

新品 变更

产 品 规 格 书

SPECIFICATION FOR APPROVAL

产品名称
Product Name: 石英晶体谐振器

产品型号
Product Type: SMD2520

标称频率
Nominal Freq: 40.000000 MHz

明德亨料号
MDH P/N: 2.2.2.400001504

客户料号
Customer P/N:

客户承认
Approved By Customer

签章
Signature:

日期
Date:

Date: 2018年2月2日

批准	审核	拟制
Accepted	Checked	Issued
黄屹	岳坤	乔润国



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Revision Record

VER	修订日	项目	内容	备注
	Rev. Date	Items	Contents	Remarks
01	2018/2/2	Issue		

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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					
标称频率 Nominal frequency	40.000000	MHz			
振动模式 Overtone order	Fundamental				
型号 Type	SMD2520				
动作温度 Operating temperature	-30~85	°C			
保存温度 Storage temperature	-40~85	°C			
1.2 电气特性 / Electric characteristics					
调整频差(+25°C基准) Adjustment tolerance: (at+25°C)	±10	ppm			
温度频差 Tolerance over the temperature:	±10	ppm			
负载 Load capacitance	15.0	pF			
测试仪器 Measure Instrument	S&A 250B				
激励功率 Drive level	100.0	μW			
等效电阻 Equivalent resistance	40.0	Ω Max			
分布电容 (C0) Shut capacitance	3.0	pF			
绝缘阻抗 Insulation resistance	500 MΩ Min	100VDC±15VDC			
老化率 Aging	±3	ppm/Year			
1.3 其它特性 / Other characteristics					
SPDB	<-3	dB	(以标称频率为基准)		

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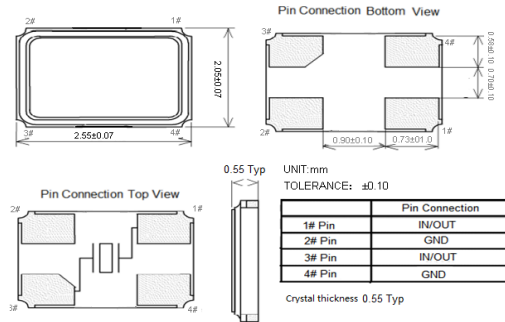
01

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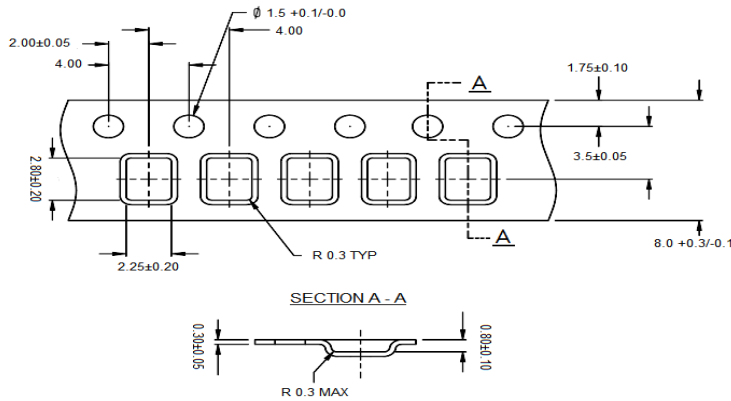
5/13

2.0 外形尺寸、外观 / Outline dimensions、Appearances

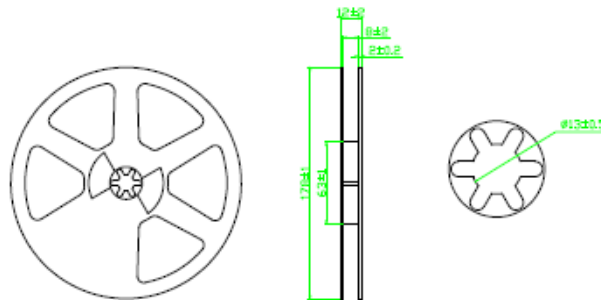
2.1 产品外形尺寸(mm) / Product outline dimension(mm)



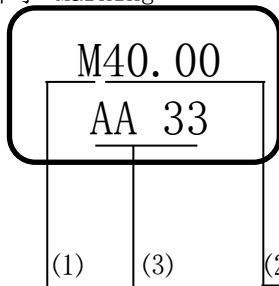
2.2 载带外形尺寸图 (mm) /Carrier Dimensional Drawing (mm)



