SUNTSU

Ceramic SMD 4 Pad CMOS Automotive Oscillator

SAO22C Series

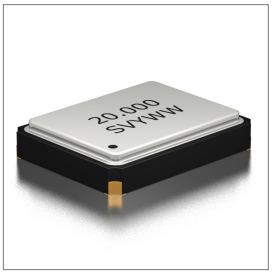
2.5mm x 2.0mm

Features

- ±30ppm (Frequency Stability) Available
- Ceramic Package
- High Reliability for Automotive
- CMOS
- AEC-Q100 Compliant

Applications

- Automotive Electronics
- Infotainment System
- ADAS
- Car Navigation



Part Numbering Guide

SAO 22 C 3 A 4B 1 - 30.000M

- **SUNTSU AUTOMOTIVE OSCILLATOR**
- **2.5mm x 2.0mm**
- **CMOS**
- **SUPPLY VOLTAGE**
  - 1 : 1.8V±5%
  - 2 : 2.5V±5%
  - 3 : 3.3V±5%
- **FREQUENCY STABILITY**
  - Y : ±100ppm
  - A : ±50ppm
  - B : ±30ppm
- **OPERATING TEMPERATURE RANGE**
  - 4A : -40°C - +105°C
  - *4B : -40°C - +125°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 Operating Temperature option 4B, Frequency Stability must be ±50ppm or ±100ppm

Electrical Parameters		Units	Minimum	Typical	Maximum	Remarks
Frequency Range		KHz	32.768			
Frequency Range		MHz	0.250		125.0	
Frequency Stability (Includes Initial Tolerance at 25°C, Frequency Stability over Operating Temperature, Output Load Change, Supply Voltage Change)		ppm	-25		25	See part numbering guide for options
Aging First Year		ppm	-3		3	
Operating Temperature		°C	-40		125	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})	**Frequency Range**		**1.8V**	**2.5V**	**3.3V**	
	32.768KHz	mA	0.20	0.25	0.30	Maximum Value
	0.250MHz - 24.999MHz	mA	4	6	10	Maximum Value
	25.000MHz - 39.999MHz	mA	6	8	15	Maximum Value
	40.000MHz - 59.999MHz	mA	10	12	20	Maximum Value
	60.000MHz - 125.000MHz	mA	25	30	40	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			30	
	0.250MHz - 125.000MHz	ns			10	
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)		ps			1	
Period Jitter (pk-pk)		ps			25	

www.suntsu.com

Specifications are subject to change without notice.

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SAO22C Series

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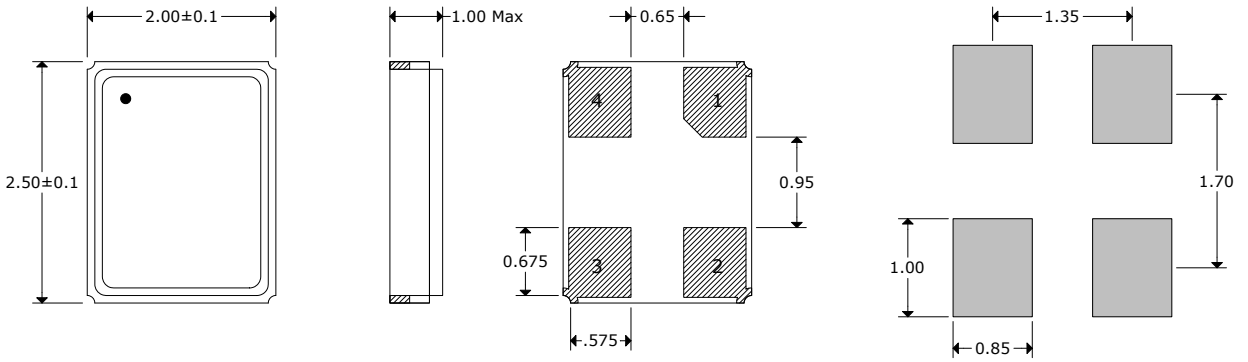
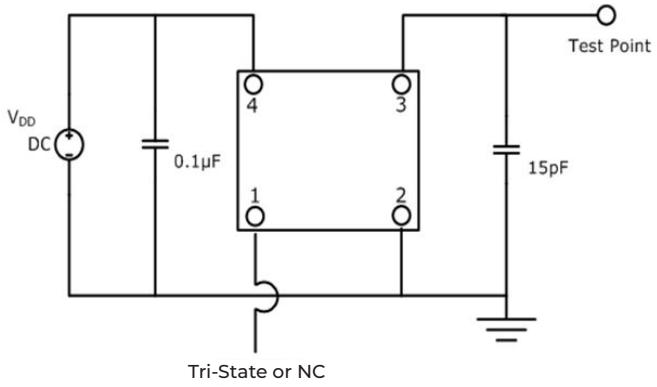
Outline Drawing & Land Pattern

