Shoulder 好达

SHOULDER ELECTRONICS LIMITED

CRYSTAL RESONATOR Data Sheet

PRODUCT 产 品: CRYSTAL RESONATOR

MODEL NO 型 号: SMD0603

PREPARED 编 制: Fengyu

CHECKED 审 核: York

APPROVED 批 准: Lijiating

DATE 日 期: 2008-01-25

1. Feature

- RoHS Compliant(Lead Free)
- Surface Mount Package
- High precision characteristic covering up to high frequency range
- Higher frequency stability and reliability
- Tape and Reel available

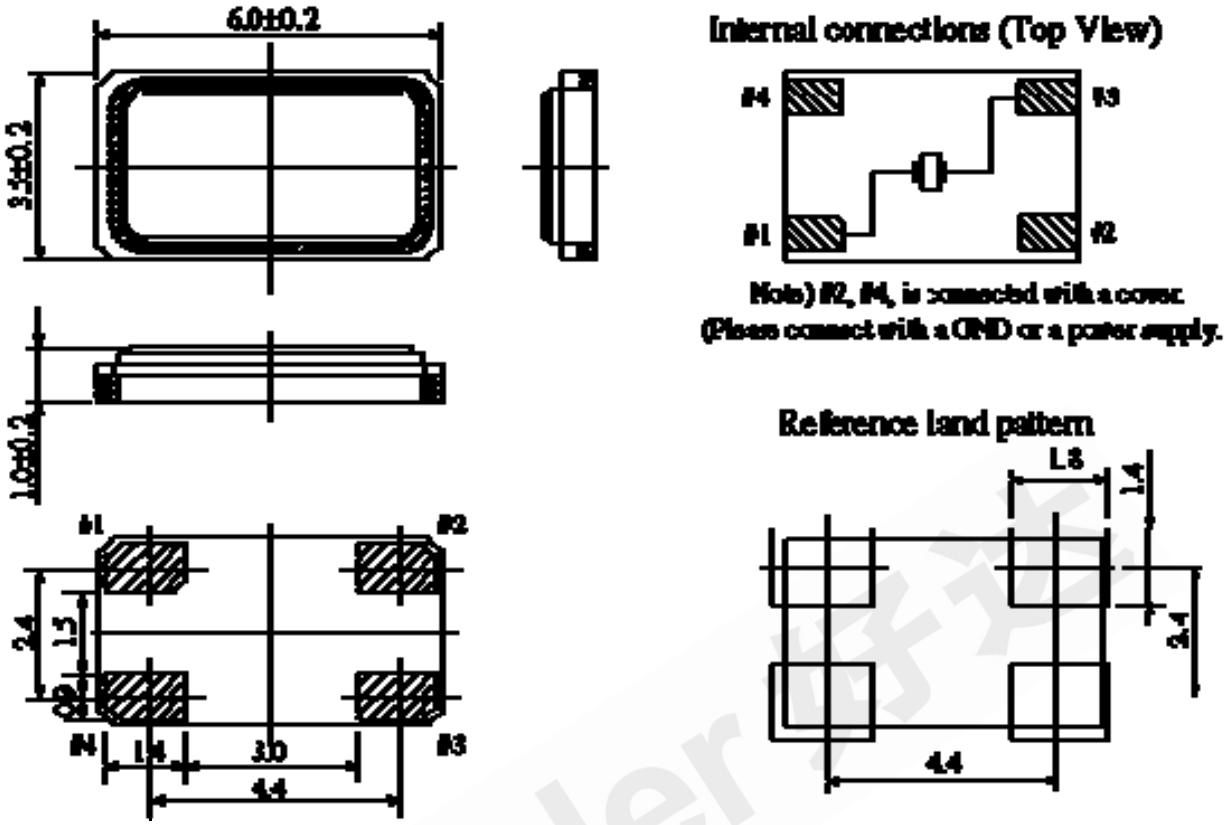
2. Specification

Type	SMD0603
Frequency Range	10.00 ~ 160.00 MHz
Overtone	See table
Frequency Tolerance (25±3˚C)	±10/±15/±20/± 30 ppm
Temperature Characteristics (in reference to +25˚C)	±10/±15/±20/± 30 ppm
Operating Temperature Range	–10 ~ +60˚C
ESR	See table
Drive Level	10 μW (100 μW max)
Standard Load Capacitance	10 /20 /30 pF
Operable Temperature Range	–40 ~ +85˚C

Table equivalent series resistance(Ω)

Overtone	Frequency Range(MHz)	Equivalent Series Resistance (Ω)
Fundamental	10 ~ 40	60 max
3rd overtone	40 ~ 160	100 max