2.3 编带盘外形尺寸图(mm) /Reel Dimensional Drawing (mm)

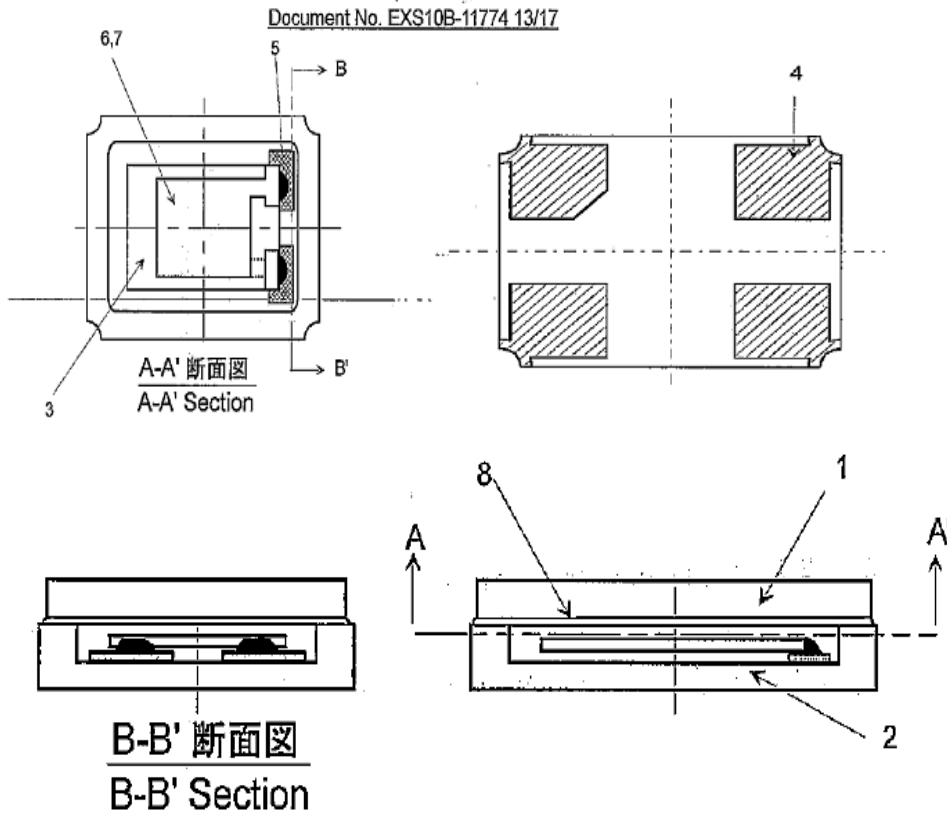


2.4 印字 Marking



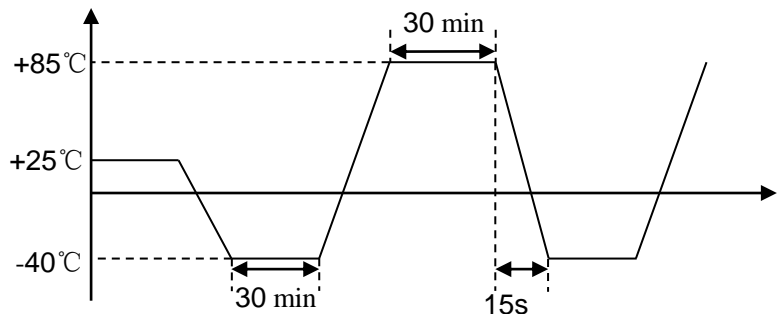
- (1) 代表公司Logo
- (2) 代表标称频率
- (3) 代表批次号

3.0 内部构造图 / Product internal structure



封装方式/Seal		Seam 封装	质量 (参考值)		0.0097g
NO.	材料名/Material	备注/Notes	NO.	材料/Material	备注/Notes
1	金属盖板/LID	Fe-Ni-Co	5	导电胶/ Conductive adhesive	/
2	陶瓷/Ceramics	黑色/Color black	6	银/Ag	形状例/Form isexample
3	晶片/Crystal (SiO ₂)	晶片 /Crystal Water	7	铬/Cr	形状例/Form isexample
4	引脚 /Pad	镀金 / Au plating Ni Pre-plating	8	封止环/ Seal Ring	Fe-Ni-Co

