

深圳市华普微电子有限公司
SHEN ZHEN HOPE MICROELECTRONICS CO.

Datasheet

Model NO.: HC-49S-27.1412-22-20

reference code: 40602700182

Quartz Crystal

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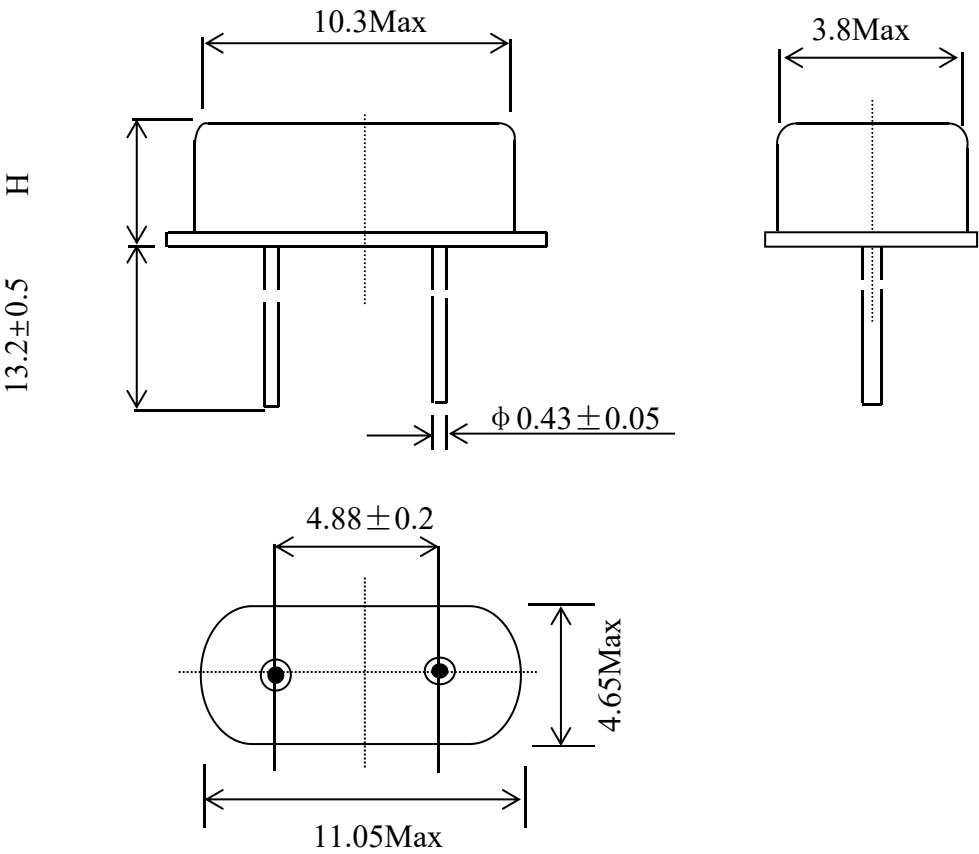
1. ELECTRICAL PARAMETERS

No.	Characteristic	Limits	Remark
1.1	Nominal Frequency	27.1412MHz	
1.2	Mode of vibration	fund	
1.3	Load capacitance	22pF;	
1.4	Frequency Tolerance	$\pm 10\text{ppm}$	Measure at $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$
1.5	Equivalent Series Resistance	30Ω max	
1.6	Operating Temperature Range	$-40^{\circ}\text{C} \sim +85^{\circ}\text{C}$	
1.7	Frequency Stability	$\pm 20\text{ppm}$	Over Operating Temperatuer Range
1.8	Storage Temperature Range	$-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$	
1.9	Drive Level	$100\mu\text{W}$ max	
1.10	Insulation Resistance	$500\text{M}\Omega$	At 100V DC
1.11	Shunt Capacitance	7.0pF max	
1.12	Motional Capacitance		
1.13	Aging Per Year	$\pm 2\text{ppm}$	First Yeat
1.14	Resistance Variation vs. Drive Level		
1.15	Frequency Variation vs. Drive Level		

