



## 7Q Series 2520 TCXO

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| Approved by: |
| Checked by:  |
| Issued by:   |

# SPECIFICATION

**P/N: 7Q3840000C04GJM**

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*The design, manufacturing process, and specifications of this device are subject to change without notice.*

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### FEATURE

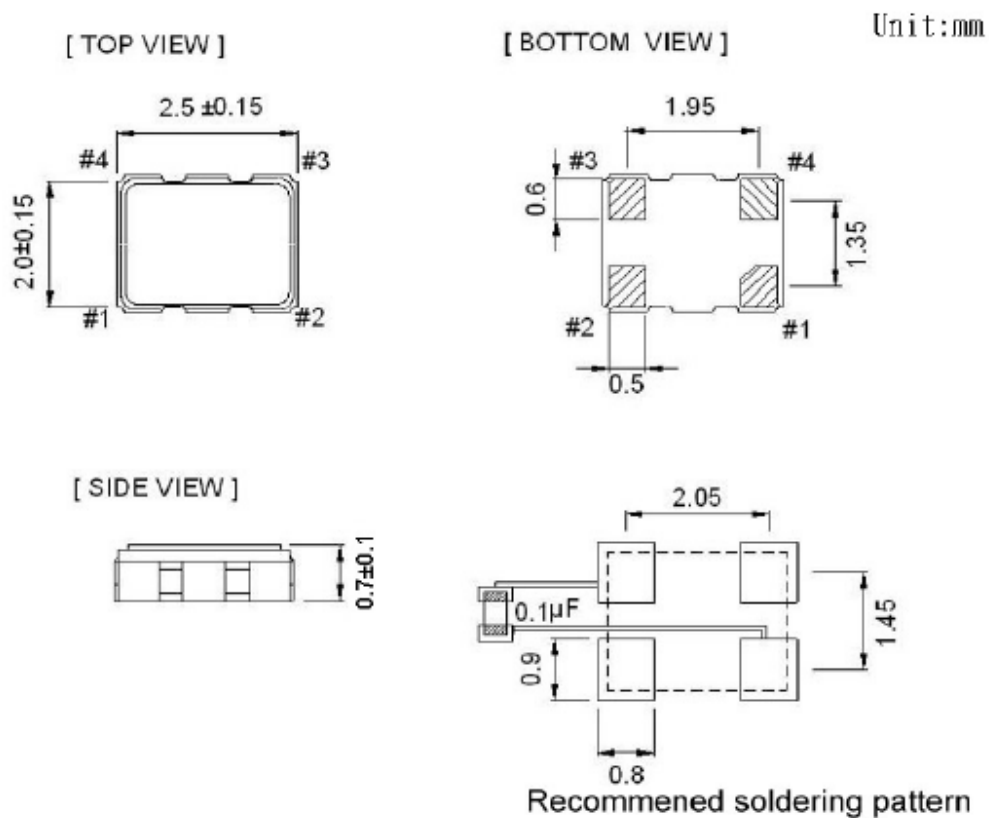
- I Temperature Stability:  $\pm 0.5$  ppm  $\sim \pm 5$ ppm.
- I Operating Temperature Range: 20  $\sim$  70  $^{\circ}$ C.- 30  $\sim$  85  $^{\circ}$ C. - 40  $\sim$  85  $^{\circ}$ C.
- I Supply Voltage: 1.8 V  $\sim$  3.3 V .
- I Voltage Control Function Available.
- I Applications: GPS, WiMAX, Cellular and Wireless Communications.
- I RoHS Compliant / Pb Free.

