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Specifications are subject to change without notice.

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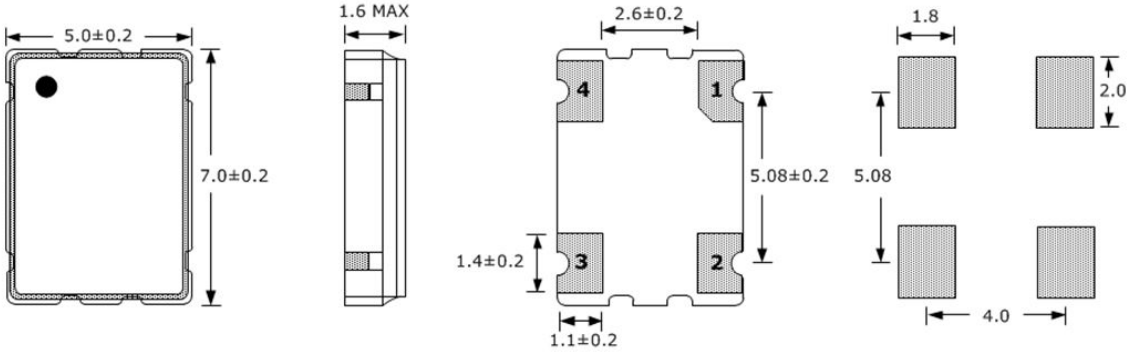
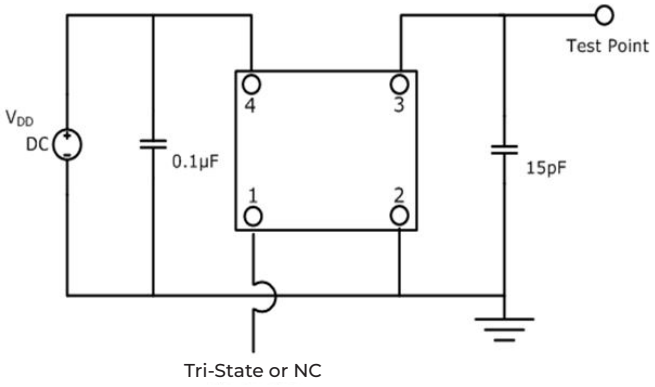
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

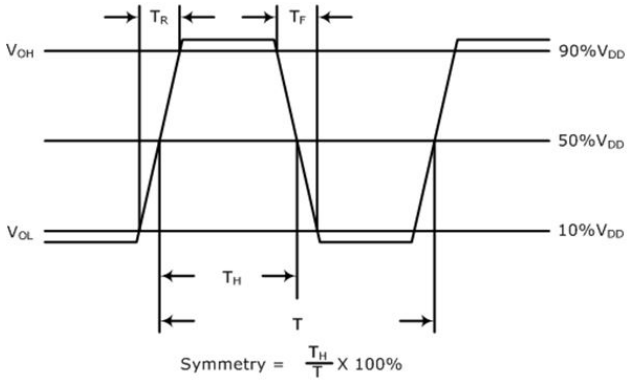


PIN	FUNCTION
1	TRI-STATE or NC
2	GND
3	OUTPUT
4	V_{DD}

Test Circuit (CMOS)

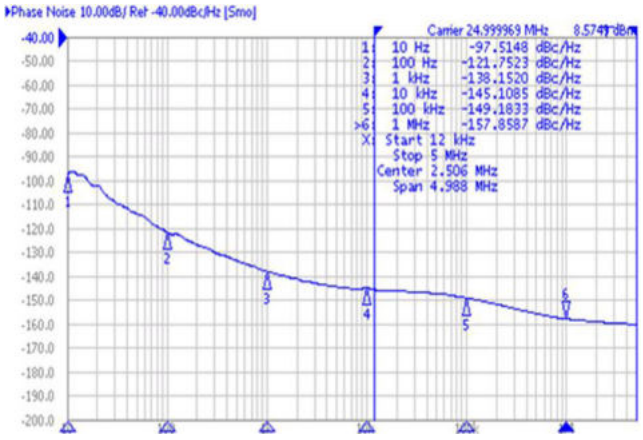


Waveform (CMOS)

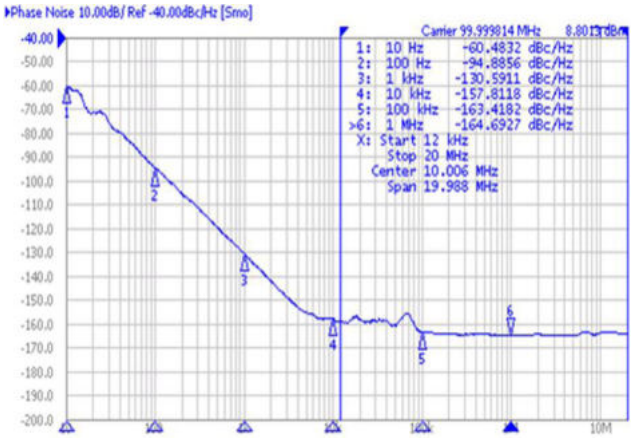


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 25.000MHz



Frequency - 100.000MHz

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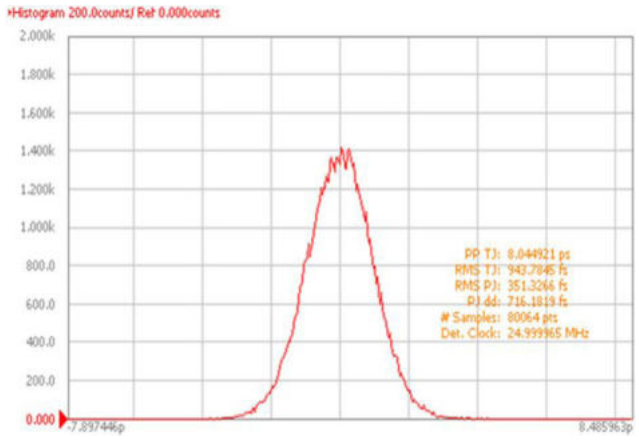
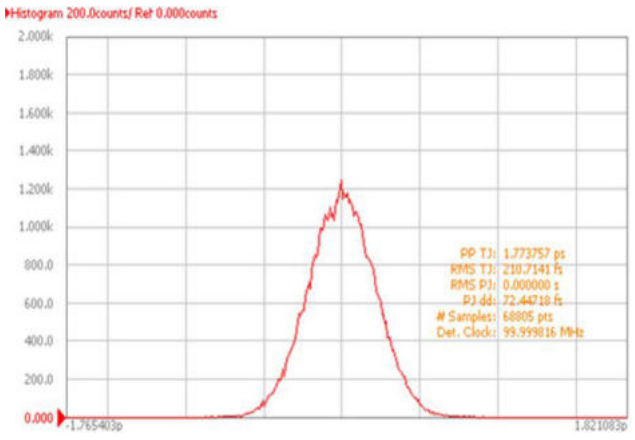
Typical Jitter Performance (Measured By Agilent E5052A)

