



TAE雅晶

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致TO: 深圳华强聚丰电子科技有限公司

产品ITEM: 石英晶体谐振器 QUARTZ CRYSTAL UNITS

型号TYPE: HC-49S-2PIN (TXD20.000M2491LDCE-O00S)

标称频率NOMINAL FREQUENCY: 20.000MHz 20PF +/-20PPM

请收到我们的规格书后，签字回传。
Please confirm you received this specification,sign and fax it to us.

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浙江雅晶电子有限公司

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RoHS Compliant Standard

HC-49S-2PIN



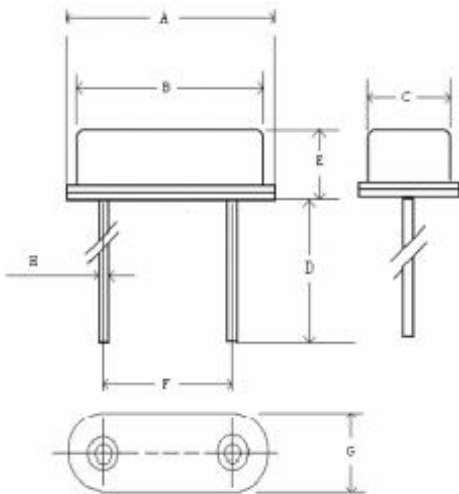
Features 特性

- 标称频率: 20.000MHz
- Nominal Frequency: 20.000MHz
- 适用于卓越的CPU时钟信号发生器
- Excellent clock signal generator for CPU
- 适用于宽广的温度范围
- Available in extended temperature range

STANDARD SPECIFICATIONS 标准规格

Item	Model	HC-49S-2PIN	Conditions
Nominal Frequency	标称频率	20.000MHz (Fund.)	
Frequency Tolerance	调整频差	±20ppm	at 25°C
Freq. Tol. Over Temp.	温度频差	±30ppm	-40 ~ +85°C
Operating Temp. Range	工作温度范围	-40 ~ +85°C	
Storage Temp. Range	保存温度范围	-55 ~ +125°C	
Series Resistance	谐振电阻	50ohmMax.	at 25°C
Load Capacitance	负载电容	20 pF	
Shunt Capacitance	静态电容	7.0pF Max.	
Drive Level	激励电平	100 μ w Max.	
Aging[first year]	第一年老化率	±5ppm Max.	25±3°C
Insulation Resistance	绝缘阻抗	500Mohm Min.	100VDC±15VDC

OUTLINE DRAWING OF HC-49S-2PIN (mm)



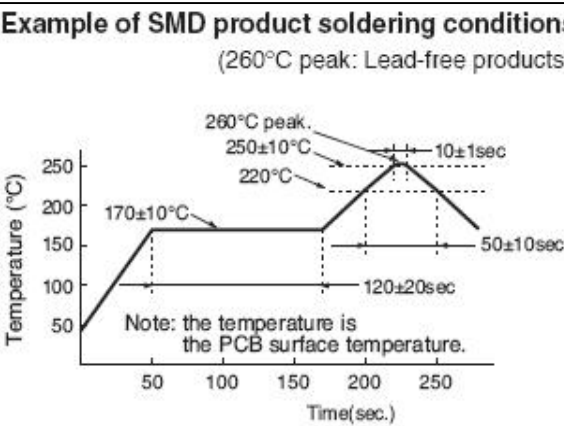
代码	尺寸/mm
A	10.90±0.5
B	9.95±0.3
C	3.50±0.2
D	13.20±0.5
E	3.36±0.3
F	4.88±0.2
G	4.60±0.2
H	0.45±0.1

No.	Test Items	Test Method and Condition	Requirements
1	振动 Vibration	(1)振动频率Vibration Frequency 10 to 55Hz (2)振动幅度Vibration Amplitude 1.5mm (3)周期 Cycle Time 1-2min(10-55-10Hz) (4)振动方向Direction X.Y.Z (5)振动时间Duration 2h/each direction	频率变化最大:±10ppm Frequency Change:±10ppm Max. 电阻变化最大:±15%或5ohm Resistance Change:±15% or 5ohm Max.
2	跌落 Dropping	从75cm高的地方自由跌落3次到3cm厚的硬木板上 3 Times free drop from 75cm height to hard wooden board of thickness more than 30mm	频率变化最大:±10ppm Frequency Change:±10ppm Max. 电阻变化最大:±15%或5ohm Resistance Change:±15% or 5ohm Max
3	密封性 Leakage	晶体放入水中(去气的水中), 水面的气压≤8.5KPa, 持续10min Putting crystal in the water (no gas in the water) for 10 minutes. The pressure on the surface of the water is less than 8.5KPa	无来自晶体谐振器内部气体或空气排出。 No gas is excluded from the crystal.
4	可焊性 Solderability	将引线浸入完全熔化的焊锡锅内3-5s, 焊锡温度245℃±5℃ Put the leads of crystal units into solder melted tank for 3 to 5s Temperature of solder melted tank is 245℃±5℃	润湿力≥理论润湿力的90% Wetting force is more than 90% of the theory of wetting force
5	可焊性 Weldability	将引线浸入完全熔化的焊锡锅内3-5s, 焊锡温度245℃±5℃ Put the leads of crystal units into solder melted tank for 3 to 5s Temperature of solder melted tank is 245℃±5℃	频率变化最大:±10ppm Frequency Change:±10ppm Max. 外观无机械损伤 Appearance without mechanical damage
5	耐焊接热 Solder heat resistance	将晶体的引线浸入260±5℃的焊槽内, 持续5±1s. Put the leads of crystal into welding groove for 5±1 s Temperature of welding groove is 245℃±5℃	频率变化最大:±10ppm Frequency Change:±10ppm Max. 电阻变化最大:±15%或5ohm Resistance Change:±15% or 5ohm Max.

