

## 产品规格书

# SPECIFICATIONS FOR PRODUCT

产品类型 TYPE : SMD3225

产品规格 SPEC : 12.288MHz/3225/20PF/10PPM

产品型号 P/N : CJ13-122882010A20

日期 DATE : 2018/12/05

核准及签名			部パコ
R&D APPR. SIGNATURED			DEPT.
拟制	审核	批准	频率器件事业部
ISSUE	CHECK	APPROVAL	
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#### JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD

# SMCE3225 4 pads Crystal Resonator

## CJ13-122882010A20

### 1. Scope:

1.1 This specification applies to the RoHS/SONY compliance quartz crystal unit with a frequency of 12.288MHz which will be used in crystal oscillator applications.

#### 2. Construction:

2.1 Type of Quartz Resonator: SMCE3225 4pads

#### 3. Electrical Characteristics

3.1 Nominal Frequency(f): 12.288MHz

3.2 Load Capacitance(C<sub>L</sub>): 20pF

3.3 Frequency Tolerance(△f/f): ±10ppm

3.4 Frequency Temperature Stability: ±20ppm

3.5 Resonance Resistance(ohm): 150ohms Max

3.6 Osc mode: Fundamental mode

3.7 Shunt Capacitance( $C_0$ ): <2pF

3.8 Drive Level( $D_L$ ):  $< 100 \mu W$ 

3.9 Operating Temperature Range( $T_{OPR}$ ): -20 to + 70

3.10 Storage Temperature Range( $T_{STG}$ ): -55 to + 125°C

3.11 Insulation Resistance(IR): >500 M ohms

3.12 Aging( $\triangle f_A$ ): ±3ppm per Year

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# 4. Reliability Specifications

This is the quality control and quality assurance and reliability tests performance data for the RoHS/

SONYcompliance 12.288MHz SMCE3225 4pads crystal resonators

related to the specification and approval sheet provided by JSCJ.

Standard test condition (TEMP.: 20±5°C. Relative humidity: 65±20%)

For any discrepancy in GO/NG, test will be done at TEMP.25±2°C, R.H. 65±5%.

NO.	PROCESS	SPECIFICATION	TEST METHOD
4.1	Temperature Cycle (GB/T 2423.22-2002, Method Nb)	Frequency change after test ≤± 5ppm.Resonance resistance change after test ≤10ohms.	taken after DUT being left at room temperature for 24±2 hours.
4.2	Low Temperature Storage (GB/T 2423.1-2001, Method Aa)	Frequency change after test ≤± 5ppm.Resonance resistance change after test ≤10ohms.	Spending 72 hrs at -55°C±3°C constant temperature. Measurement taken after DUT being left at room temperature for 24±2 hours.
4.3	High Temperature Storage (GB/T 2423.2-2001, Method Ba)	Frequency change after test ≤± 5ppm.Resonance resistance change after test ≤10ohms.	Spending 72 hrs at 125°C±3°C constant temperature. Measurement taken after DUT being left at room temperature for 24±2 hours.
4.4	Humidity (GB/T 2423.3- 2006, Method Cab)	Frequency change after test ≤± 5ppm.Resonance resistance change after test ≤10ohms.	Spending 96 hrs at 40 °C $\pm$ 3 °C, with 93 %R.H, Then keep the DUT in dry oven at 40 $\pm$ 5 °C for 24 hour. Measurement taken after DUT being left at room temperature for 1 to 2 hours.
4.5	Vibration (GB/T 2423.10- 1995, Method Fc)	Frequency change after test ≤± 5ppm.Resonance resistance change after test ≤10ohms.	Apply 0.75mm vibration at sweep frequency $10^{\sim}$ 500 Hz, 10 cycles in each direction of 3 axis. Measurement taken after 1 hour.
4.6	Shock (GB/T 2423.5-1995, Method Ea)	Frequency change after test ≤± 5ppm.Resonance resistance change after test ≤10ohms.and exhibit no visible damage.	Peak 1000m/s2, normal width 6ms half sine wave form, 3.7m/s, 3 perpendicular axis of samples, 3 cycles / direction, total 18 cycles. Measurement taken after 1 hour.
4.7	Drop (GB/T 2423.8-1995, Method Ed)	Frequency change after test ≤± 5ppm.Resonance resistance change after test ≤10ohms.and exhibit no visible damage.	Free drop to the steel plate with thickness of 3 mm from 1.00 m heights for 3 times.
4.8	Solderability (IEC60068-2-58,Test Td:)	Terminals shall be covered more then 95% with solder.	Passed through the re-flow oven under the following condition. Preheat 150 to 180°C for 60 to 120sec, and soldering time for 20s ± 5s at 235°C, peak soldering time for 10s ± 1s betweein 240 and 250°C. There is no need to do functional test. 8-12X magnifier.
4.9	Terminal Strength (JIS-C- 6429 Method 1 & 2 )	No visible damage	Mount on a glass-epoxy board (100x50x1.6mm), then bend to 2mm displacement (velocity 1mm/sec) and keep for 5 seconds. or pulling force 1.8kg for at least 60 seconds.
4.10	Resistance to Soldering Heat (IEC60068-2-58,Test Td: Table 4)	Frequency change after test ≤± 5ppm.Resonance resistance change after test ≤10ohms.	Passed through the re-flow oven under the following condition. Preheat 150 to 180°C for 60 to 120sec, and sodering time for 60s max at 235°C, peak soldering time for 20s max at 265°C max. Measurement taken after DUT being left at room temperature for at least 2 hours.
4.11	OTHERS		