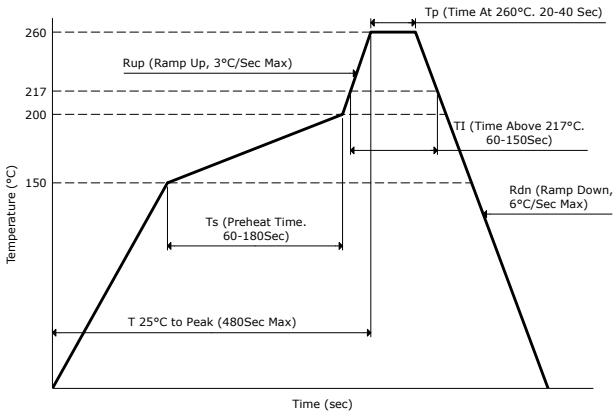


Frequency - 25.000MHz

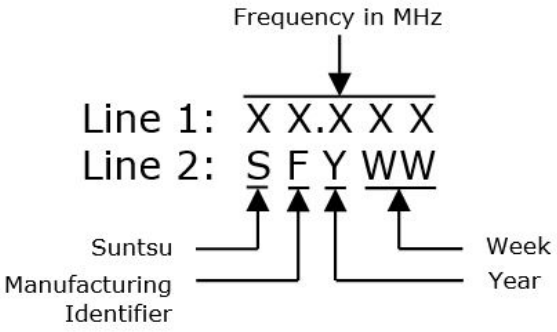


Frequency - 100.000MHz

Reflow Profile



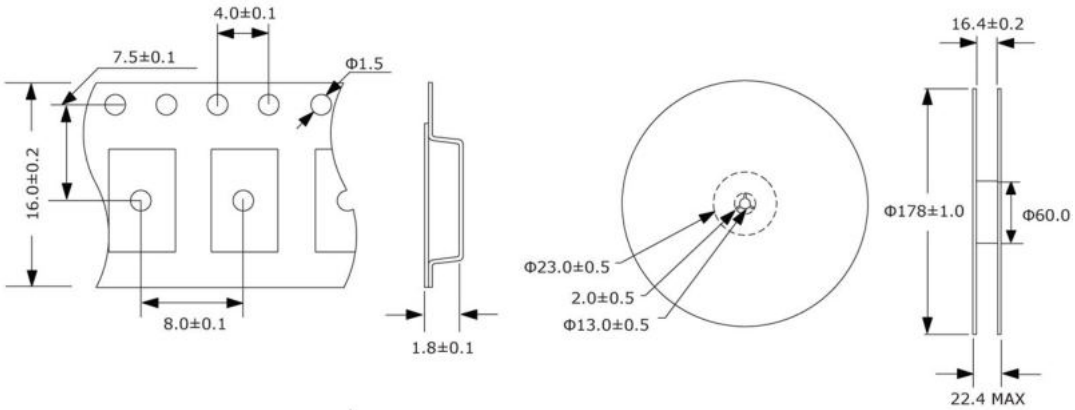
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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IRVINE, CA 92618

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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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IRVINE, CA 92618

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SUNTSU

Ceramic SMD 6 Pad LVDS Oscillator

SXO75L Series

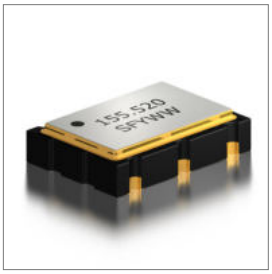
7.0mm x 5.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVDS
- Tape and Reel

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express



Part Numbering Guide

SXO 75 L 3 A 48 1 - 155.520M

- **SUNTSU OSC**
- **7.0mm x 5.0mm**
- **LVDS**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	80		260	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V Option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V Option	V	3.135	3.3	3.465	
Current (I_{DD}) - 2.5V Option	mA			50	
Current (I_{DD}) - 3.3V Option	mA			60	
Output Load (LVDS)	Ω			100	
Output Logic Levels High (V_{OH})	V		1.43	1.6	
Output Logic Levels Low (V_{OL})	V	0.9	1.1		
Differential Output Voltage (V_{OD})	mV	247	330	454	
Differential Output Error (ΔV_{OD})	mV			50	
Offset Voltage (V_{OS})	V	1.125	1.250	1.375	
Offset Error (ΔV_{OS})	mV			50	
Rise (TR) and Fall (TF) Time	ns		0.4	0.8	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.4	1	

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SUNTSU

Ceramic SMD 6 Pad LVDS Oscillator

SXO75L Series

7.0mm x 5.0mm

Outline Drawing & Land Pattern

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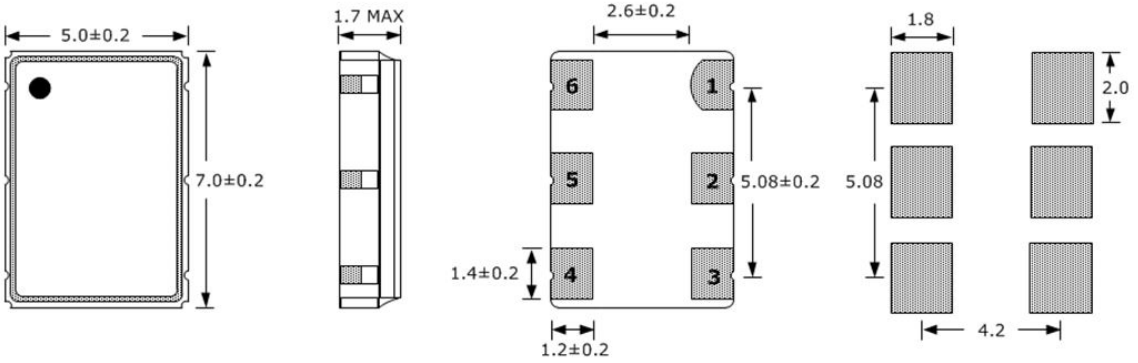
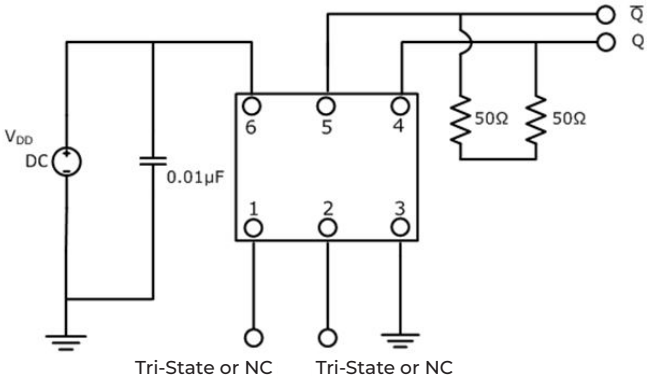
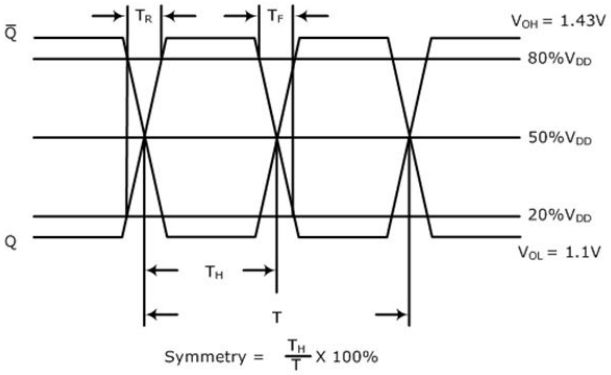


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

Test Circuit (LVDS)

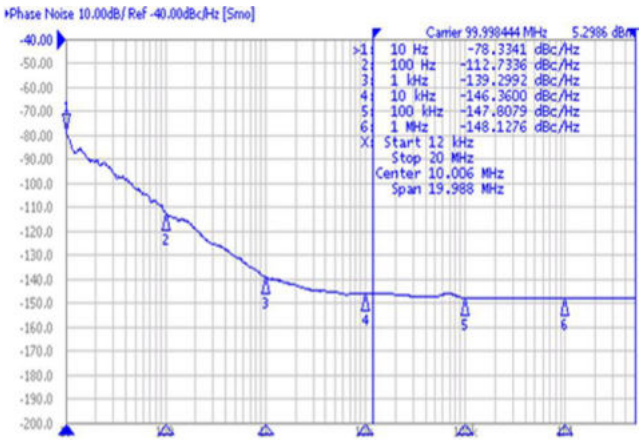


Waveform (LVDS)