2. RELIABILITY SPECIFICATIONS

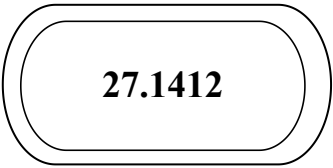
No.	Test Item	Test Conditions	Reference
2.1	High Temperature Storage	Temperature: $125^{\circ}\text{C}\pm 10^{\circ}\text{C}$ Time: 1000 $\pm$ 24Hours	MIL-STD-883E
2.2	Temperature Cycle	Temperature 1: $-55^{\circ}\text{C}\pm 10^{\circ}\text{C}$ Temperature 2: $125^{\circ}\text{C}\pm 10^{\circ}\text{C}$ Temperature change between T1 and T2 at soonest Run 10 cycles,maintain T1 and T2 30minutes each in one cycle	MIL-STD-883E
2.3	Solder Heat Resistance	Pre-heat: 125°C 60~120 Seconds Solder Temperature: $260^{\circ}\text{C}\pm 10^{\circ}\text{C}$ Time: 5 Seconds	MIL-STD-202F
2.4	Drop Test	3 Times Free Fall from 75cm height table to 3cm thickness hard wood board	MIL-STD-202F
2.5	High Temperature High Humidity Storage	Temperature: 85°C Relative Humidity: 85% Time: 1000Hours	MIL-STD-883E
2.6	Steam Aging	Temperature: 97°C Time: 8Hours 230°C solder pot to check solderability	MIL-STD-883E
2.7	Solderability	Dip in flux 5~10 seconds Temperature: $280^{\circ}\text{C}\pm 10^{\circ}\text{C}$ Time: 5 Seconds	MIL-STD-883E
2.8	Aging	Temperature: 85°C Time: 300Hours	MIL-STD-883E
2.9	Thermal Shock	Temperature1: $-55^{\circ}\text{C}\pm 10^{\circ}\text{C}$ Temperature2: $125^{\circ}\text{C}\pm 10^{\circ}\text{C}$ Temperature change between T1 and T2: 5 seconds 10 cycles,maintain T1 and T2 for 30 minutes each in one cycle	MIL-STD-202F
2.10	Vibration	Frequency Range: 10HZ~1000HZ Amplitude: 1.5mm 40mins in each direction,total 120mins	MIL-STD-883E

