

新品 变更



产 品 规 格 书

SPECIFICATION FOR APPROVAL

产品名称
Product Name: 石英晶体振荡器

产品型号
Product Type: SMD3225 OSC CMOS

标称频率
Nominal Freq: 16.000000 MHz

明德亨料号
MDH P/N: 2.1.3.1600011

客户料号
Customer P/N:

客户承认
Approved By Customer

签章
Signature:

日期
Date:

Date: 2024年12月20日

批准	审核	拟制
Accepted	Checked	Issued
欧阳林	马 波	岳 坤

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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

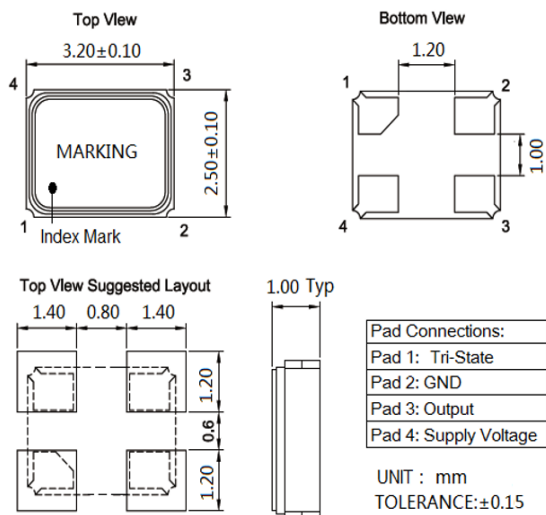
1.1 一般特性 / General characteristics

Items	Electrical spec.			Unit	Notes
	Min.	Typ.	Max.		
1.Frequency(FL)	16.000000			MHz	-
2.Type	SMD3225 OSC CMOS			-	-
3.Frequency stability(Overall)	-25	~	25	ppm	-
4.Input Voltage	2.97	3.30	3.63	V	VDD
5.Input Current	-	-	10	mA	-
6.Start-up Time	-	-	10	mSec	-
7.Rise Time /Fall Time	-	-	5	nSec	-
8.Operating temperature range	-40	~	85	°C	-
9.Storage temperature range	-55	~	125	°C	-
10.Duty Cycle	45%	-	55%	-	-
11.Output Load	-	15	-	pF	-
12.Output Level (Output High Logic "1")	90% VDD	-	-	V	-
13.Output Level (Output Low Logic "0")	-	-	10% VDD	V	-
14.High level input voltage	70% VDD	-	-	V	Tri-State Enable Output
15.Low level input voltage	-	-	30% VDD	V	Tri-State Disable Output
16.Aging	-3	-	3	ppm/year	At 25°C±5°C

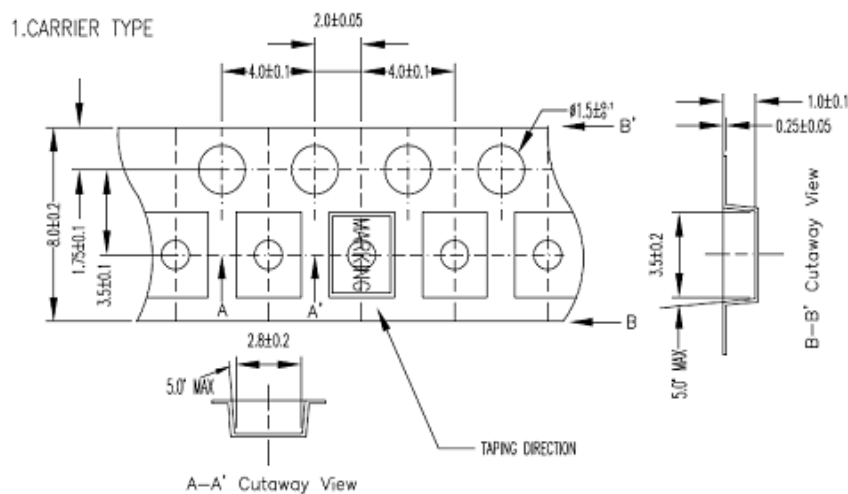
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2.0 外形尺寸、外观 / Outline dimensions、Appearances

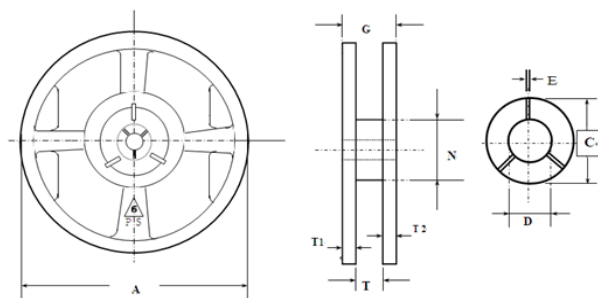
2.1 产品外形尺寸(mm)/ Product outline dimension(mm)



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)