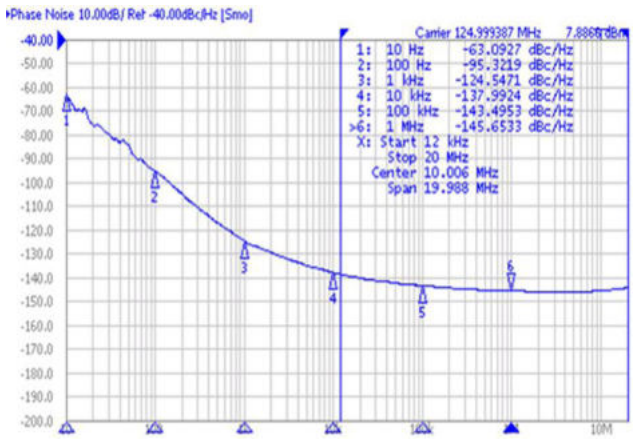


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 100.000MHz



Frequency - 125.000MHz

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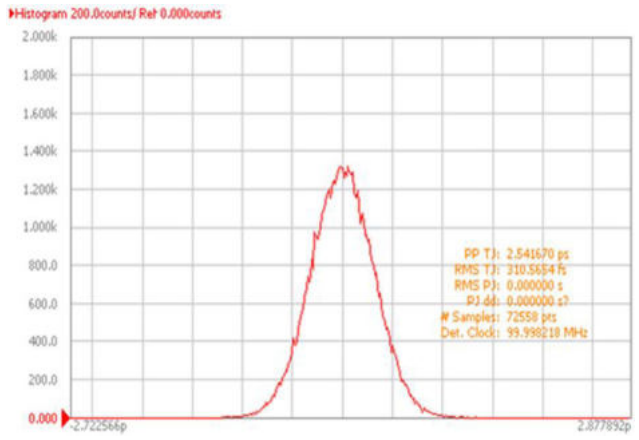
SUNTSU

Ceramic SMD 6 Pad LVDS Oscillator

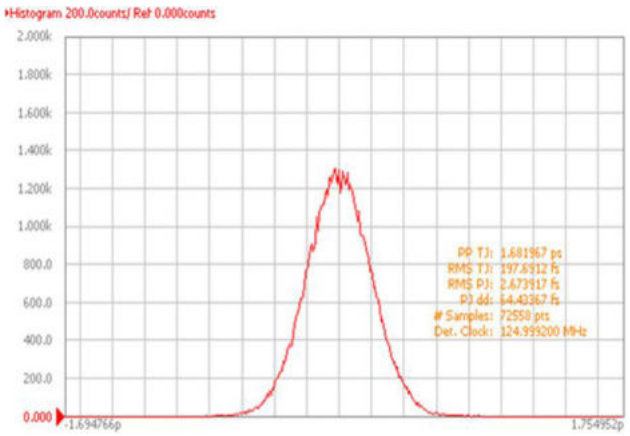
SXO75L Series

7.0mm x 5.0mm

Typical Jitter Performance (Measured By Agilent E5052A)

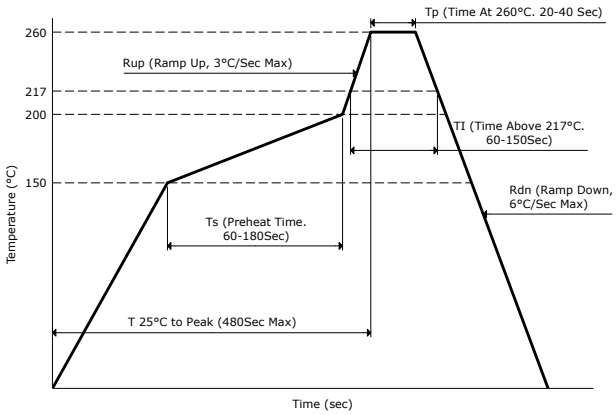


Frequency - 100.000MHz

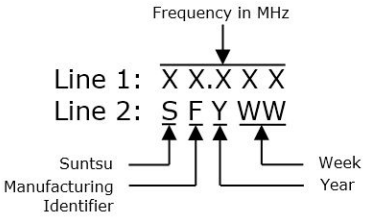


Frequency - 125.000MHz

Reflow Profile



Part Marking



Tape And Reel Dimensions

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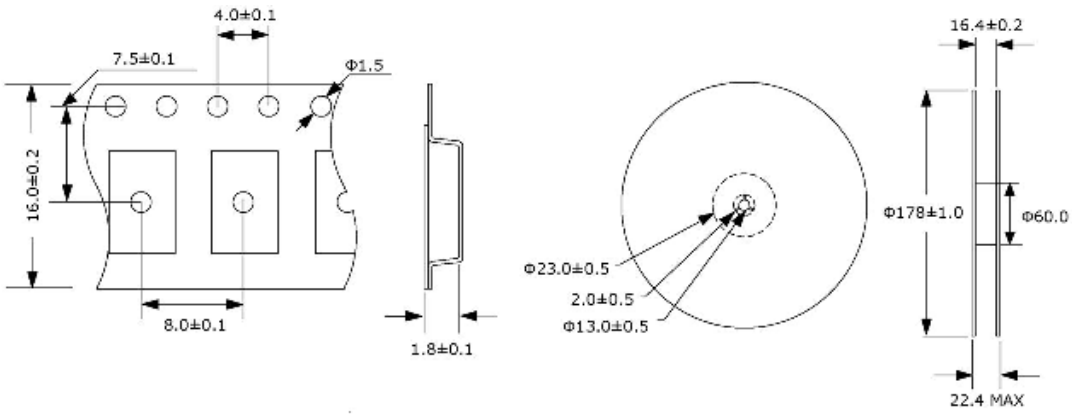
1,000pcs/Reel



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Specifications are subject to change without notice.

Suntsu Electronics, Inc.
142 TECHNOLOGY DR., SUITE 150
IRVINE, CA 92618

Call: +1-949-783-7300 | Fax: +1-949-783-7301

Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Ceramic SMD 6 Pad LVPECL Oscillator

SXO75P Series

7.0mm x 5.0mm

Features

- ±20ppm (Frequency Stability) Available
- Ceramic Package
- LVPECL
- Tape and Reel

Applications

- Fiber Channel
- Gigabit Ethernet
- PCI Express

Part Numbering Guide

SXO 75 P 3 A 48 1 - 156.250M

- **SUNTSU OSC**
- **7.0mm x 5.0mm**
- **LVPECL**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - 1 : Pin 1
  - 2 : Pin 2
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	20		200	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.125	3.3	3.465	
Current (I_{DD}) - 2.5V option	mA			65	
Current (I_{DD}) - 3.3V option	mA			80	
Output Load (LVPECL)	Ω			50	50 Ω into V_{DD}-2.0V_{DC}
Output Logic Levels High (V_{OH})	V	V_{DD}-1.025			
Output Logic Levels Low (V_{OL})	V			V_{DD}-1.62	
Rise (TR) and Fall (TF) Time	ns		0.4	0.8	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps		0.4	1	

