



QUARTZ CRYSTAL UNIT

*SERIES 7F, SEAM SEALED CERAMIC 2.0*1.6MM SURFACE MOUNT PACKAGE*

深圳市晶科鑫实业有限公司

Shenzhen Crystal Technology Industrial Co., Ltd

APPROVAL SHEET

CUSTOMER P/N:			
TYPE:	SMD CRYSTAL		
DESCRIPTION:	SMD2016 24.000MHZ 10PF ±10PPM -40~85°C		
P N/ SJK:	7F24000E10UCG		
ENVIRONMENTAL:	<input checked="" type="checkbox"/> RoHS <input checked="" type="checkbox"/> REACH <input checked="" type="checkbox"/> HF <input type="checkbox"/> PAHS <input type="checkbox"/> other		
REVISION:	A1 2017-5-10	MOQ:	3000pcs/real
MSL:	Levels 1		

SIGNATURE					
SUPPLIER			CUSTOMER		
Issue	Check	Approve	QA	Check	Approve
SJK			Signature		
FAE_EMAIL			Date		
Date			Approve:	<input type="checkbox"/> accept	<input type="checkbox"/> unaccepted
Note:					

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1. TESTING CONDITION

Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurement

and tests are as follow:

Ambient temperature : $25 \pm 5^{\circ}\text{C}$

Relative humidity : 40%~70%

Measure equipment

Electrical characteristics measured by S&A250B or equivalent.

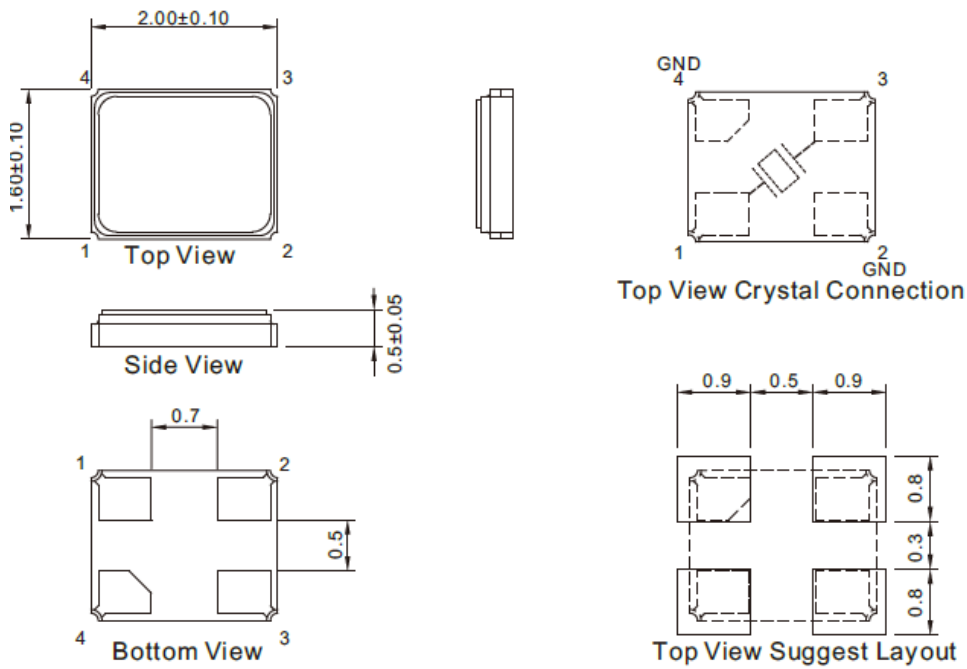
2. ELECTRICAL SPECIFICATIONS

Output Frequency Range	24.000000MHz
Mode	AT/Fundamental
Frequency Tolerance	± 10 ppm max (at 25°C)
Load Capacitance(C_L)	10.0 PF
Frequency Stability Over Operating Temperature Characteristics	± 10 ppm max /-20~70 $^{\circ}\text{C}$
	± 30 ppm max /-40~85 $^{\circ}\text{C}$
Operating Temperature Range	-40 $^{\circ}\text{C}$ to +85 $^{\circ}\text{C}$
Storage Temperature Range	-40 $^{\circ}\text{C}$ to +125 $^{\circ}\text{C}$
Shunt Capacitance (C_0)	3.0 PF Max
Driver Level (Typical)	10 μW
Equivalent Series Resistance(ESR)	60 Ω Max
Aging @25 $^{\circ}\text{C}$ 1 st year (Max)	± 3 ppm/year

