

新品 变更



产 品 规 格 书

SPECIFICATION FOR APPROVAL

产品名称 石英晶体谐振器
Product Name: Quart crystal unit

产品型号 SMD3225
Product Type:

标称频率 24.000000 MHz
Nominal Freq:

明德亨料号 2.3.3.240002035
MDH P/N:

客户料号
Customer P/N:

客户承认
Approved By Customer

签章
Signature:

日期
Date:

Date: 2022年7月7日

批准	审核	拟制
Accepted	Checked	Issued
林宗宏	马赛	乔润国

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RoHS Compliant

Revision Record

[illegible]

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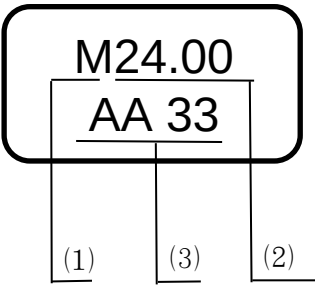
1 石英晶体产品规格及特性 / Product specification and features

1.1 一般特性 / General characteristics

Items	Electrical spec.			Unit	Notes
	Min.	Typ.	Max.		
1.Frequency(FL)	24.000000			MHz	-
2.Mode of oscillation	Fundamental			-	-
3.Crystal Cutting Type	AT-CUT			-	Thickness shear mode
4.Frequency tolerance	-10	~	10	ppm	At 25℃±3℃
5.Loading capacitance(CL)	20			pF	-
6.Equivalent resistance(RR)	-	-	40	Ω	Series(ESR)
7.Drive Level (DL)	0.01	100	350	uW	-
8.Temperature stability	-10	~	10	ppm	-
9.Operating temperature range	-30	~	85	℃	-
10.Storage temperature range	-55	~	125	℃	-
11.Shut Capacitance(C0)	-	-	3	pF	-
12.RLD2	-	-	40	Ω	-
13.SPDB	-	-	-3	dB	-
14.Aging	-	-	3	ppm/Year	Per Year
15.Insulation Resistance	500	-	-	MΩ	DC 100±10V
16.TS	-	-	-	ppm/pf	-

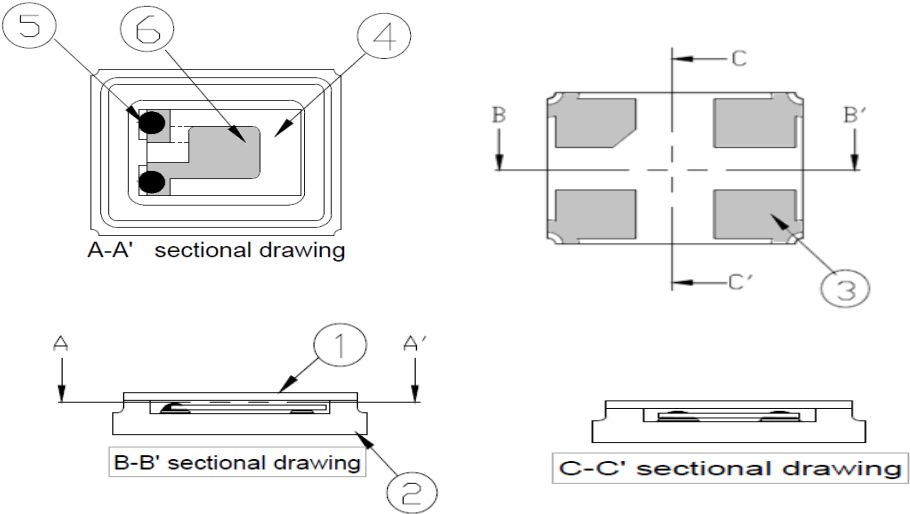
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2.4 印字 Marking