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SUNTSU

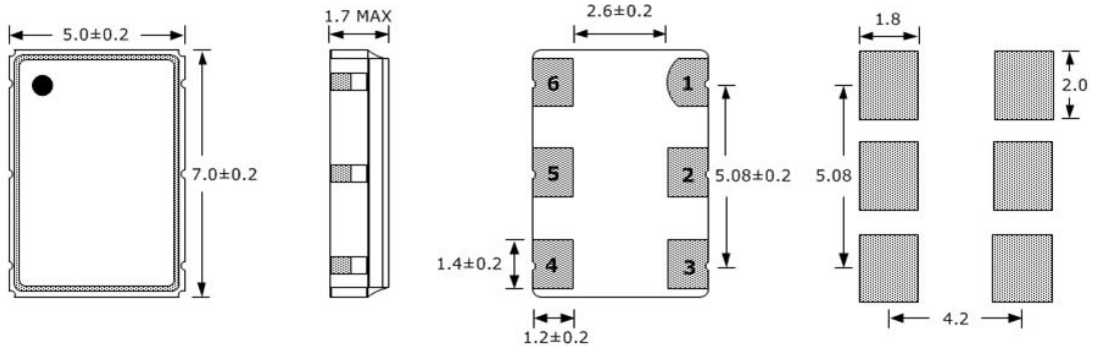
Ceramic SMD 6 Pad LVPECL Oscillator

SXO75P Series

7.0mm x 5.0mm

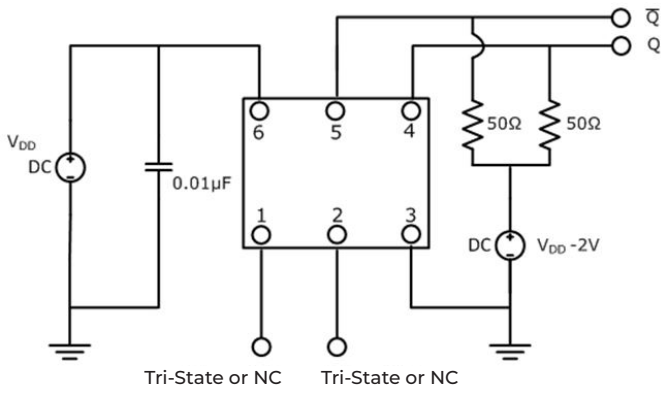
Outline Drawing & Land Pattern

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

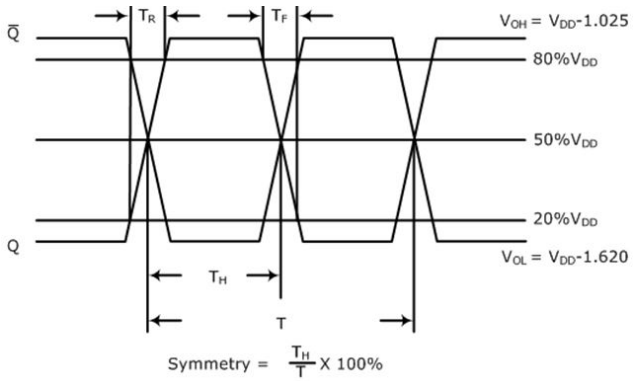


PIN	FUNCTION
1	TRI-STATE or NC
2	TRI-STATE or NC
3	GND
4	OUTPUT
5	COMP OUTPUT
6	V_{DD}

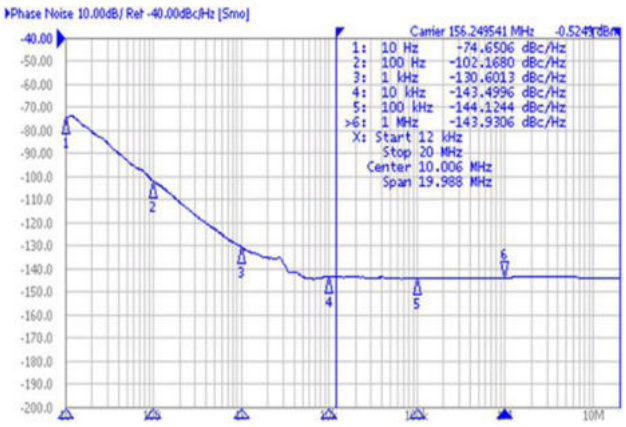
Test Circuit (LVPECL)



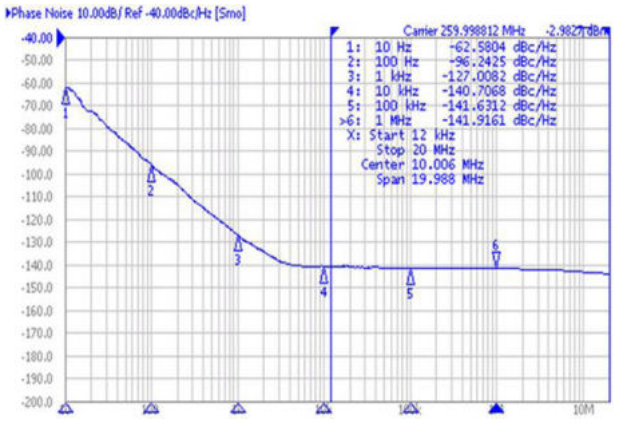
Waveform (LVPECL)



Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 156.250MHz



Frequency - 260.000MHz

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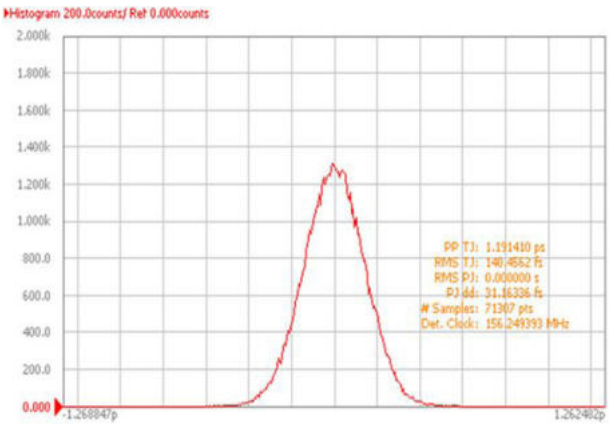
SUNTSU

Ceramic SMD 6 Pad LVPECL Oscillator

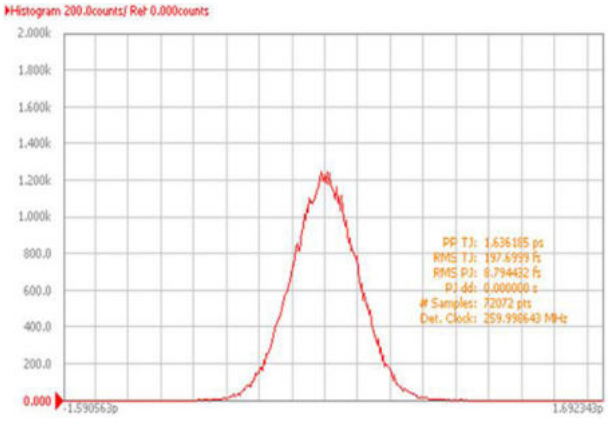
SXO75P Series

7.0mm x 5.0mm

Typical Jitter Performance (Measured By Agilent E5052A)