3. OUTLINE DIMENSIONS (unit:mm)

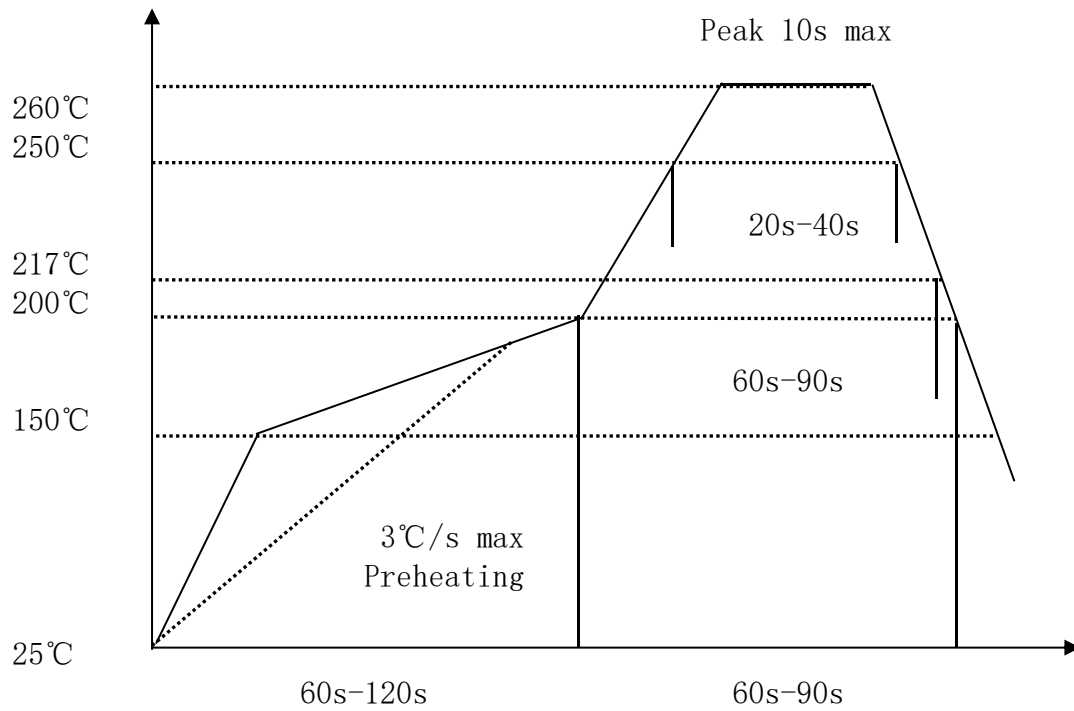


HOLDER	H(Max)
HC-49/S1	2
HC-49/S2	2.5
● HC-49/S3	3.5

4. MARKING

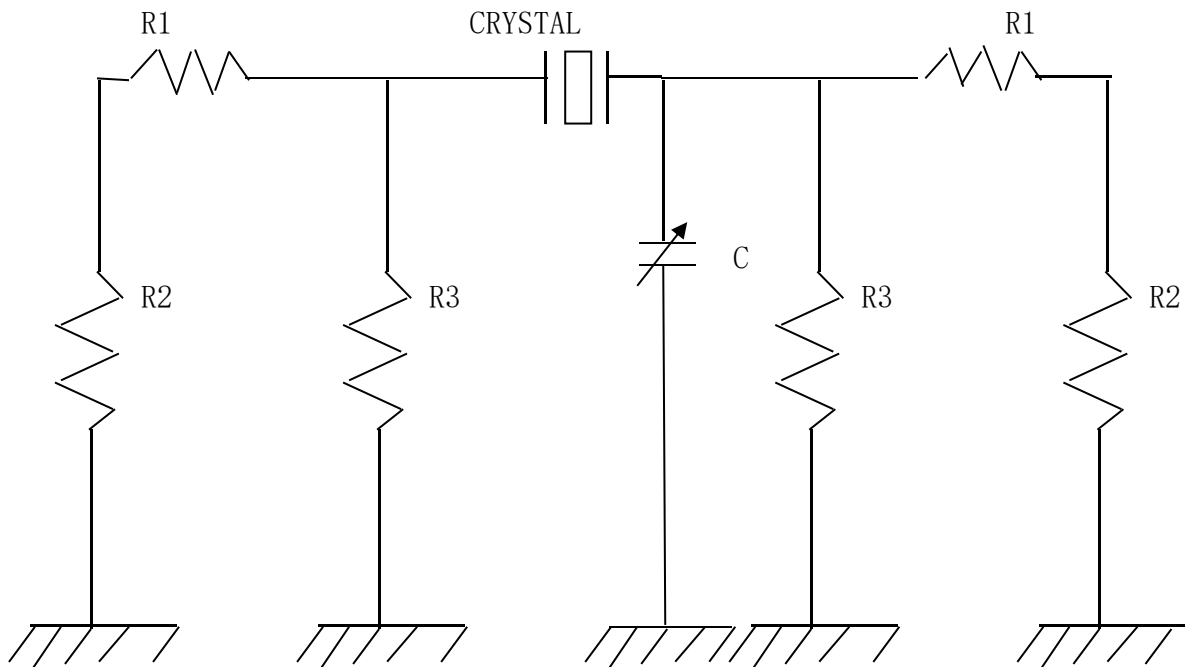


5. REFLOW PROFILE (49US-SMD/49USS-SMD)



6. CRYSTAL TEST CIRCUIT

TEST SET: KH1120:



R1: PItop resistor=66.2 Ω
 R2: PIouter resistor=159 Ω
 R3: PIinner resistor=14.2 Ω