4.0 石英晶体之可靠性 / Product reliability

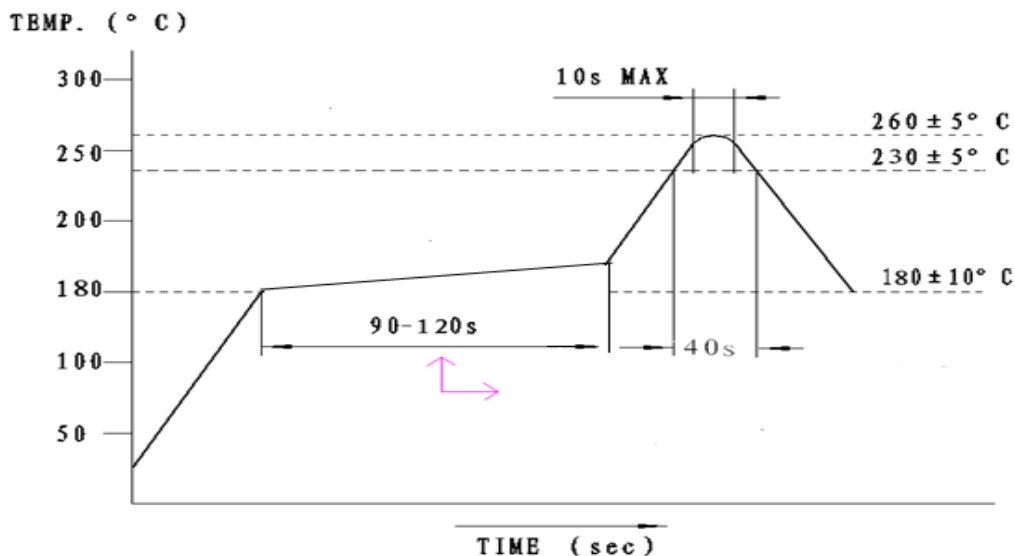
项目 (Item)	条件 (Condition)	结果 (Result)
A.1	耐低温性 (耐寒性) 测试 (Cold resistance)	(I)
	Stored at $-40\pm 2^{\circ}\text{C}$ for 1000 ± 2 hrs then $25\pm 2^{\circ}\text{C}$ 1~2 hrs before testing	
A.2	耐高温性 (耐热性) 测试 (Heat resistance)	(I)
	Stored at $85\pm 2^{\circ}\text{C}$ for 1000 ± 2 hrs then $25\pm 2^{\circ}\text{C}$ 1~2 hrs before testing	
A.3	盐雾测试 (Salt Mist Test)	(I)
	将温度 $35^{\circ}\text{C}\pm 2^{\circ}\text{C}$ 之盐水 (盐份浓度5%), 喷向石英晶体48小时 ± 2 小时, 再用清水洗净。 Spray the $35^{\circ}\text{C}\pm 2^{\circ}\text{C}$ salt water (salt density 5%) to crystal for 48 ± 2 hrs, then clean by water	
A.4	耐湿热性 (Humidity Resistance Result)	(I)
	稳态温度: $60\pm 2^{\circ}\text{C}$; 湿度: 90~95%RH; 时间: 500h; Steady temperature: $60\pm 2^{\circ}\text{C}$; humidity: 90~95%RH; time:500h	
A.5	撞击测试 (Mechanical Shock)	(I)
	$14700\text{m}/\text{S}^2$ 0.5sec 5times in each of 6 direction	
A.6	老化 (Aging)	(I)
	Stored at $85\pm 3^{\circ}\text{C}$ for 720 ± 12 Hrs then $25\pm 2^{\circ}\text{C}$ 1~2 Hrs before testing Stored at $25\pm 2^{\circ}\text{C}$ for 1 ± 0.03 year	
A.7	气密性 (Leakage)	(VI)
	细漏Fine leak: Helium leak test *JIS C 6701 10.6	
A.8	温度循环 (Temperature Cycle)	(I)
<p>- 40°C ~ 85°C, Dewell 30Min, 100 cycles</p>  <p>温度循环 (Temperature Cycle)</p>		