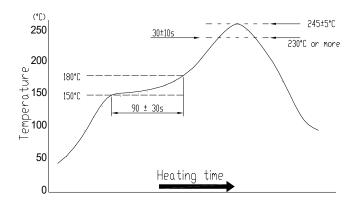
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#### **Recommended Reflow soldering condition**

## 5. Recommended Reflow soldering condition (SMD)

Solder profile

Peak: 245±5°C Soldering zone: 230°C or more, 30±10s. Pre-heating zone 1: 150 $\sim$  180°C, 90±30s



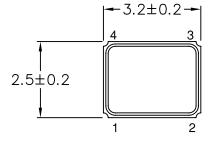
Temperature profile for reflow soldering

## 6. Soldering iron method

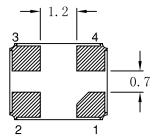
Bit temperature: 350±10°C Application time of soldering iron:3+1 s. For other procedures, refer to IEC 60068-2-20.

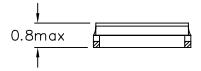
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### **Package Outline Dimensions**

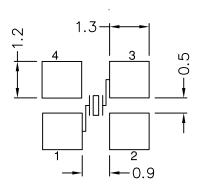








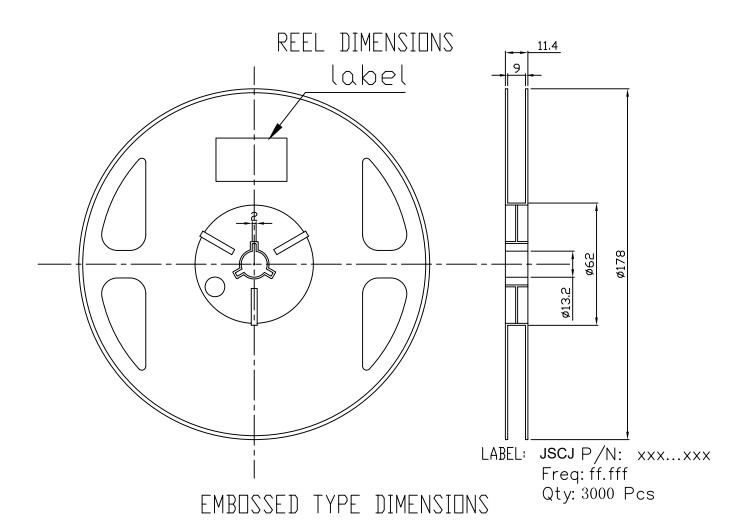
## **Suggested Pad Layout**

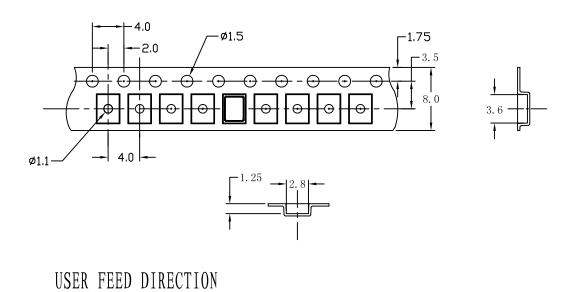


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