### ELECTRICAL SPECIFICATIONS

| Item | Parameters                  |                    | Condition                               | Electrical Specifications |     |           |              | Note |
|------|-----------------------------|--------------------|-----------------------------------------|---------------------------|-----|-----------|--------------|------|
|      |                             |                    |                                         | MIN                       | TYP | MAX       | UNITS        |      |
| 1    | Nominal Frequency           |                    |                                         | 38.400000                 |     |           |              | MHz  |
| 2    | Operating Temperature Range |                    |                                         | -40                       | -   | +85       | $^{\circ}$ C |      |
| 3    | Supply Voltage              |                    |                                         | 1.7                       | 1.8 | 3.30      | V            |      |
| 4    | Current Drain               |                    |                                         | -                         | -   | 2.5       | mA           |      |
| 5    | Output Level                |                    |                                         | 0.8                       |     | -         | Vp-p         |      |
| 6    | Output Type                 |                    |                                         | Clipped Sinewave          |     |           |              |      |
| 7    | Output Load                 |                    | Resistance                              | 9                         | 10  | 11        | k $\Omega$   |      |
| 8    |                             |                    | Capacitance                             | 9                         | 10  | 11        | pF           |      |
| 9    | Frequency Tolerance         |                    | After 2 times reflow                    | -                         | -   | $\pm 1.0$ | ppm          |      |
| 10   | Frequency Stability         | vs. Temperature    | Temp: -20 $\sim$ +70 $^{\circ}$ C       | -                         | -   | $\pm 0.5$ | ppm          |      |
| 11   |                             | vs. Load           | Load: 10 k $\Omega$ // 10 pF $\pm 10\%$ | -                         | -   | $\pm 0.2$ | ppm          |      |
| 12   |                             | vs. Supply Voltage | Vcc: 3.3V $\pm 5\%$                     | -                         | -   | $\pm 0.1$ | ppm          |      |
| 13   | Storage Temperature         |                    |                                         | -40                       | -   | +85       | $^{\circ}$ C |      |
| 14   | Start-up Time               | vs. Frequency      | Within $\pm 0.5$ ppm                    | -                         | -   | 2.5       | ms           |      |
| 15   |                             | vs. Output Level   | To 90% of Vp-p                          | -                         | -   | 2.5       | ms           |      |
| 16   | Duty Cycle                  |                    |                                         | 40                        | 50  | 60        | %            |      |
| 17   | Aging                       |                    | 1 <sup>st</sup> year                    | -                         | -   | $\pm 1.0$ | ppm/year     |      |
| 18   | Phase Noise                 | @ 1 kHz offset     |                                         | -                         | -   | -50       | dBc/Hz       |      |