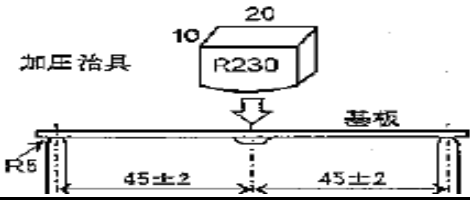
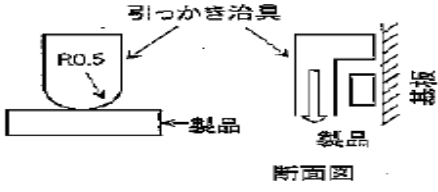
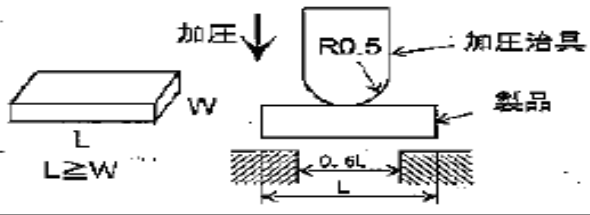
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4.1机械性能 / Mechanism characteristics

B.1	跌落测试 (Drop Test)	(I)
	Device are dropped from a height of 75 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 hr	
B.3	耐焊接热 (手工)	(I)
	Resistance to soldering heat (Hand soldering method) 温度: 370~400°C; 时间: 3~4秒; 次数: 2次; 烙铁功率: 60W/Min Temperature: 370~400°C; Time: 3~4sec; Frequency: 2 times; Soldering iron: 60W/Min	
B.4	可焊性试验 (Solderability)	(III)
	240±2°C, 3±0.5sec	
B.5	耐焊接热 (Reflow) Resistance to soldering heat (Reflow)	(I)
	260±5°C; 10S; 4Times	

Reflow温度曲线图



B. 6	抗基板弯曲性 (The Board Bendability)	(I & V) 满足B. 6项
	<p>依据EIAJRCX-0104/101, 变形量: 3mm Comply with EIAJRCX-0104/101, deformation degree: 3mm 时间(Time): 5±1秒(Sec)、1次(1 Time)</p> 	
B. 7	牢固度 (Adhesive strength)	(I & V) 满足B. 6项
	<p>按上图的箭头方向使用R0.5的压力棒, 在部品中央部分施加10±1N(1.02±0.1Kgf)的静载荷并保持10±1秒。 Use R0.5 pressure stick following the arrowhead direction, give 10±1N(1.02±0.1Kgf) dead load at the center of crystal and keep for 10±1sec.</p>	
		
B. 8	单体强度 (Monomer strength)	(I & V) 满足B. 6项
	<p>按下图的箭头方向使用R0.5的压力棒, 在部品中央部分施加10N(1.02kgf)的静载荷并保持10秒钟。 Use R0.5 pressure stick following the arrowhead direction, give 10N(1.02kgf) dead load at the center of crystal and keep for 10sec.</p>	
		
B. 9	静电耐压试验 (ESD operating)	(I)
	<p>Test Condition: Discharge Capacitor: 100pf Electronic discharge resistance:1500 Voltage: ±1000V The times of impression: 5times</p>	

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项 目 Item	结果编号 Result NO.	规格要求 Specification Requirements
1	(I)	频率变化 $<\pm 10\text{ppm}$; 电阻变化 $<\pm 20\%$ Change of Frequency $\rightarrow \pm 10\text{ppm}$; Change of CI $\rightarrow \pm 20\%$
2	(II)	引线无折断, 在10倍放大镜下观察玻璃体无裂纹 The lead is no broken, the Glass is no crackle under the observation of 10 times Magnifier.
3	(III)	上锡覆盖率高于95% The covering rate of Tin-plating is more than 95%.
4	(IV)	无气泡在晶体表面沉淀或冒出水面, 绝缘阻抗 500 M Ω Min 100VDC/ $\pm 15\text{VDC}$ There is no bubbles after the Crystal is dipped in the water Insulation Resistance: 500 M Ω Min 100VDC/ $\pm 15\text{VDC}$
5	(V)	在10倍放大镜下观察石英晶体无裂纹 The Crystal is no crackle under the observation of 10 times Magnifier.
6	(VI)	$1 \times 10^{-9} \text{Pa} \cdot \text{m}^3 / \text{s}$ Max

