

深圳市福浪电子有限公司
FRONTER ELECTRONICS CO., LTD

**APPROVAL
SHEET**



CUSTOMER: _____
DESCRIPTION: ZTA 4.0MHz CERAMIC RESONATOR (蓝色外壳)
MANUFACTURER PART NO.: _____
CUSTOMER PART NO: ZTA 4.00MG
USED IN MODEL: _____

承 认 APPROVAL		
工程部 TECHNOLOGY DEPT.	品质部 QUALITY DEPT.	采购部 PURCHASING DEPT.



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FRONTER ELECTRONICS CO., LTD

地址: 深圳市龙华新区大浪腾龙路淘金地商务孵化基地 B 座 206

ADD: Rm 206, Tower B, Zhantao Commercial Square, Taojindi Building,

Tenglong Road, Longhua New District, Shenzhen, China 518109

电话 TEL: 86-755-83458796 传真 FAX: 86-755-83459818

网址 WEB ADD: <http://www.chinafronter.com>

E-MAIL: eason@chinafronter.com

1. 适用范围 Scope:

本规格书适用于电子振荡器电路用两脚 4.000MHz 陶瓷谐振器。

The specification shall cover of three leads ceramic resonator with 4.000MHz used for oscillation circuit.

2. 规格书号 Spec No: FT-C-ZTA4.00MG-A1

3. 产品型号 Part No: ZTA4.00MG

4. 电气性能 Electrical Characteristics

NO	项 目 Items	规 格 Specification
4-1	标称频率 Nominal Frequency	4.000MHz
4-2	频率公差 Frequency Tolerance	±0.3% max
4-3	谐振电阻 Resonant Resistance	30 Ω max
4-4	温度特性 Temperature Stability (-20℃~+80℃)	±0.3% max
4-5	耐高压 Withstanding Voltage	100V DC 5 sec
4-6	最大电压 Max Voltage 直流 DC 交流 AC	6V DC 15V AC
4-7	绝缘电阻 Insulation Resistance	5*10 ⁸ Ω min
4-8	回路电容 Loop Capacitance (C1=C2)	30PF ±20% max
4-9	时间老化 10 年 Aging for 10 years	±0.3% max
4-10	工作温度 Operating Temperature	-20℃~+80℃
4-11	储存温度 Storage Temperature	-35℃~+85℃

5. 测试: Measurement

5-1 测试条件 Measurement Condition

标准温度应为 25℃ ±2℃，湿度为 55±5% 的正常大气压。

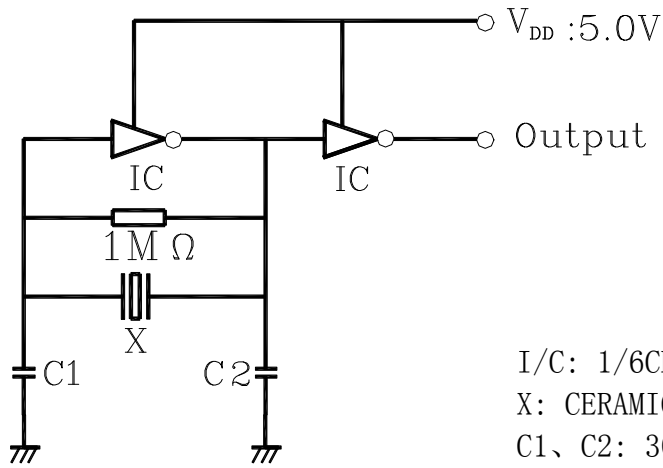
如无特殊要求，测试可在 5℃~35℃ 的温度范围内，湿度为 45~65% 的条件下进行。

Measurement shall be carried out at the standard temperature of 25±2℃, humidity 55±5% under normal pressure. If no specific requirements, Test can be carried out under 5~35℃, and humidity 45~65%.

5-2 测试电路和设备 Measuring Circuit and Equipment

标称频率应用如图 1 所示的标准测试电路测得，谐振电阻应由网络分析仪测得。

Nominal frequency shall be measured by the standard test circuit as shown in Fig 1, Resonant Resistance shall be measured by network analyzer.



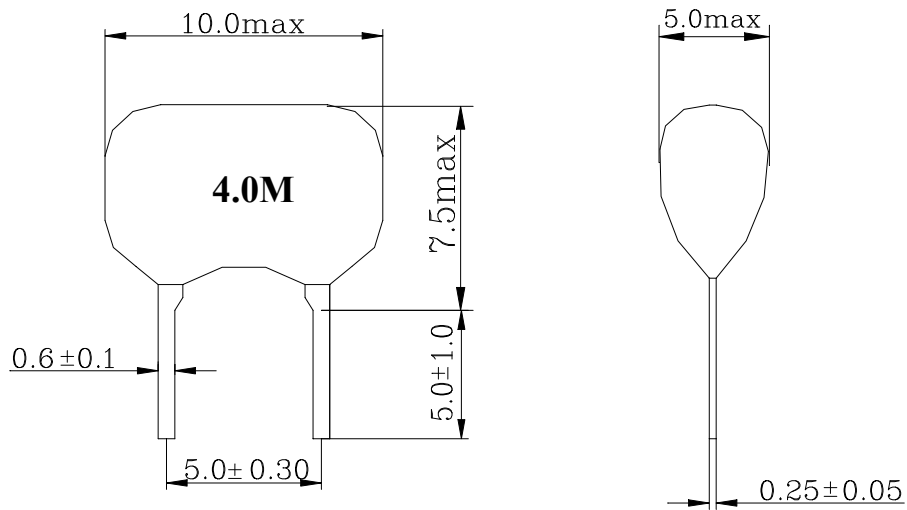
I/C: 1/6CD4069UBEX2
 X: CERAMIC RESONATOR
 C1、C2: 30PF

6. 外形 Outline

6-1 外形：标志完整清晰，外表光洁无损伤。

Appearance: Mark shall be clear, appearance shall be smooth and no damage.

