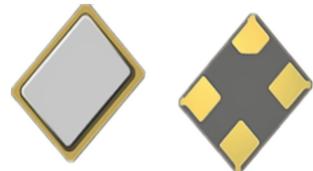


SMD2016-4 Crystal Resonator

7D020000Q01

1. Scope:

1.1 This specification applies to the RoHS compliance quartz crystal unit with a frequency of 20.000MHz which will be used in crystal oscillator applications.



2. Construction:

2.1 Type of Quartz Resonator: SMD2016-4pads

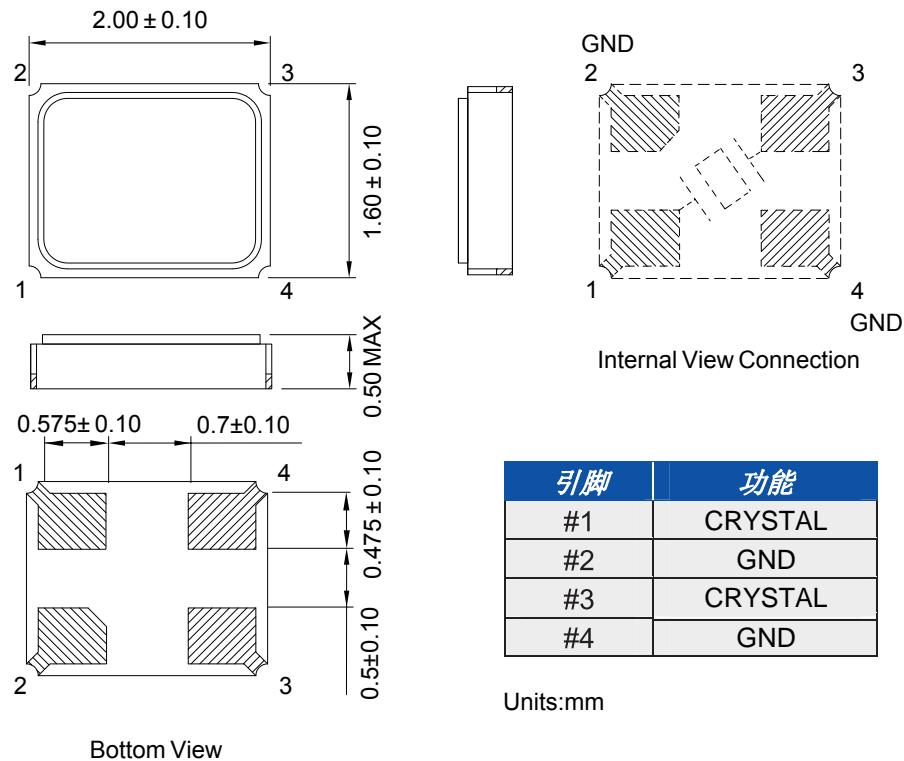
3. Electrical Characteristics

3.1 Nominal Frequency(f):	20.000MHz
3.2 Load Capacitance(C_L):	18pF
3.3 Frequency Tolerance($\Delta f/f$):	$\pm 10\text{ppm}$
3.4 Frequency Temperature Stability:	$\pm 20\text{ppm}$
3.5 Resonance Resistance(ohm):	80 ohms Max
3.6 Osc mode:	Fundamental mode
3.7 Shunt Capacitance(C_0):	2pF Max
3.8 Drive Level(D_L):	100 μW Max
3.9 Operating Temperature Range(T_{OPR}):	-20 to + 70°C
3.10 Storage Temperature Range(T_{STG}):	-55 to + 125°C
3.11 Insulation Resistance(IR):	>500M ohms
3.12 Aging(Δf_A):	$\pm 3\text{ppm/Year}$ Max

Reliability Specification

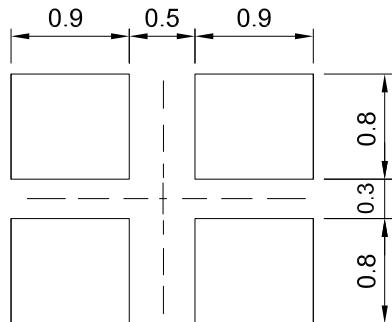
	Item	Condition	Standard
1.	Drop characteristics	Free drop from 75cm height on a hard wooden board for 3 times. (Board is thickness more than 30 mm.)	Frequency change: $\leq \pm 5$ ppm Rr as specification
2	Mechanical shock	Device are shocked to half sine wave (1000g) three mutually perpendicular axes each 3 times	Frequency change: $\leq \pm 5$ ppm Rr as specification
3.	Shake characteristics	Shake frequency 10~55Hz, cyc1~2 minutes, swing 1.5mm, direction x/y/z, all 30 minutes, test after 1 hours.	Frequency change: $\leq \pm 5$ ppm Rr as specification
4.	Humidity characteristics	+40 ± 2 °C & 90%~95% R.H. 250 hours	Frequency change: $\leq \pm 5$ ppm Rr as specification
5.	Low temperature characteristics	-40 ± 2 °C, 250 hours, put in room temperature, test after 1 hours.	Frequency change: $\leq \pm 5$ ppm Rr as specification
6.	High temperature characteristics	+85 ± 2 °C, 250 hours, put in room temperature, test after 1 hours.	Frequency change: $\leq \pm 5$ ppm Rr as specification
7.	Temperature cycling	-30 ± 3 °C/30 ± 3 min~+85 ± 2 °C/30 ± 3 min, 5 cycles	Frequency change: $\leq \pm 5$ ppm Rr as specification
8.	Refluence examination	<p>1. Max 180sec 2. Max 10 sec 3. Max 80 sec 4. Max 90 sec</p>	Frequency change: $\leq \pm 5$ ppm Rr as specification

Package Outline Dimensions



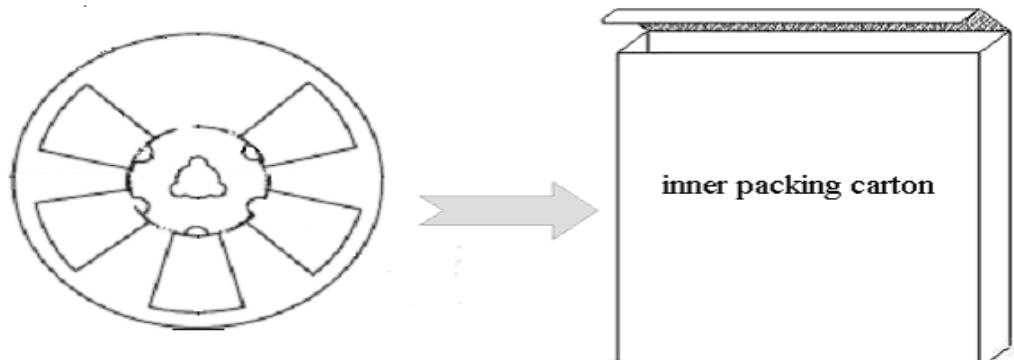
Bottom View

Suggested Pad Layout



Units:mm

Packing Specification



Qty:3000Pcs