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

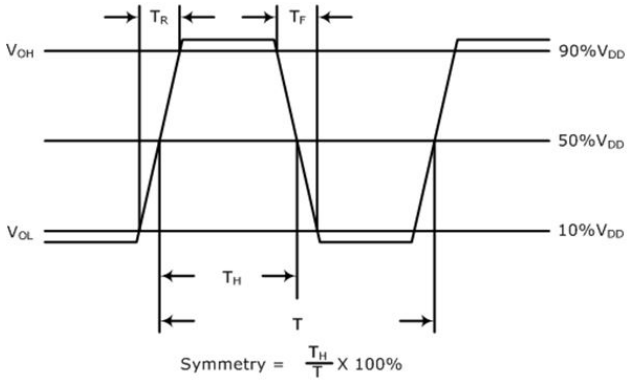


PIN	FUNCTION
1	TRI-STATE or NC
2	GND
3	OUTPUT
4	V_{DD}

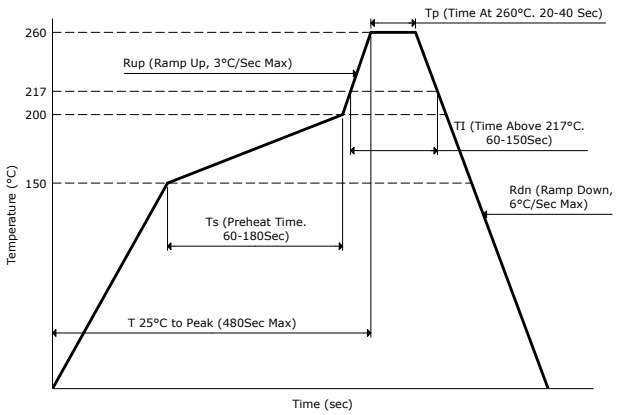
Test Circuit (CMOS)



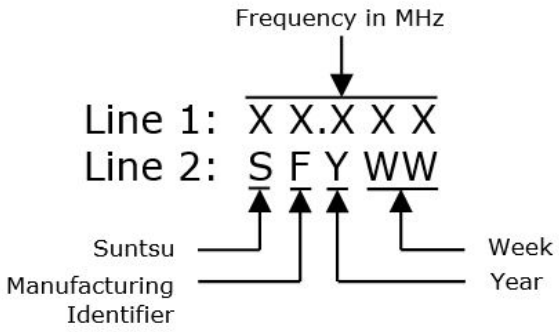
Waveform (CMOS)



Reflow Profile



Part Marking



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Tape And Reel Dimensions

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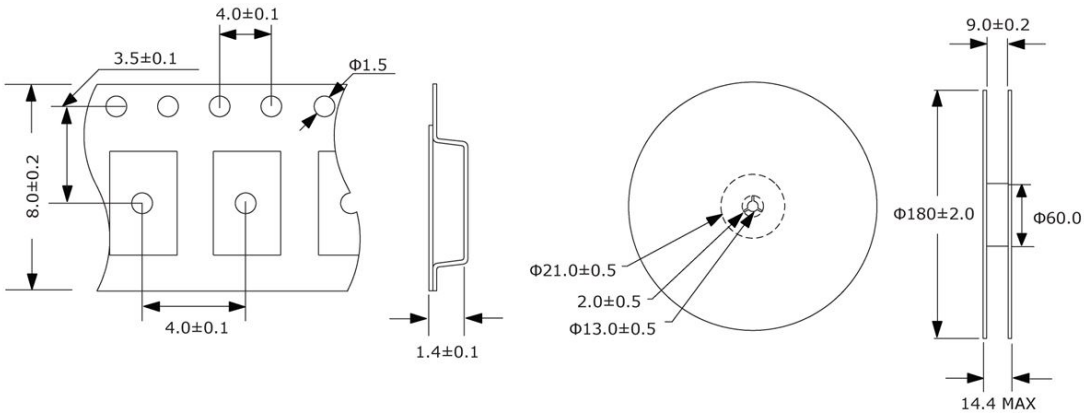
3,000pcs/Reel



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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