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### DIMENSIONS

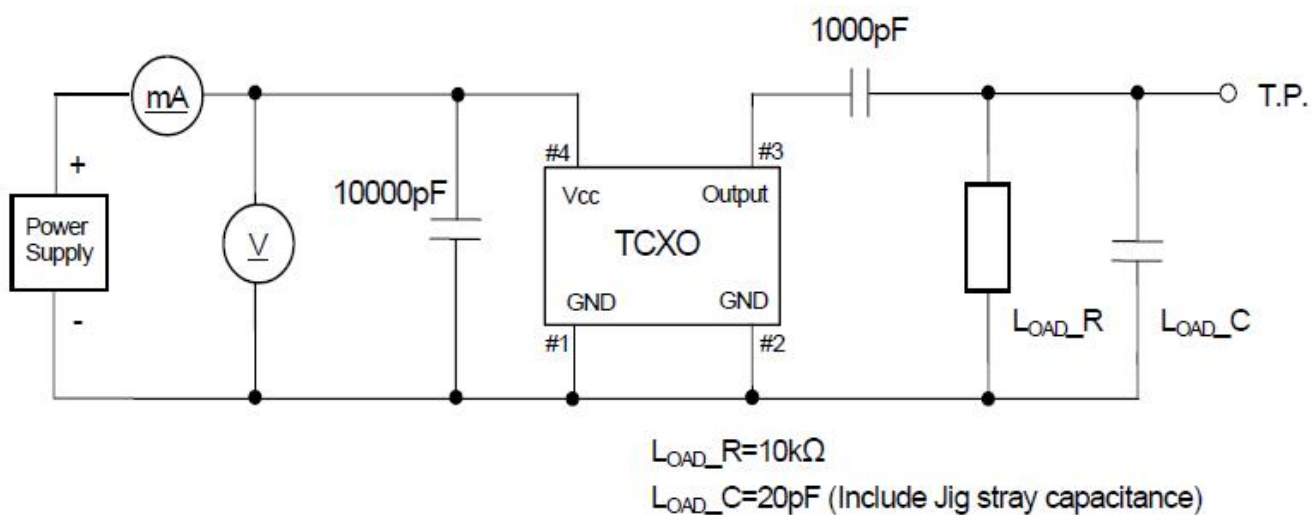


### PIN FUNCTIONS

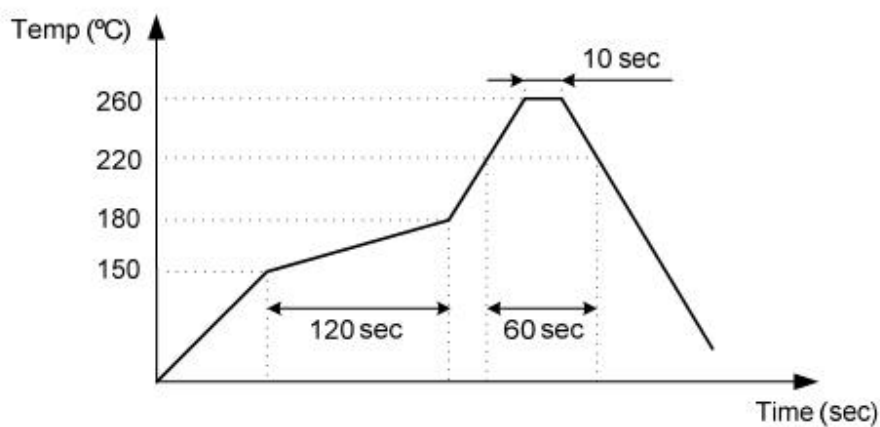
| Pin | Function        |
|-----|-----------------|
| #1  | GND / NC        |
| #2  | GND             |
| #3  | Output          |
| #4  | V <sub>DD</sub> |

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### Measurement Circuit



### Reflow Profile



Note : Total Time: 200 sec. Max., Solder Melting Point: 220°C



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### RELIABILITY TEST SPECIFICATION

| Test item                                  | Equipment                              | Condition                                                                                       | Specification                  |
|--------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------|
| 1.SOLDERABILITY TEST                       | SJK-REL001、RC-328A                     | 1.solderability:235±5℃, 5±0.5S<br>2.heat resistance:260±5℃,10±1S restoration of 1 hour          | MIL-STD-883E<br>Method 2003.7  |
| 2. HERMETICITY TEST                        | HELIOT-306S                            | FC-84 FLUOROCARBON,BUBBLE MACHINE                                                               | MIL-STD-883E<br>Method 1014.10 |
| 3. VIBRATION TEST                          | HG-V4、S&A 250B                         | Enable Crystal(10g) from 0~500Hz,X、Y、Z horizontal,1 Minute vibration/time, 1time/ 2 hours.      | MIL-STD-883E<br>Method 2007.3  |
| 4. MECHANICAL SHOCK                        | HPC-200、S&A 250B                       | Enable Crystal 50G(490m/s <sup>2</sup> ) time=11 ms speed=3.4 m/s<br>half sine wave oscillation | JIS C6701                      |
| 5. DROP TEST                               | HARD BOARD.S&A250B                     | 100CM HIGH,3 TIMES ON HARD BOARD                                                                | MIL-STD-202F<br>Method 213B    |
| 6. SALT SPRAY                              | H-SST-60、RC-328A                       | 5% NaCL,35℃±2℃ CHAMBER,48 hrs., PH:6.5~7.2                                                      | JIS C6701                      |
| 7. HIGH&LOW TEMP STORAGE TEST(Static test) | H-PTH-80CK & HM101-3ABN, S&A 350B/250B | High temperature: 125℃±2℃,96hr; Low temperature:-40℃±3℃,96hrs                                   | MIL-STD-883C<br>,METHOD 1011.8 |
| 8. TEMP &HUM CYCLING TEST                  | H-PTH-80CK CHAMBE , S&A 350B/250B      | Temperature:-10℃±2℃~65℃±2℃,Humidity:93±3%,1 cycle need 24 hrs. 5cycles.                         | MIL-STD-883E<br>Method 1005.8  |
| 9. HIGH TEM. & HUM. STORAGE TEST           | H-PTH-80CK CHAMBE , S&A350B/250B       | temperature:40℃±2, Humidity:85+3,-2%,Store 96 hrs                                               | JIS C6701                      |
| 10.AGING TEST                              | H-PTH-80CK CHAMBE , S&A350B/250        | temperature: 85℃±2, 720hrs                                                                      | JIS C5023                      |