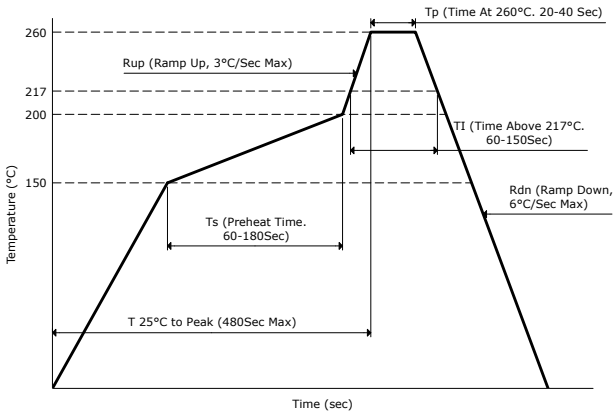


Frequency - 156.250MHz

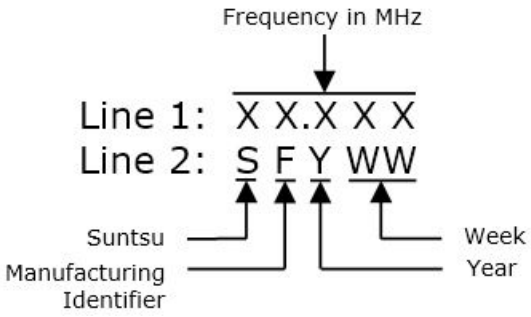


Frequency - 260.000MHz

Reflow Profile



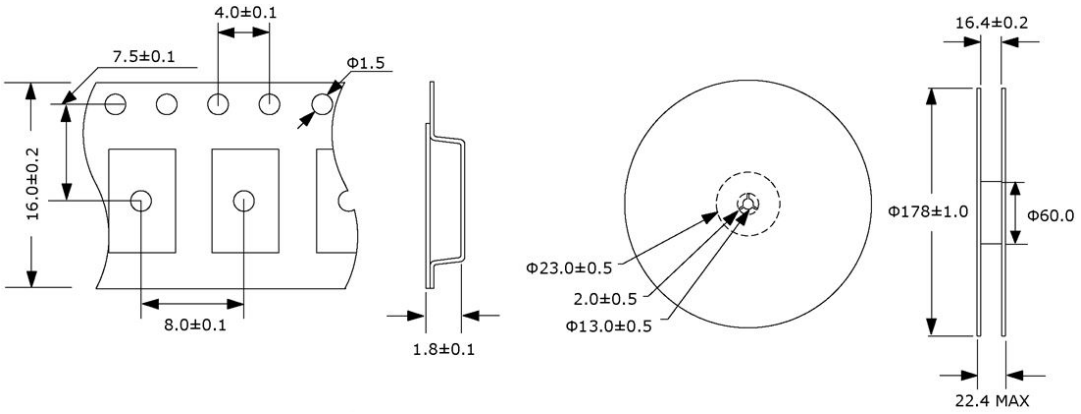
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Metal Full lf Size DIP CMOS Oscillator

SXOFSC Series

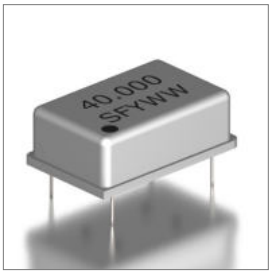
20.7mm x 13.1mm

Features

- ±20ppm (Frequency Stability) Available
- Standard Full-Size Package
- CMOS/TTL Compatible

Applications

- PC
- Monitor
- Vision Equipment
- Printer
- FAX



Part Numbering Guide

SXO FS C 3 A 48 1 - 40.000M

- **SUNTSU OSC**
- **FULL SIZE**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
  - 5 : 5.0V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	0.0327		155.52	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.135	3.3	3.465	
Supply Voltage (V_{DD}) - 5.0V option	V	4.750	5.0	5.250	
Current (I_{DD}) - 2.5V option	mA			20	
Current (I_{DD}) - 3.3V option	mA			30	
Current (I_{DD}) - 5.0V option	mA			40	
Output Load (CMOS)	pF			15	
Output Load (TTL)	TTL			10	
Output Logic Levels High (V_{OH}) - CMOS	V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL}) - CMOS	V			0.1*V_{DD}	
Output Logic Levels High (V_{OH}) - TTL	V	2.4			
Output Logic Levels Low (V_{OL}) - TTL	V			0.4	
Rise (TR) and Fall (TF) Time	ns			5	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps			1	

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SUNTSU

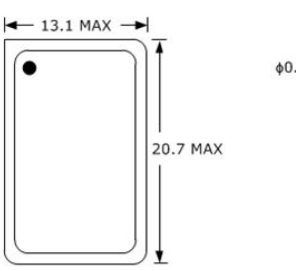
Metal Full lf Size DIP CMOS Oscillator

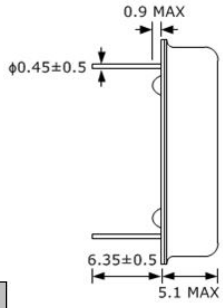
SXOFSC Series

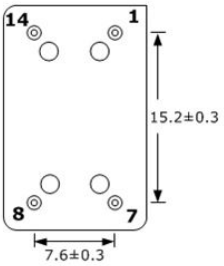
20.7mm x 13.1mm

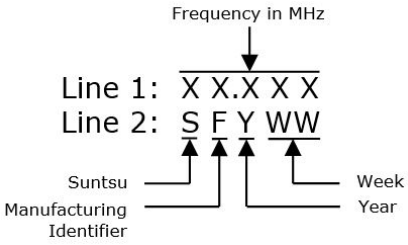
Outline Drawing & Part Marking

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.



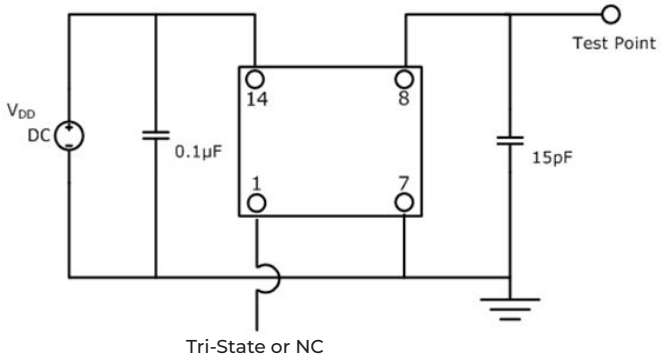




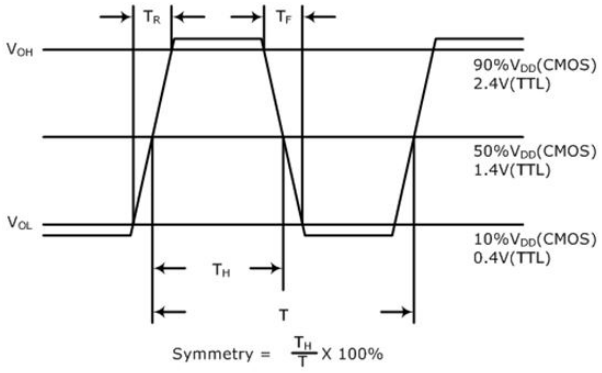


PIN	FUNCTION
1	TRI-STATE or NC
7	GND
8	OUTPUT
14	V_{DD}

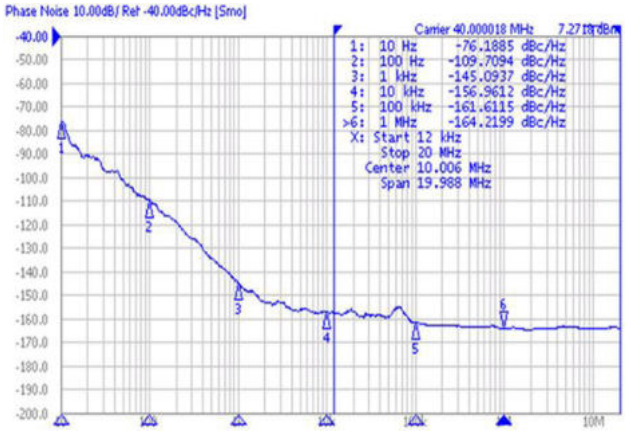
Test Circuit (CMOS /TTL COMPATIBLE)