6-2 尺寸 Dimensions:



6-3 标志 Marks:

6-4 结构：单片树脂结构封装。

Structure: Single wafer wrapped by resin.

7. 机械性能 Physical Characteristics

NO	测试项目 Item	测试条件 Measurement condition	性能要求 Requirement
7-1	自由跌落 Random Drop	谐振器从 1.0 米的高度自由落到水泥地面上 3 次后再测试。 Resonator shall be measured after 3 times random drops from the 1.0m on concrete floor.	没有可见损伤,且测得值满足表 1。 No visible damage and it meet Table 1.
7-2	振 动 Vibration	振动幅度为 1.5mm,其振动频率为 10-55Hz。振动沿三个互相垂直的方向进行,各 2 个小时。 Resonator shall be measured after being applied vibration of amplitude of 1.5mm with 10-55Hz band of vibration frequency to each of 3 perpendicular directions for 2 hours.	没有可见损伤,且测得值满足表 1。 No visible damage and it meet Table 1.
7-3	可焊性 Solderability	引线端子须插入助焊剂中 5 秒,后浸入 230±5℃的焊接槽中 3±0.5 秒。 Lead are immersed in aide solder for 5 sec and then immersed in soldering bath of 230 ± 5 °C ,for 3 ± 0.5 sec.	最少 95% 的引线脚端子须浸上焊料。 At least 95% lead terminals shall be covered with solder.
7-4 (1)	端子强度 Terminal strength 拉力试验 Pulling	在每个端子上沿端子的轴方向作用 1Kg 的拉力 10 秒后对谐振器进行测试。 After force of 1kg for 10 seconds is applied to each terminal in axial direction, Resonator shall be measured.	无明显损伤,且测得值满足表 1, 没有截断。
7-4 (2)	弯 曲 Bending	将引脚端子一齐固定在距谐振器主体 2mm 处,将引脚正方向弯曲距它们的轴方向+90 度,后弯曲-90 度,弯曲的速度分别 3 秒钟。 After lead terminals shall fixed at 2mm from resonator' s body ,they shall be folded up to 90°,from their axial directions and folded back to their axial direction, the speed of folding be each 3 seconds.	No damage ,no cut off and it meet Table 1

8. 环境性能 Environmental Characteristics

NO	测试项目 Item	测试条件 Measurement	性能要求 Requirement
8-1	湿度试验 Humidity	将谐振器放在相对湿度为 90-95%，温度为+60±2℃的湿度箱中 1000 小时，后置于自然环境中 1 小时，再进行测试。 After being placed in a chamber with 90-95%R.H at +60 ± 2 °C for 1000 hours and then being placed in room temperature for 1hour resonator shall be measured.	测得值必须满足表 1 的要求。 It shall meet Table 1.
8-2	耐焊接热 Resistance to Solder Heat	引线端子应插入 350±10℃的焊接槽中 3±0.5 秒或 260±5℃的焊接槽中 10±15 秒，测入深度为谐振器主体 1.5mm，而后放在自然环境中 1 小时，再进行测试。 Lead terminals are immersed up to 1.5mm from resonator's body in soldering bath of 350±10°C for 3 ± 0.5 sec. And then resonator shall be measured after being placed in room temperature for 1 hour.	测得值必须满足表 1 的要求。 It shall meet Table 1.
8-3	高温试验 High Temperature	将谐振器放在+85±2℃的温箱中 1000 小时后置于自然环境中 1 小时，再进行测试。 After being placed in a chamber with +85±2°C for 1000 hours and then being placed in room temperature for 1 hour ,resonator shall be measured .	测得值必须满足表 1 的要求。 It shall meet Table 1.
8-4	低温试验 Low Temperature	将谐振器放在-55±2℃的温箱中 1000 小时后，置于自然环境中 1 小时，再进行测试。 After being placed in a chamber with -55 ± 2 °C for 1000 hours and then being placed in room temperature for 1 hour ,resonator shall be measured .	测得值必须满足表 1 的要求。 It shall meet Table 1..
8-5	热冲击试验 Heat Shock	将谐振器从室温中取出，置于-55℃的低温中 30 分钟后立即置于+85℃的高温中 30 分钟，然后再回到-55℃的低温中，如此循环 5 次，再将谐振器置于自然环境中 1 小时，再进行测试。 After being kept at room temperature ,resonator shall be placed at temperature of -55 °C ,for 30 minutes ,then be placed at temperature +85 °C ,for 30 minutes ,After that returned to -55 °C again. Repeated above cycle for 5 times, After being kept in room temp for 1 hour, resonator shall be measured.	测得值必须满足表 1 的要求。 It shall meet Table 1.

表 1 Table 1

测试项目 Item	规格 Specification
※ 振荡频率 Oscillation Frequency	±0.3% max
谐振电阻 Resonant Resistance	30 Ω max

※ 注：从初始值起。

※ Remark: From initial value.