

新品 变更



## 产 品 规 格 书

## SPECIFICATION FOR APPROVAL

|                       |                  |
|-----------------------|------------------|
| 产品名称<br>Product Name: | 石英晶体振荡器          |
| 产品型号<br>Product Type: | SMD3225 OSC CMOS |
| 标称频率<br>Nominal Freq: | 50.000000 MHz    |
| 明德亨料号<br>MDH P/N:     | 2.1.3.5000023    |
| 客户料号<br>Customer P/N: |                  |

客户承认  
Approved By Customer签章  
Signature:日期  
Date:

Date: 2024年4月24日

|          |         |        |
|----------|---------|--------|
| 批准       | 审核      | 拟制     |
| Accepted | Checked | Issued |
| 欧阳林      | 马 波     | 张 鑫    |

烟台明德亨电子科技有限公司  
YanTai MDH Technology Co.,Ltd  
ADD.: 中国山东烟台开发区黑龙江路6号  
No.6 Heilongjiang Road Yantai Development Zone,  
Shandong, China  
TEL: 86-535-6372640 FAX: 86-535-6394876  
E-Mail: [dynamic@public.ytptt.sd.cn](mailto:dynamic@public.ytptt.sd.cn)

四川明德亨电子科技有限公司  
SiChuan MDH Technology Co.,Ltd  
ADD.: 中国四川泸州纳溪区东兴路1号  
No.1 Dongxing Road Naxi Zone, Luzhou,  
Sichuan,China  
TEL: 86-830-2800890  
<http://www.mingdeheng.com>

RoHS Compliant

## Revision Record

[illegible]



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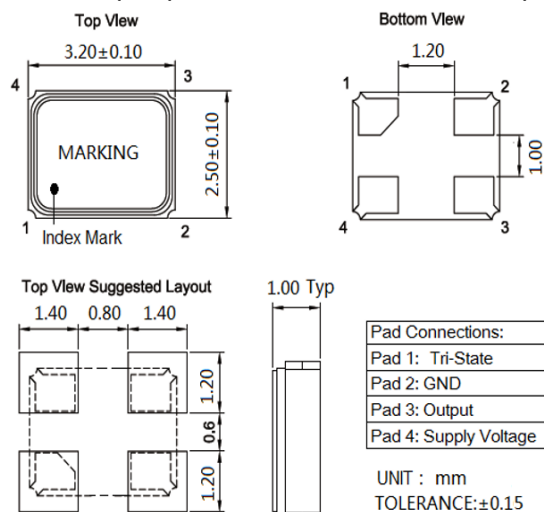
# 1 石英晶体产品规格及特性 / Product specification and features

## 1.1 一般特性 / General characteristics

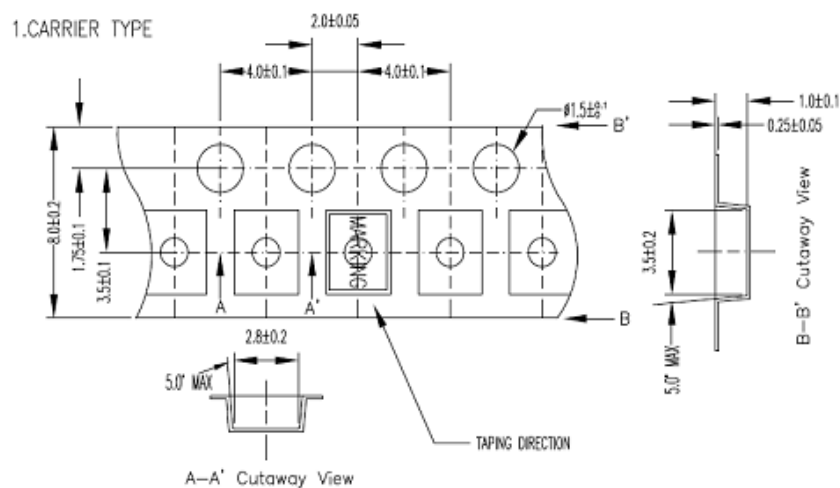
| Items                                   | Electrical spec. |      |         | Unit     | Notes             |
|-----------------------------------------|------------------|------|---------|----------|-------------------|
|                                         | Min.             | Typ. | Max.    |          |                   |
| 1.Frequency(FL)                         | 50.000000        |      |         | MHz      | -                 |
| 2.Type                                  | SMD3225 OSC CMOS |      |         | -        | -                 |
| 3.Frequency stability(Overall)          | -30              | ~    | 30      | ppm      | -                 |
| 4.Input Voltage                         | 2.97             | 3.30 | 3.63    | V        | VDD               |
| 5.Input Current                         | -                | -    | 12      | mA       | -                 |
| 6.Start-up Time                         | -                | -    | 10      | mSec     | -                 |
| 7.Rise Time /Fall Time                  | -                | -    | 10      | 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") | 2.97             | -    | -       | V        | -                 |
| 13.Output Level (Output Low Logic "0")  | -                | -    | 0.33    | V        | -                 |
| 14.High level input voltage             | 70% VDD          | -    | -       | V        | Tri-State Enable  |
| 15.Low level input voltage              | -                | -    | 30% VDD | V        | Tri-State Disable |
| 16.Aging                                | -3               | -    | 3       | ppm/year | At 25°C±5°C       |
|                                         |                  |      |         |          |                   |
|                                         |                  |      |         |          |                   |
|                                         |                  |      |         |          |                   |
|                                         |                  |      |         |          |                   |
|                                         |                  |      |         |          |                   |