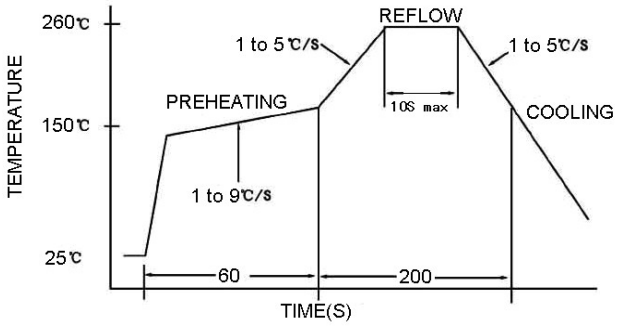
3. Dimensions



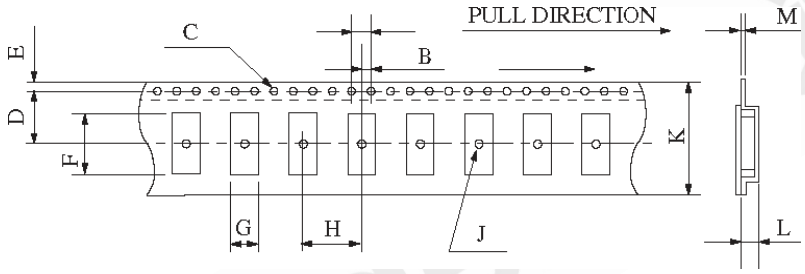
4. Reliability Characteristics

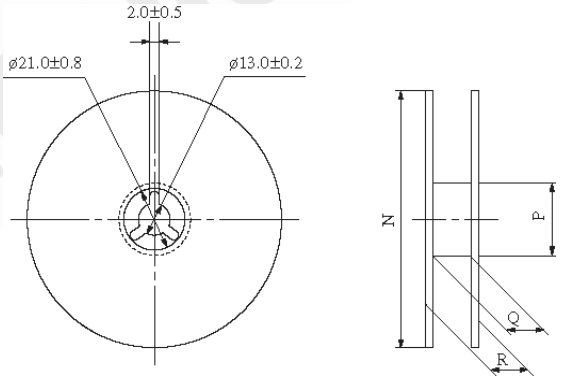
	Item	Condition	Specifications
4.1	Solderability	Solder bath temperature:260℃ , duration:5 seconds, Solder: 100% tin	A new uniform coating of solder shall cover a minimum of 95% of the end surface .
4.2	Resistance to soldering heat	Solder temperature 260+/-3℃,Immersion time:10 S Solder bath composition:100% tin	No electrical and mechanical damage. Electrical characteristics shall be satisfied.
4.3	Vibration	The frequency range: from 10Hz to 55Hz and return to 10Hz Amplitude: 1.5mm This motion shall be applied for a period of 2 h in each of 3 mutually perpendicular axes (total of 6h)	No electrical and mechanical damage. Electrical characteristics shall be satisfied.

<table>
<tr><td>4.4</td><td>Drop test</td><td>Drop from 75cm height on 3cm hard wooden board for 6 times</td><td>No electrical and mechanical damage Electrical characteristics shall be satisfied.</td></tr>
<tr><td>4.5</td><td>Cold Storage</td><td>The unit shall be stored at a temperature of –40+/-3℃ for 500 H. then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.</td><td>Electrical characteristics shall be satisfied.</td></tr>
<tr><td>4.6</td><td>High temperature high humidity storage (steady state)</td><td>The unit shall be stored at a temperature of 40+/-2℃ with relative humidity of 95% for 500h, then it shall be subjected to standard atmospheric conditions for 2h after which measurement shall be made.</td><td>Electrical characteristics shall be satisfied.</td></tr>
<tr><td>4.7</td><td>Thermal shock</td><td>The unit shall be subjected to 50 successive Change of temperature cycles. Each as shown in table below, then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.
<table>
<tr><td></td><td>Temperature</td><td>Duration</td></tr>
<tr><td>1</td><td>-40+/-3℃</td><td>15minutes</td></tr>
<tr><td>2.</td><td>100+/-2℃</td><td>15minutes</td></tr>
<tr><td>3.</td><td>Transition time</td><td>Within 10 seconds</td></tr>
</table></td><td>Electrical characteristics shall be satisfied.</td></tr>
<tr><td>4.8</td><td>Sealing</td><td>Helium leakage detector shall used to measure the leakage rate of gas through any faulty seal. Pressure: 500Kpa, duration:120 minutes</td><td>Leakage rate≤ $1*10^{-9}$ $Pa.m^3/S$</td></tr>
<tr><td>4.9</td><td>High temperature Life test</td><td>The unit shall be stored at a temperature of 85+/-3℃ for 720h,then it shall be subjected to standard atmospheric condition for 1h after which measurement shall be made.</td><td>Electrical characteristics shall be satisfied.</td></tr>
<tr><td>4.10</td><td>Salt spray test</td><td>Temperature +35℃±2℃
Duration 48 hours
NaCl % 5%</td><td>No rust. Electrical characteristics shall be satisfied.</td></tr>
</table>

4.11	Soldering Profile		Reflow temperature: Solder with lead: 240℃+/-5 Solder without lead:260℃+/-5

5. Package





SMD 0603	A	B	C	D	E	F	G	H	J
	4.0 ± 0.1	2.0 ± 0.1	ø1.5 +0.1 -0	5.5±0.1	1.75±0.1	5.4 ± 0.1	3.5 ± 0.1	8.0 ± 0.1	ø1.5 +0.1 -0
	K	L	M	N	P	Q	R	Quantity	
	12.0±0.2	1.4 ± 0.1	0.3±0.05	ø180 +0 -3	ø60 +1 -0	13.0±0.3	16.5 max	1000	