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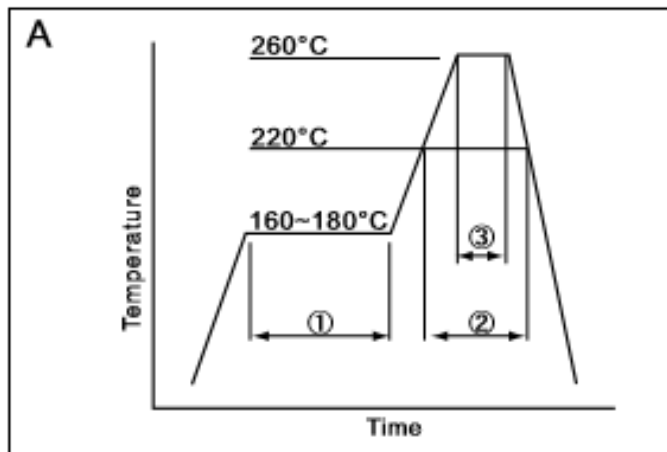
3. DIMENSION (Units: mm)



4. MARKING



5. REFLOW CONDITION



①	Preheat	$160 \sim 180^\circ\text{C}$	120sec.
②	Primary heat	220°C	60sec.
③	Peak	260°C	10sec. max

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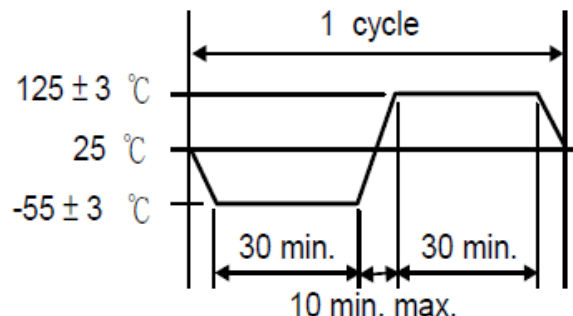
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6. RELIABILITY TEST SPECIFICATION

1. Mechanical Endurance

No.	Test Item	Test Methods	REF.DOC
1.1	Drop Test	150 cm height, 3 times on concrete floor.	JIS C6701
1.2	Mechanical Shock	Device are shocked to half sine wave (1000 G) three mutually perpendicular axes each 3 times. 0.5m sec. duration time	MIL-STD-202F
1.3	Vibration	Frequency range 10 ~ 2000 Hz Amplitude 1.52 mm/20G Sweep time 20 minute Perpendicular axes each test time 4 hours (Total test time 12 hours)	MIL-STD-883E
1.4	Gross Leak	Standard Sample For Automatic Gross Leak Detector, Test Pressure: 2Kg / cm ²	MIL-STD-883E
1.5	Fine Leak	Helium Bombing 4.5 Kg/ cm ² for 2 hr	MIL-STD-883E
1.6	Solder ability	Temperature 245 °C ± 5°C Immersing depth 0.5 mm minimum Immersion time 5 ± 1 seconds Flux Rosin resin methyl alcohol solvent (1 : 4)	MIL-STD-883E

2. Environmental Endurance

No.	Test Item	Test Methods	REF.DOC
2.1	Resistance To Soldering Heat	Pre-heat temperature 125 °C Pre-heat time 60 ~ 120 sec. Test temperature 260 ± 5 °C Test time 10 ± 1 sec.	MIL-STD-202F
2.2	High Temp. Storage	+ 125 °C ± 3 °C for 500 ± 12 hours	MIL-STD-883E
2.3	Low Temp. Storage	- 40 °C ± 3 °C for 500 ± 12 hours	MIL-STD-883E
2.4	Thermal Shock	Total 100 cycles of the following temperature cycle 	MIL-STD-883E
2.5	High Temp & Humidity	85°C ± 3°C, RH 85% , 500Hrs	JIS C5023
2.6	Pressure Cooker Storage	121 ± 3°C , RH100% , 2 bar , 240Hrs	JIS C6701