深圳市晶鸿辉电子有限公司
SHENZHEN JINGHONG HUI ELECTRONICS CO。，LTD　　當前版本 Ver： V1.0

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產 品 規 格 書 SPECIFICATION

標題 Title：石英晶體諧振器規格書 QUARTZ CRYSTAL SPECIFICATION

柱状石英晶体谐振器

SPECIFICATION FOR TUNING FORK CRYSAL RESONATOR

外　型 Holder Type：　**Φ2×6mm**

频　率 Frequency：　**32.768KHz**

承认日期 **Date of Approval**	年　月　日 Year　Month　Day
承认栏 Approval By	

ACCEPTED/CONFIRMED BY（承 认）：

设计： Issued by	Allen Liu	审核： Checked by	应泽锋	批准： Approved by	朱海挺

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石英晶體諧振器規格書

QUARTZ CRYSTAL SPECIFICATION

編 號 Spec No. 日 期 Date：2011-05

一、适用Scope ： 本规格书适用于32.768KHz φ2×6柱状晶体谐振器。

This specification is applied to the φ2×6 high frequency crystal resonator 32.768KHz.

二、技术指标 Electrical Characteristics

	项目 Item	规格 Specification
1	标称频率 Nominal Frequency	32.768KHz
2	壳 形 Holder Type	φ2×6mm
3	振动模式 Oscillator Mode	TF
4	调整频差(25℃) Frequency Stability (25℃)	±10ppm
5	工作温度范围 Operating Temperature Range	-20℃～+60℃
6	温度频差 Frequency Stability vs. Temp.	±20ppm
7	负载电容 Load Capacitance	12.5 pF
8	谐振电阻 Equivalent Series Resistance	30KΩ max
9	静 电 容 Shunt Capacitance	2.0pF max
10	激励功率 Drive Level	1.0±0.2UW
11	绝缘电阻 Insulation Resistance	100MΩ at DC100V
12	年老化率 Aging Rate a Year	±3ppm
13	检测仪器 Test Impedance Meter	S&A250B
14	印字形式 Marking	中性
15	存储温度范围 Storage Temperature Range	-40℃~+85℃
16	存储湿度范围 Storage Humidity Range	0～95％ RH

三、外形及尺寸 Appearance and Dimensions

1. 外观：标志清晰，外表光洁无污点和损伤。
   Appearance：Marking clear, no visible damage and dirt.
2. 外形尺寸：图一所示。
   Dimensions：See figure 1.

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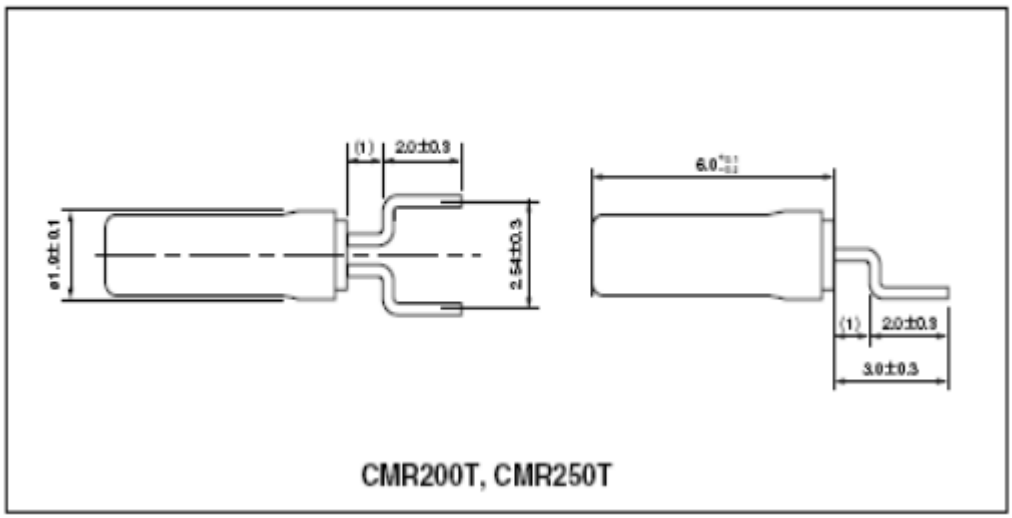
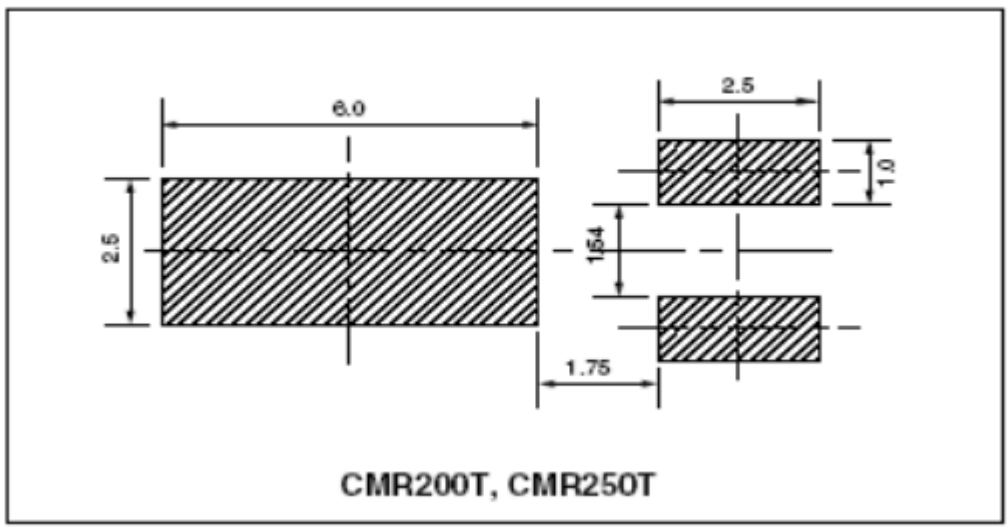
图一：外形尺寸图 **unit：mm**