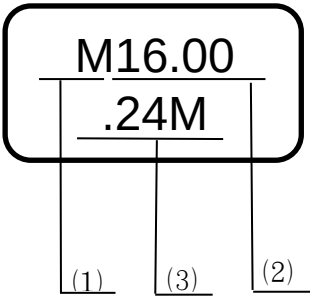


☆图示尺寸及公差 (mm) :

部位	A	T	T1, T2	N	C	D	E	G
尺寸	178	9.0	1.4	60.2	20.2	13.2	2.5	11.5
公差	±2.0	±0.5	±0.2	±0.5	±1.0	±0.5	±0.5	±1.4

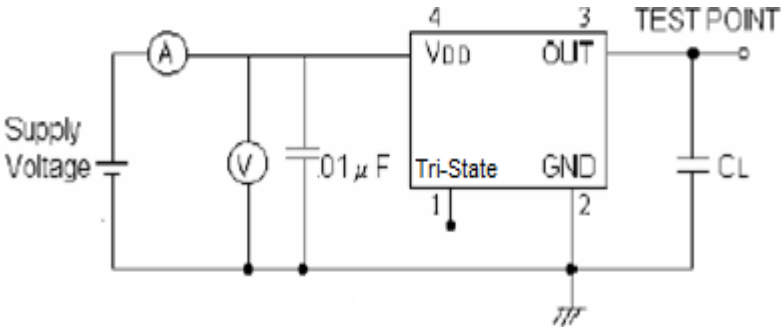
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2.4 印字 Marking

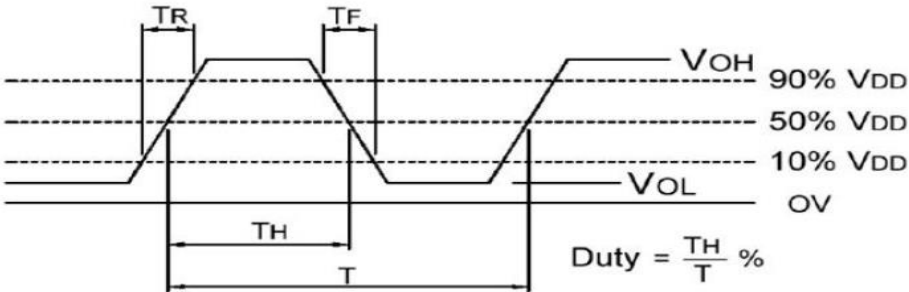


- (1) 代表公司Logo
- (2) 代表标称频率
- (3) 代表批次号

2.5 测试图 Test Diagram

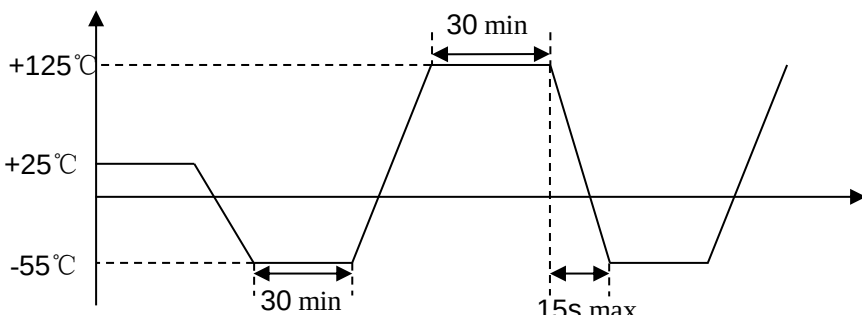


2.6 输出波形 Output Waveform



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3.0 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 500 ± 2 hrs then $25\pm 2^{\circ}\text{C}$ 2 hrs before testing	
A.2	耐高温性（耐热性）测试（Heat resistance）	(I)
	Stored at $125\pm 2^{\circ}\text{C}$ for 500 ± 2 hrs then $25\pm 2^{\circ}\text{C}$ 2 hrs before testing	
A.3	耐湿热性 (Humidity Resistance Result)	(I)
	稳态温度: $85\pm 2^{\circ}\text{C}$; 湿度: $85\pm 3\%\text{RH}$; 时间: 500 ± 2 hrs Steady temperature: $85\pm 2^{\circ}\text{C}$; humidity: $85\pm 3\%\text{RH}$; time: 500 ± 2 hrs	
A.4	气密性 (Leakage)	(IV)
	细漏 Fine leak: Put the product in the Helium pressure tank, 4 ~ 5kgf/cm ² , 0.5hrs.	
A.5	冷热冲击实验 温度循环（Temperature Cycle） $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$, Retain 30Min, 100 cycles  温度循环（Temperature Cycle）	(I)

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3.1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）：	
TEMP. (°C) 300 250 200 180 100 50 10~20S 260±5° C 230±5° C 180±10° C 90-120s ≥40S TIME (sec)		

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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<±10ppm; Frequency variation <±10ppm;
2	(II)	电流变化<±15%; Current variation <±15%;
3	(III)	上锡覆盖率高于95% The covering rate of Tin-plating is more than 95%.
4	(IV)	<1*10 ⁻⁹ Pa.m³/s

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4.0 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

4.1 包装规格 Package specification