No.	Test Items	Test Method and Condition	Requirements
6	引线强度 Lead Strength	用20N的力持续拉晶体引线10±1s; 用5N的力折引线成90°, 3次(折弯处离机体2.5±0.5mm以上); The crystal lead with the 20N power(keep it for 10s±1s) Bend the crystal lead 90° with the 20N power and three times. (which you want to bend should be more than 1.5mm from the case)	频率变化最大:±10ppm Frequency Change:±10ppm Max. 电阻变化最大:±15%或5ohm Resistance Change:±15% or 5ohm Max
7	耐高温能力 High Temperature Endurance	晶体放置于85℃环境中96小时后, 常温放置2小时 The crystal units shall be put in somewhere for 96 hours at temperature of 85℃,then keep it for 2 hours under room temperature	频率变化最大:±10ppm Frequency Change:±10ppm Max. 电阻变化最大:±15%或5ohm Resistance Change:±15% or 5ohm Max
8	耐低温能力 Low Temperature Endurance	晶体放置于-40℃ 环境中96小时后, 常温放置2小时 The crystal units shall be put in somewhere for 96 hours at temperature of -40℃,then keep it for 2 hours under room temperature	频率变化最大:±10ppm Frequency Change:±10ppm Max. 电阻变化最大:±15%或5ohm Resistance Change:±15% or 5ohm Max
9	高温高湿 Humidity Endurance	晶体放置于85℃、85%RH环境中96小时后, 常温放置2小时 The crystal shall be put in somewhere at 85℃ in relative humidity of 85% for 96 hours, then keep it for 2 hours under room temperature	频率变化最大:±10ppm Frequency Change:±10ppm Max. 电阻变化最大:±15%或5ohm Resistance Change:±15% or 5ohm Max
10	温度冲击 Temperature Cycle	温度从-40℃(保持30分钟)升高到85℃(保持30分钟), 再降到-40℃(保持30分钟)完成一个循环, 温度转换时间2~3 min, 共计5个循环。常温放置2小时 Temperature shift from low(-40℃) to high(85℃, keep 30 minutes) satisfy high (85℃) to low(-40℃,keep 30 minutes),conversion time for 2~3 min, a total of 5 cycles, then keep it for 2 hours under room temperature	频率变化最大:±10ppm Frequency Change:±10ppm Max. 电阻变化最大:±15%或5ohm Resistance Change:±15% or 5ohm Max

下面的说明和信息供用户正确理解和使用我们公司的石英晶体系列产品，预防不当的加工方式对石英晶体的损坏，确保用户设备的可靠性

The following instructions and information are provided for the purpose of having the user understand the proper way to process our crystal products to prevent problems prior to use and enhance the reliability of the equipment to which they are applied.

No.	PROCESSING INSTRUCTIONS
1	<p>石英晶体意外跌落 When dropped by mistake</p> <p>设计和制造的石英晶体本身具有耐冲击能力,但是当石英晶体组件经受剧烈的机械冲击,如跌落到地板上或安装期间剧烈震动时,在使用之前需要进行电性能确认</p> <p>The crystal units are designed and manufactured to resist physical shocks.However,when the crystal units are subjected to excessive impact such as being dropped onto the floor or giving shocks during processing,need to make sure its satisfactory performance before using it.</p>
2	<p>回流炉焊接曲线 Soldering</p> <p>The REFLOW SOLDERING PROFILE as below is recommended for HC-49S</p> <div data-bbox="215 763 884 1211" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">Example of SMD product soldering conditions (260°C peak: Lead-free products)</p>  <p style="text-align: center;">Note: the temperature is the PCB surface temperature.</p> </div>
3	<p>石英晶体组件的清洗 CLEANING</p> <p>(1)恶劣的超声波清洗或超声波焊接可能会影响和损坏石英晶体组件。如果您对晶体组件进行了超声波清洗,请一定在使用前确认晶体组件是否受到了影响和损坏</p> <p>Crystal units may be affected and destroyed at worst by supersonic cleaning or supersonic welding.Please be sure to check if your cleaning and welding process affects any damage to crystal units before using.</p> <p>(2)有些清洗液也可能造成晶体组件的损坏,请在使用清洗液前确认该清洗液是否适用</p> <p>Some kinds of cleaning fluid may cause any damage to crystal units.Please be sure to check suitability of the cleaning fluid in advance.</p>
4	<p>贮存 STORAGE</p> <p>石英晶体组件长时间贮存在高温或高湿环境中,可能会影响频率的稳定性或可焊性。请将晶体组件贮存在正常的温度和湿度环境中,避免阳光直射和露水凝结,避免贮存6个月以上再使用,拆封后尽快装配使用。</p> <p>Storage of crystal units under higher temperature or high humidity for a long term may affect frequency stability or solderability.</p> <p>Please store the crystal units under the normal temperature and humidity without exposing to direct sunlight and dew condensation, and avoid the storage of crystal units for more than 6 months, and mount them as soon as possible after unpacking.</p>