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

生产商: 烟台明德亨电子科技有限公司

Manufacturer: MDH Technology Co.,Ltd

工厂/制造所在地: 山东省烟台开发区黑龙江路6号

Address: N0.6 Heilongjiang Rd, Yantai development zone, Shandong

产品名称: 石英晶体谐振器

Product name: Quart Crystal Resonator

产品型号: SMD2520 40.000000 MHz

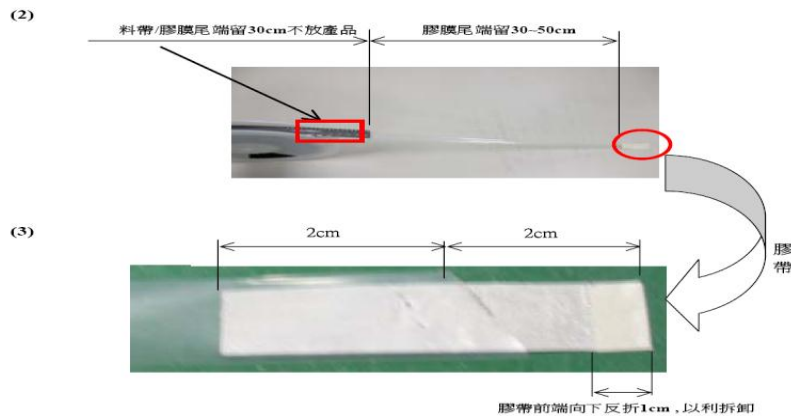
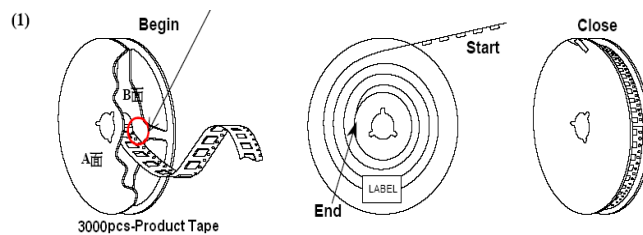
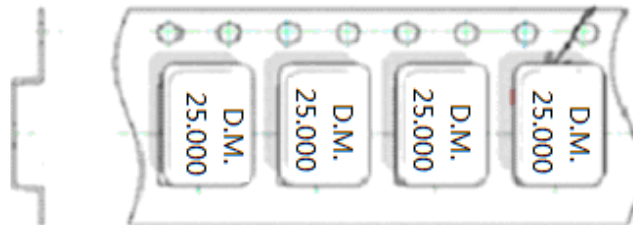
Product type: SMD2520 40.000000 MHz

包装方式: 纸箱 52cm×37cm×38cm (±1.5cm)

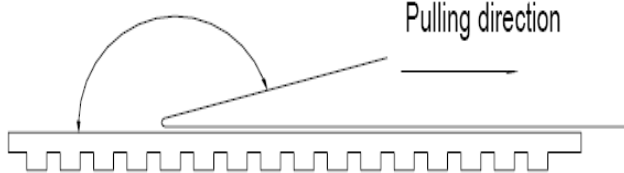
Package: Paper carton 52cm×37cm×38cm (±1.5cm)

标准包装 Standard package	SHIPPING MARK		标 签 Label
外包装 52×37×38cm 如图P10-(2)如图P10-(2)	每箱 120000pcs (40小盒)	客户名称 料 号 规 格 数 量 发货单位 发货日期 装箱编号 产地说明	客户名称: XXXXXX 料 号: XXXXXX 规 格: SMD 2520-25.000M-20pF 数 量: 120000Pcs 发货单位: 烟台明德亨电子科技有限公司 发货日期: xxxxxx 装箱编号: xxxx 产地说明: Made in China
内包装 18.5×18.5×3.5cm 如图P10-(1)	每盘 3000 pcs	料 号 型 号 规 格 出货批号 数 量 每小盒1盘 每盘3000pcs	料号: XXXXXX 型号: SMD 2520 规格: 2520-25.000M-20pF 出货批号: XXXXX 数量: 3000Pcs

5.1 包装规格 Package specification



165°~180°



It has to between 0.2N to 0.75N under following condition.

Pulling direction: 165° to 180°

Pulling Speed : 300mm/min

Otherwise unless specified

5.2 包装规格 Package specification

- 1. 每盘数量Qty/reel: 3000pcs
- 2. 小盒数量Qty/box: 3000pcs (1盘)
- 3. 外箱数量Qty/carton: 120000pcs (40小盒)