- (1) 代表公司Logo
- (2) 代表标称频率
- (3) 代表批次号

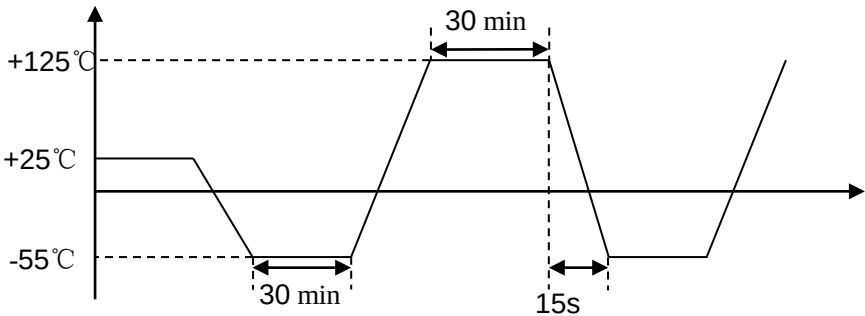
3.0 内部构造图 / Product internal structure



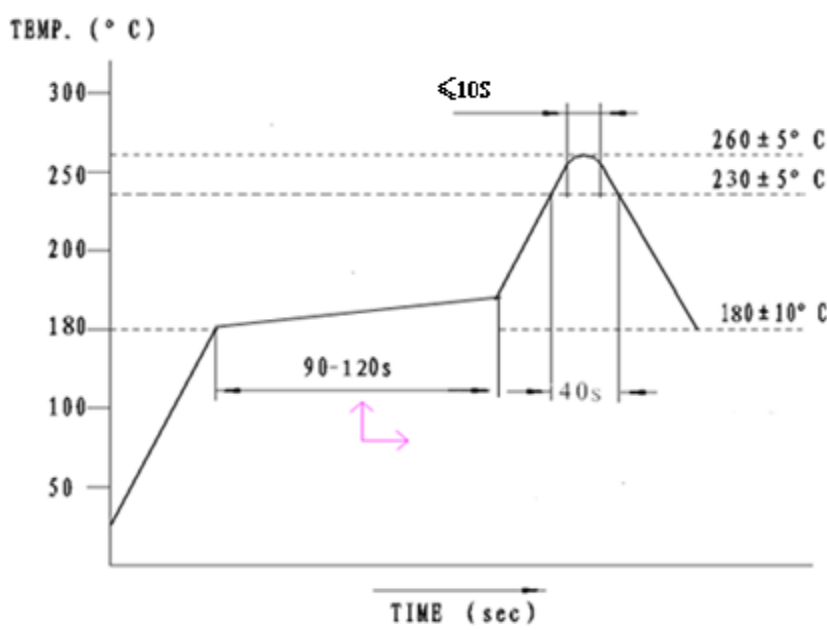
封装方式/Seal		激光封装	质量（参考值）		0.0144g
NO.	材料名/Matenal	备注/Notes	NO.	材料/Matenal	备注/Notes
1	金属盖板/LID	Fe—Ni—Co	5	导电胶 /Conductive achesive	/
2	陶瓷/Ceramics	黑色/Color black	6	银/Ag	形状例/Form isexample
3	引脚 /Pad	镀镍/镀金 Ni plating/Au plating			
4	晶片/Crystal（SiO2）	晶片 /Crystal Water			

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4.0 石英晶体之可靠性 / Product reliability

项目 (Item)	条 件 (Condition)	结 果 (Result)
A.1	耐低温性（耐寒性）测试（Cold resistance）	(I)
	Stored at -40±2℃ for 500±2 hrs then 25±2℃ 2 hrs before testing	
A.2	耐高温性（耐热性）测试（Heat resistance）	(I)
	Stored at 125±2℃ for 500±2 hrs then 25±2℃ 2 hrs before testing	
A.3	耐湿热性 (Humidity Resistance Result)	(I)
	稳态温度：85±2℃；湿度：85±3%RH；时间：500±2 hrs	
	Steady temperature: 85±2℃;humidity: 85±3%RH; time:500±2 hrs	
A.4	老化测试（Aging）	(I)
	Stored at 85±2℃ for 720±2Hrs then 25±2℃ 2 Hrs before testing	
	Stored at 25±2℃ for 1year	
A.5	气密性 (Leakage)	(IV)
	细漏Fine leak: Put the product in the Helium pressure tank, 4 ~ 5kgf/cm ² , 0.5hrs.	
A.6	冷热冲击实验 温度循环（Temperature Cycle）	(I)
	-55℃ ~ 125℃，Retain 30Min， 100 cycles  温度循环（Temperature Cycle）	

4.1机械性能 / Mechanism characteristics

B.1	跌落测试 (Drop Test)	(I)
	Device are dropped from a height of 150 cm onto 20mm thickness stainless plate executing 3 times of random drops.	
B.2	耐振性 (Resistance of Vibration)	(I)
	Frequency: 10~55Hz, amplitude(total excursion): 1.5mm±15%,3 direction (X,Y,Z) each 2 hrs then 25±2℃ 2 hrs before testing	
B.3	可焊性试验 (Solderability)	(III)
	245±5℃, 5±1s	
B.4	耐焊接热 (Reflow) Resistance to soldering heat (Reflow)	(I)
	参考曲线图 (Reference Curve) :	
		

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5.0 生产商及产地说明 / Manufacturer and origin

生产商/Manufacturer: 烟台明德亨电子科技有限公司
YanTai MDH Technology Co.,Ltd

四川明德亨电子科技有限公司 ☒
SiChuan MDH Technology Co.,Ltd

5.1 包装规格 Package specification