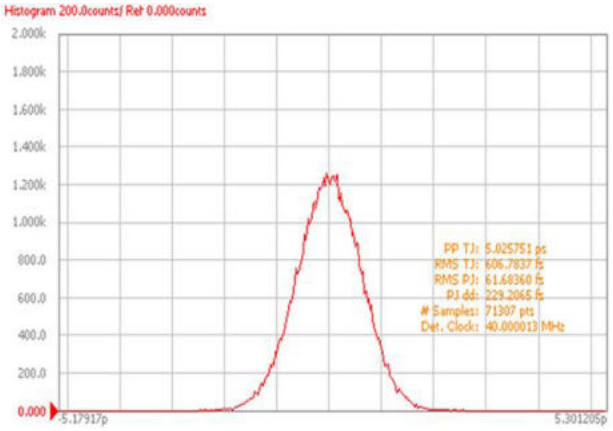
Waveform (CMOS /TTL COMPATIBLE)



Typical Phase Noise & Jitter Performance (Measured By Agilent E5052A)



Frequency - 40.000MHz



Frequency - 40.000MHz

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Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Plastic SMD 4 Pad CMOS Oscillator

SXOPJC Series

14.0mm x 9.8mm

Features

- ±25ppm (Frequency Stability) Available
- Plastic J-Lead Package
- CMOS
- Tape and Reel

Applications

- Micro Processors
- FPGA
- Storage Area/Networking
- Digital Video
- Portable Computers

Part Numbering Guide

SXO PJ C 3 A 48 1 - 25.000M

- **SUNTSU OSC**
- **14.0mm x 9.8mm PLASTIC J-LEAD**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 3 : 3.3V±5%
  - 5 : 5.0V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	1		125	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 3.3V option	V	3.135	3.3	3.465	
Supply Voltage (V_{DD}) - 5.0V option	V	4.750	5.0	5.250	
Current (I_{DD}) - 3.3V option	mA			35	
Current (I_{DD}) - 5.0V option	mA			45	
Output Load (CMOS)	pF			15	
Output Logic Levels High (V_{OH})	V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL})	V			0.1*V_{DD}	
Rise (TR) and Fall (TF) Time 1.0000MHz - 29.999MHz	ns			7	
Rise (TR) and Fall (TF) Time 30.000MHz - 69.999MHz	ns			5	
Rise (TR) and Fall (TF) Time 70.000MHz - 125.000MHz	ns			4	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage(5.0V) - Enable	V	0.7*V_{DD}			No Connection
Tri-State Input Voltage(5.0V) - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps			11	

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SUNTSU

Plastic SMD 4 Pad CMOS Oscillator

SXOPJC Series

14.0mm x 9.8mm

Outline Drawing & Land Pattern

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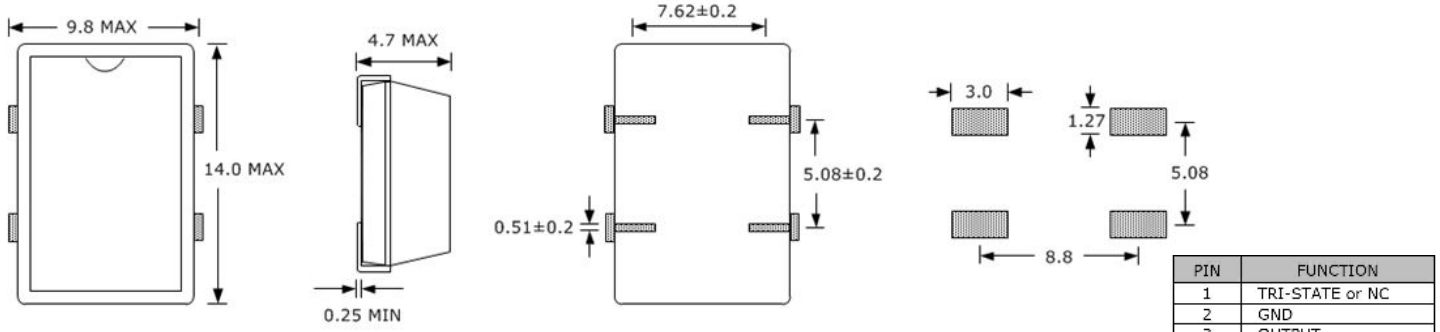
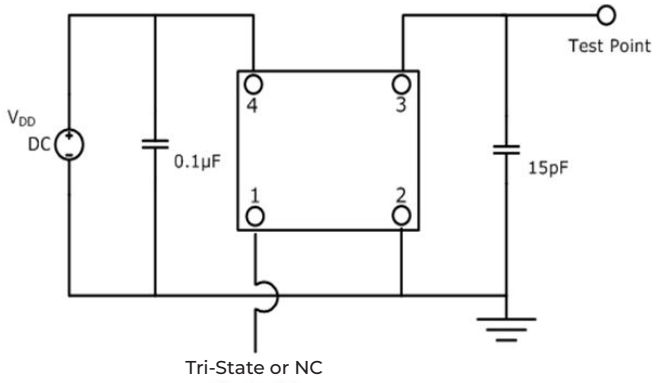
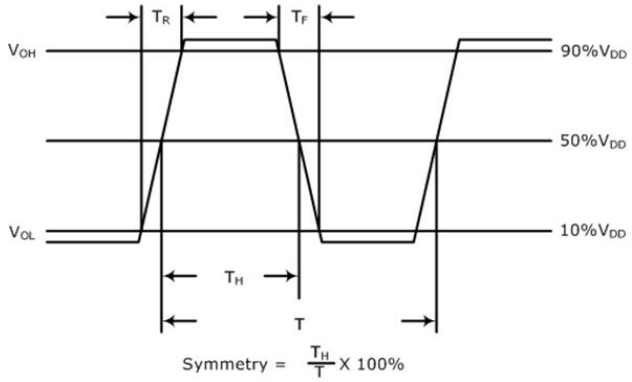


PIN	FUNCTION
1	TRI-STATE or NC
2	GND
3	OUTPUT
4	V_{DD}

Test Circuit (CMOS)

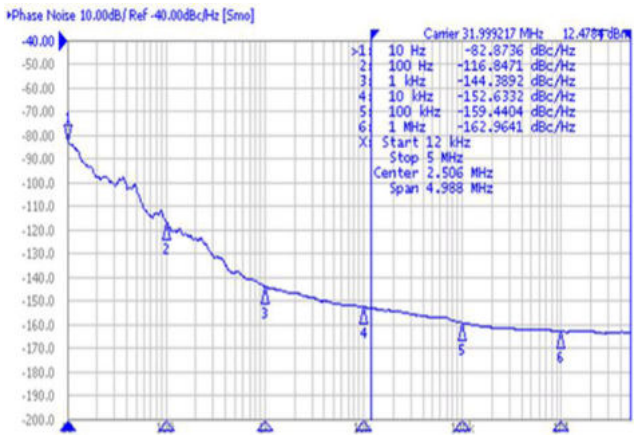


Waveform (CMOS)