Figure 1. Dimensions

■DIMENSION [mm]



■SOLDER PAD LAYOUT [mm]



四、机械及环境性能

序号	类 别	规　范	检验标准
1	自由跌落	从75cm高度自由跌落到30mm厚硬木板上，跌落三次	满足电器性能规定
2	振动	频率10~55Hz，振幅1.50mm，X、Y、Z方向各振动30分钟	满足电器性能规定
3	引出端强度	a.拉力：固定谐振器主体，沿引脚轴向施加0.9Kg拉力，保持30±5秒。 b.弯曲：引脚端头悬挂450g的重物，弯曲90°, 时间2~3秒，以相同速度返回原位置，再反向操作一次。	引脚无拔出或断裂现象
4	密封性	将谐振器浸在酒精中，加压4Kg/cm^2，时间五分钟。	测量引脚与基座间绝缘电阻>100MΩ（DC100V）
5	波峰焊接热	从引脚末端至底部2~2.5mm放入235℃±10℃的焊槽内，时间3~5秒。	沾锡面>95%，频率变化≤±10ppm
6	人工焊接热	从引脚末端至底部2~2.5mm处放入260℃±10℃的焊槽内，时间2~3秒	外观无异常，满足电器性能规定
7	温度循环	将谐振器放置在高低温箱中，将温度设置在-10℃，温度到达后保持30分钟，再将温箱升温到+70℃，保持30分钟，这是一个循环；再将温箱降温到-10℃，开始下一个循环，如此循环三次	外观无损伤，满足电器性能规定
8	恒定湿热	在40±3℃，RH90％～95％，放置96小时，取出后恢复2小时	外观无异常，满足电器性能规定
9	耐低温	在-40℃±3℃下，放置96小时，取出后在常温下恢复2小时，	外观无异常，满足电器性能规定
10	高温老化	85℃±3℃老化96小时，取出后常温下恢复2小时	外观无异常，满足电器性能规定

四、Physical and Environment Characteristics

Item	Condition of test	Performance Requirements
Mechanical Shock	Resonator shall be measured after 3 times random dropping from the height of 75cm onto hard wooden broad of thickness more than 30mm	No visible damage, and measured Values shall meet Table 1
Vibration	Subject resonator to following vibration: Frequency：10～55Hz Amplitude：1.5mm Duration：3 mutually perpendicular planes in each 30 min. Direction：X Y and Z axis	No visible damage, and measured Values shall meet Table 1
Terminal Strength Terminal Pulling Terminal Bending	Force of 5N is applied to each lead in axial direction for 30±5 sec. When force of 5N is applied to each lead in axial direction, the lead shall folded up 90° from the axial direction and folded back to the axial direction. The speed of folding shall be each 3 seconds.	No visible damage, nor shall the hermetic seal break down and measured Values shall meet Table 1
Solder ability	Lead terminals are immersed up to 2mm from Resonator's body in soldering bath of 235±10℃ for 3~5 sec.	More than 95% of the terminal surface of the resonator shall be covered with fresh solder
Resistance to Soldering Heat	Lead terminals are immersed up to 2~2.5mm from Resonator's body in soldering bath of 260±10℃ for 2~3 seconds and then resonator shall be measured after being placed in natural conditions for 1 hour.	No visible damage, and measured Values shall meet Table 1
Temperature Cycling	Subject the resonator to -10℃ for 30 min, followed by a high temperature of +70℃ for 30 min. Cycling shall be repeated 3 times, resonator shall be measured after being placed in natural conditions for 1 hour.	No visible damage, and measured Values shall meet Table 1
Heat Resistance	Subject the resonator to +85℃±3℃ for 96 hours, resonator shall be measured after being placed in natural conditions for 1 hour.	No visible damage, and measured Values shall meet Table 1
Cold Resistance	Subject the resonator to -40℃±3℃ for 96 hours, resonator shall be measured after being placed in natural conditions for 1 hour.	No visible damage, and measured Values shall meet Table 1
Humidity	Subject the resonator at +40℃±3℃ and 90%～95% R.H. for 96 hours, resonator shall be measured after being placed in natural conditions for 1 hour.	No visible damage, and measured Values shall meet Table 1

Table 1：

parameter	**Specification**
Frequency change	No more than ±5ppm （Reference to the initial value）
Crystal Impedance	No more than 10% （Reference to the initial value）