## 2.0 外形尺寸、外观 / Outline dimensions、Appearances

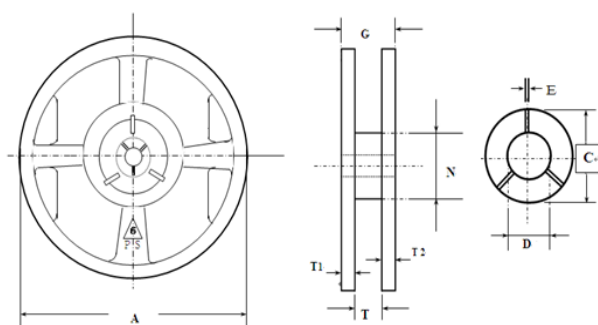
## 2.1 产品外形尺寸(mm)/ Product outline dimension(mm)



## 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)

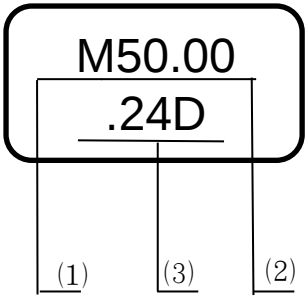


☆图示尺寸及公差 (mm) :

| 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 |

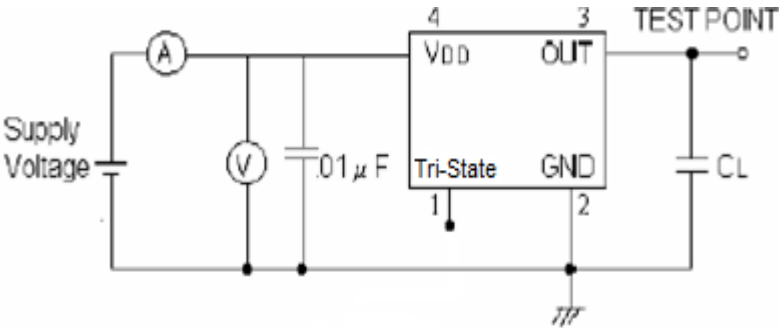
|                  |                   |         |    |               |      |
|------------------|-------------------|---------|----|---------------|------|
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2.4 印字 Marking

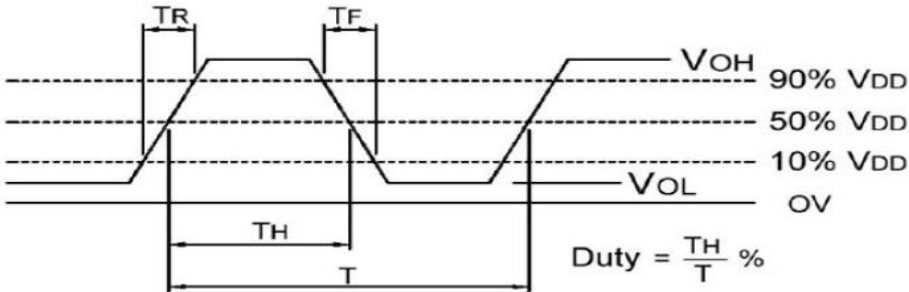


- (1) 代表公司Logo
- (2) 代表标称频率
- (3) 代表批次号

2.5 测试图 Test Diagram

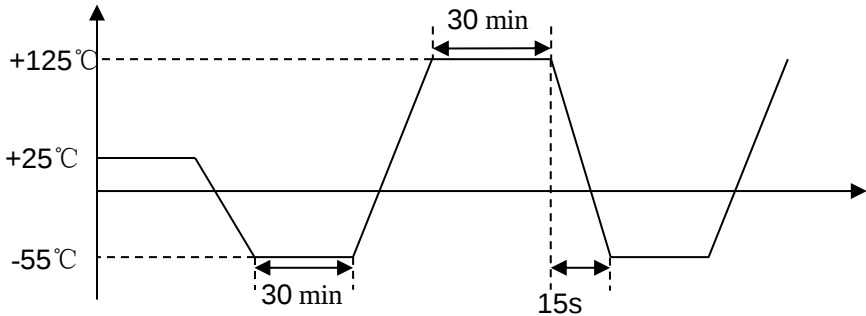


2.6 输出波形 Output Waveform



|                  |                   |         |               |      |      |
|------------------|-------------------|---------|---------------|------|------|
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3.0 石英晶体之可靠性 / Product reliability

| 项 目<br>(Item) | 条 件 (Condition)                                                                                                                                                                                                                                      | 结 果<br>(Result) |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| A.1           | 耐低温性（耐寒性）测试（Cold resistance）                                                                                                                                                                                                                         | ( I )           |
|               | Stored at $-40\pm 2^{\circ}\text{C}$ for $500\pm 2$ 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 $500\pm 2$ 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: $500\pm 2$ hrs<br>Steady temperature: $85\pm 2^{\circ}\text{C}$ ; humidity: $85\pm 3\%\text{RH}$ ; time: $500\pm 2$ hrs                                                             |                 |
| A.4           | 气密性 (Leakage)                                                                                                                                                                                                                                        | ( IV )          |
|               | 细漏 Fine leak: Put the product in the Helium pressure tank, 4 ~ 5kgf/cm <sup>2</sup> , 0.5hrs.                                                                                                                                                        |                 |
| A.5           | <p>冷热冲击实验 温度循环（Temperature Cycle）</p> <p><math>-55^{\circ}\text{C} \sim 125^{\circ}\text{C}</math>, Retain 30Min, 100 cycles</p>  <p>温度循环（Temperature Cycle）</p> | ( 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

90-120s

180±10° C

≥40S

TIME (sec)

|                  |                   |         |               |      |      |
|------------------|-------------------|---------|---------------|------|------|
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| 项目<br>Item | 结果编号Result<br>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%<br>The covering rate of Tin-plating is more than 95%. |
| 4          | ( IV )            | <1*10 <sup>-9</sup> 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