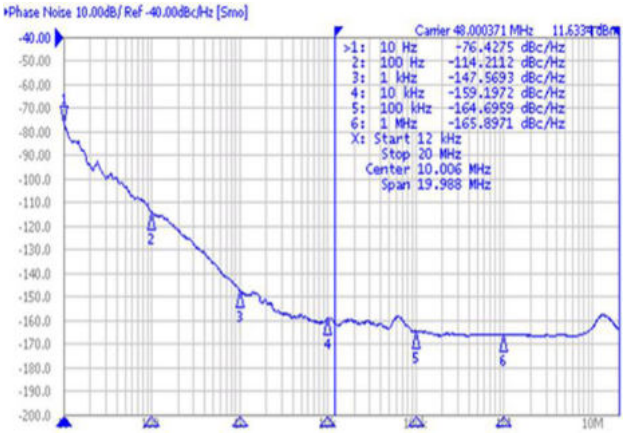


Symmetry = $\frac{T_H}{T}$ X 100%

Typical Phase Noise Performance (Measured By Agilent E5052A)



Frequency - 32.000MHz



Frequency - 48.000MHz

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Call: +1-949-783-7300 | Fax: +1-949-783-7301

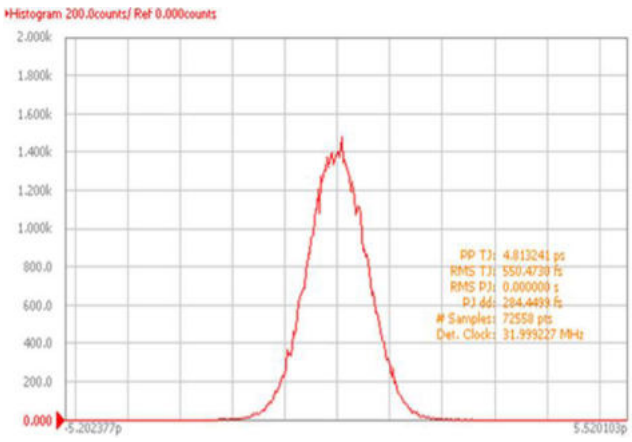
SUNTSU

Plastic SMD 4 Pad CMOS Oscillator

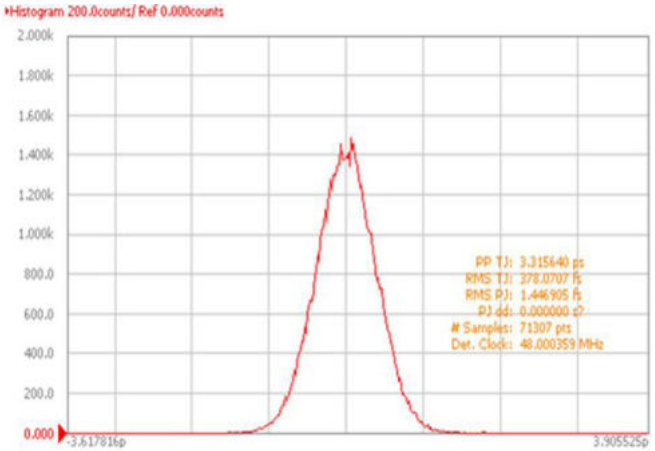
SXOPJC Series

14.0mm x 9.8mm

Typical Jitter Performance (Measured By Agilent E5052A)

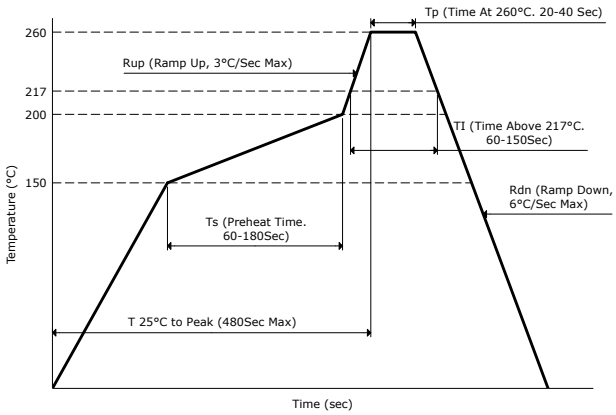


Frequency - 32.000MHz

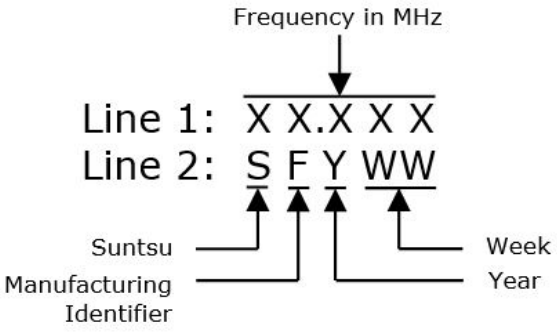


Frequency - 48.000MHz

Reflow Profile



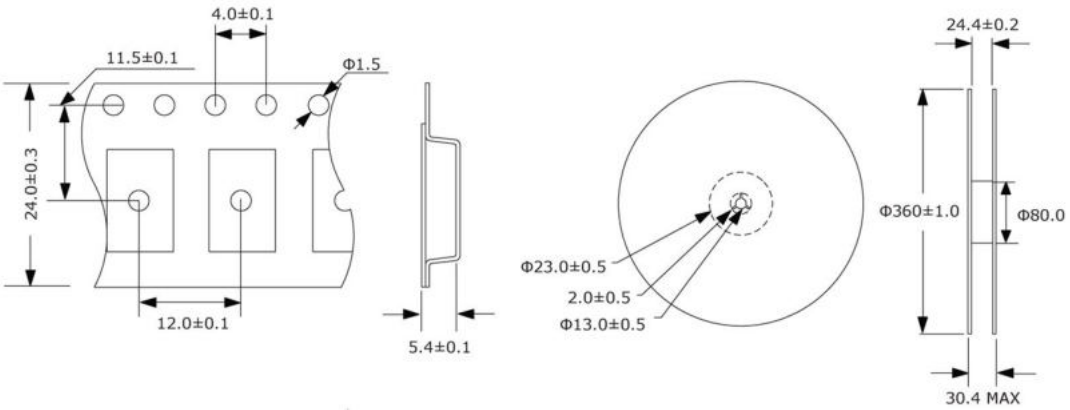
Part Marking



Tape And Reel Dimensions

All dimensions are in millimeters (mm) unless otherwise noted. Drawings are not to scale.

1,000pcs/Reel



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Specifications are subject to change without notice.

Suntsu Electronics, Inc.
142 TECHNOLOGY DR., SUITE 150
IRVINE, CA 92618

Call: +1-949-783-7300 | Fax: +1-949-783-7301

Environmental Specifications		Mechanical Specifications	
Temperature Cycling	MIL-STD-883, Method 1010, Condition B	Mechanical Shock	MIL-STD-202, Method 213, Condition B
Fine Leak Test	MIL-STD-883, Method 1014, Condition A	Vibration	MIL-STD-883, Method 2007, Condition A
Gross Leak Test	MIL-STD-883, Method 1014, Condition C	Moisture Resistance	MIL-STD-883, Method 1004
Solderability	MIL-STD-883, Method 2003	Resistance to Solvents	MIL-STD-202, Method 215
Moisture Sensitivity	J-STD-020, MSL 1	Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K

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SUNTSU

Metal Half Size DIP CMOS Oscillator

SXOHSC Series

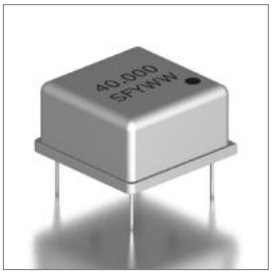
13.2mm x 13.2mm

Features

- ±20ppm (Frequency Stability) Available
- Standard Half-Size Package
- CMOS/TTL Compatible

Applications

- PC
- Monitor
- Vision Equipment
- Printer
- FAX



Part Numbering Guide

SXO HS C 3 A 48 1 - 40.000M

- **SUNTSU OSC**
- **HALF SIZE**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
  - 5 : 5.0V±5%
- **FREQUENCY STABILITY**
  - A : ±50ppm
  - B : ±30ppm
  - C : ±25ppm
  - *D : ±20ppm
- **OPERATING TEMPERATURE RANGE**
  - 07 : 0°C - +70°C
  - 16 : -10°C - +60°C
  - 17 : -10°C - +70°C
  - 27 : -20°C - +70°C
  - 38 : -30°C - +85°C
  - 48 : -40°C - +85°C
- **TRI-STATE (ENABLE/DISABLE)**
  - BLANK : No Connection
  - 1 : Pin 1
- **FREQUENCY**
  - MHz

RoHS COMPLIANT

Cage Code : 4GUT4

To customize your parameters, contact a Suntsu representative.

* For Frequency stability option D, contact a Suntsu representative.

Electrical Parameters	Units	Minimum	Typical	Maximum	Remarks
Frequency Range	MHz	0.0327		155.52	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change, and First Year Aging at 25°C.)	ppm	-20		+20	See part numbering guide for options
Operating Temperature	°C	-40		+85	See part numbering guide for options
Storage Temperature	°C	-55		+125	
Supply Voltage (V_{DD}) - 1.8V option	V	1.620	1.8	1.980	
Supply Voltage (V_{DD}) - 2.5V option	V	2.375	2.5	2.625	
Supply Voltage (V_{DD}) - 3.3V option	V	3.135	3.3	3.465	
Supply Voltage (V_{DD}) - 5.0V option	V	4.750	5.0	5.250	
Current (I_{DD}) - 1.8V option	mA			10	
Current (I_{DD}) - 2.5V option	mA			20	
Current (I_{DD}) - 3.3V option	mA			30	
Current (I_{DD}) - 5.0V option	mA			40	
Output Load (CMOS)	pF			15	
Output Load (TTL)	TTL			10	
Output Logic Levels High (V_{OH}) - CMOS	V	0.9*V_{DD}			
Output Logic Levels Low (V_{OL}) - CMOS	V			0.1*V_{DD}	
Output Logic Levels High (V_{OH}) - TTL	V	2.4			
Output Logic Levels Low (V_{OL}) - TTL	V			0.4	
Rise (TR) and Fall (TF) Time	ns			5	
Symmetry (Duty Cycle)	%	45	50	55	
Tri-State Input Voltage - Enable	V	0.7*V_{DD}			
Tri-State Input Voltage - Disable	V			0.3*V_{DD}	
Start-Up Time	ms			10	
Phase Jitter (12kHz ~ 20MHz)	ps			1	

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SXOHSC Series

13.2mm x 13.2mm

Outline Drawing & Part Marking

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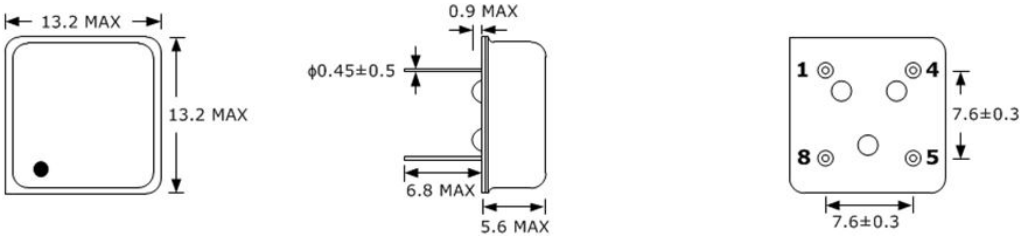
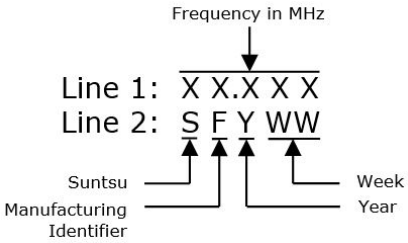
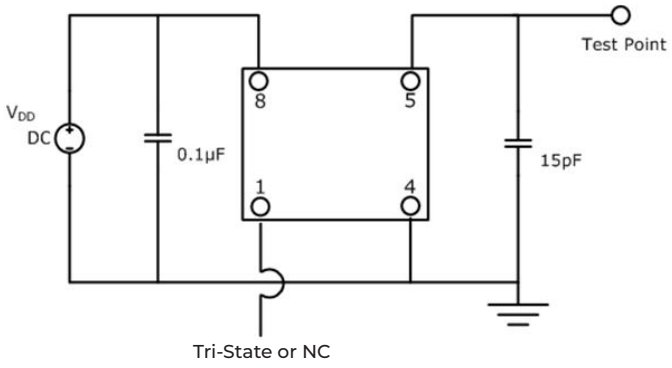


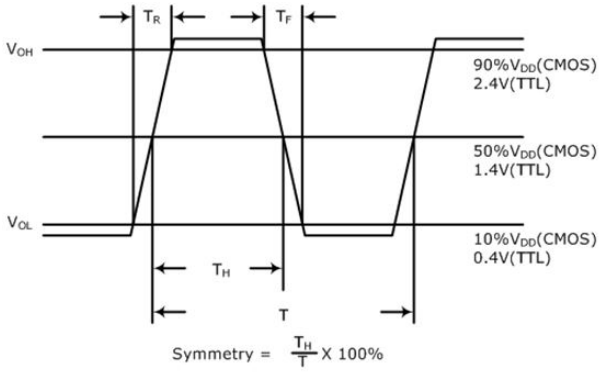
PIN	FUNCTION
1	TRI-STATE or NC
4	GND
5	OUTPUT
8	V_{DD}



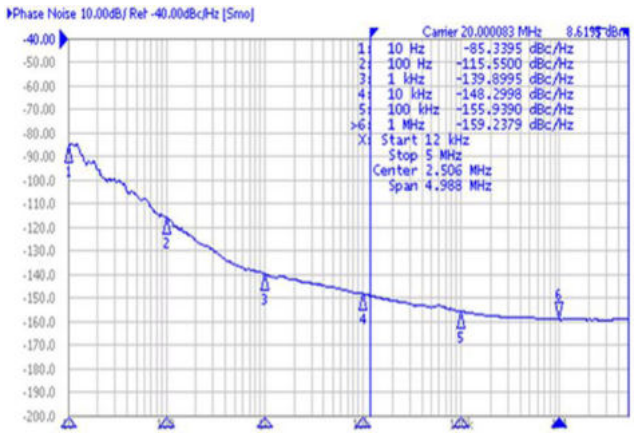
Test Circuit (CMOS /TTL COMPATIBLE)



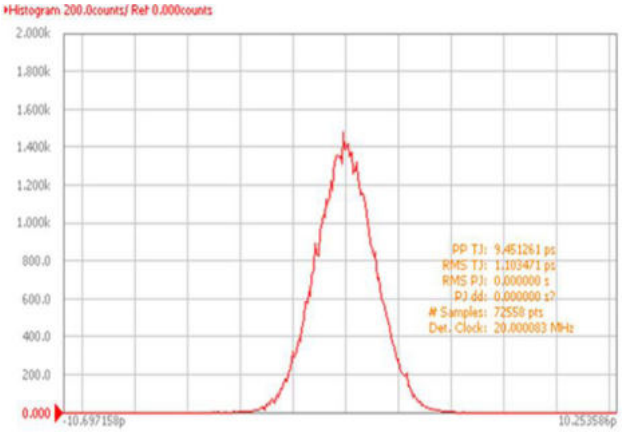
Waveform (CMOS /TTL COMPATIBLE)



Typical Phase Noise & Jitter Performance (Measured By Agilent E5052A)



Frequency - 20.000MHz



Frequency - 20.000MHz

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