



NINGBO KLS ELECTRONIC CO., LTD

# SPECIFICATIONS FOR APPROVAL FOR PIEZOELECTRIC BUZZER

**Customer** : \_\_\_\_\_

**Customer's Model No.** : \_\_\_\_\_

**Model No.** : L-KLS3-SMT-12\*2.5

**Number** : \_\_\_\_\_

**Issue Date** : 2020.2.25

CUSTOMER	APPROVER	CHECKER
	MA JUN	JING BIN

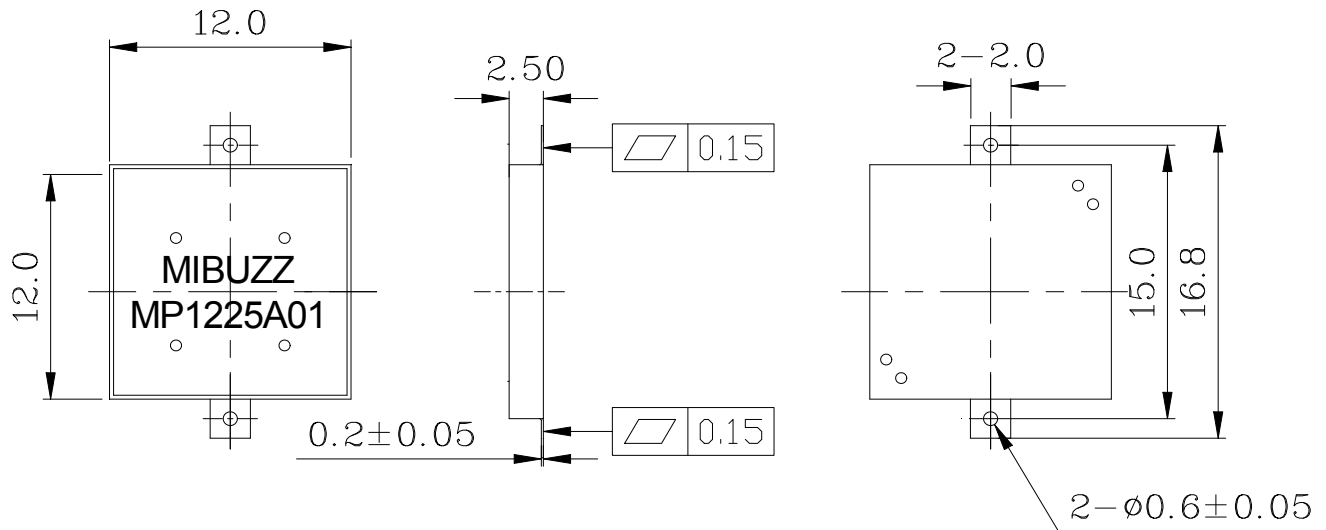
## 1、SPECIFICATION 规格

No.	Item	Unit	Specification	Condition
1	Operating Voltage 工作电压	Vp-p	max.25	
2	Current Consumption 损耗电流	mA	max.8	Max 8mA at 5Vp-p/Square Wave/4.1KHz
3	Sound Pressure Level 输出声压	dB	min.75	Min 75dB at 10cm/5Vp-p/Square Wave/4.1KHz
4	Electrostatic capacity 靜電容量	pF	16,000 ± 30%	at 100 Hz /1V
5	Operating Temperature 工作温度	°C	-40 ~ +80	
6	Storage Temperature 儲存温度	°C	-40 ~ +80	
7	Dimension 尺寸	mm	L12 X W12 x H2.5	See attached drawing 请参照外观尺寸图
8	Weight 重量	gram	0.4	
9	Material 材质		LCP	Black
10	Pad plating 焊盘镀层		锡 Sn	See attached drawing 请参照外观尺寸图
11	Environmental protection rule 环保法规		RoHS	压电片不环保
12	Storage life 保存期限	month	6	6month preservation at room temp. (25±3 °C), Humidity40% 在室温25±3°C，湿度40%以下可保存6个月

## 2、TYPICAL FREQUENCY RESPONSE CURVE 频率曲线



### 3、APPEARANCE DRAWING 外观尺寸图



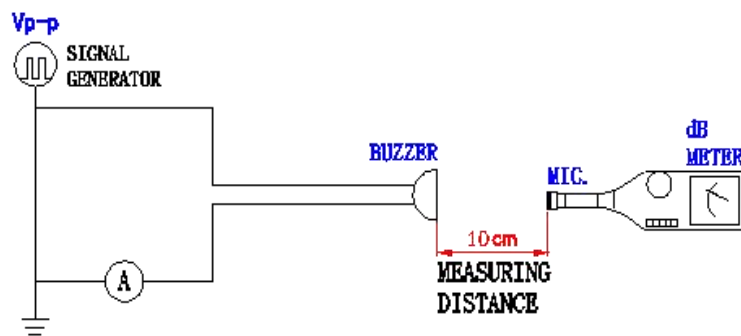
Unit:mm Tol:±0.3

### 4、TESTING METHOD 测试方法

标准测试环境：温度:25±2℃ 湿度:45-65%

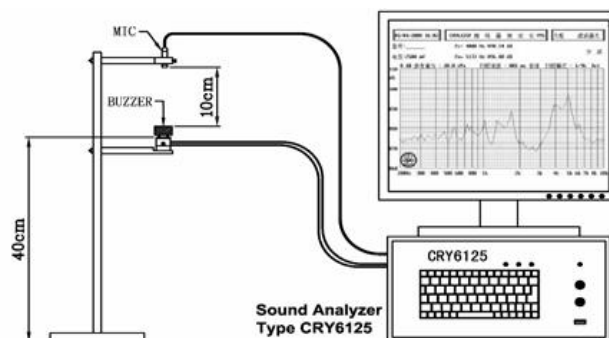
The oscillation frequency, current consumption and sound pressure are measured by the measuring instruments shown below:

以下测试振荡频率、损耗电流和声压：



In the measuring test, buzzer is placed as follows:

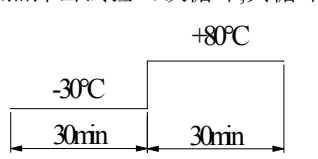
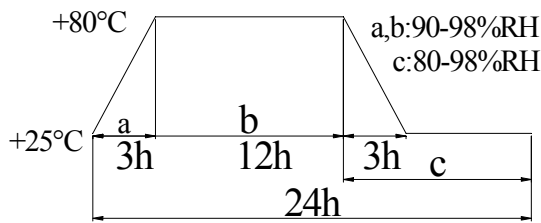
测试中，蜂鸣器应如下放置：



## 5、MECHANICAL CHARACTERISTICS 机械特性

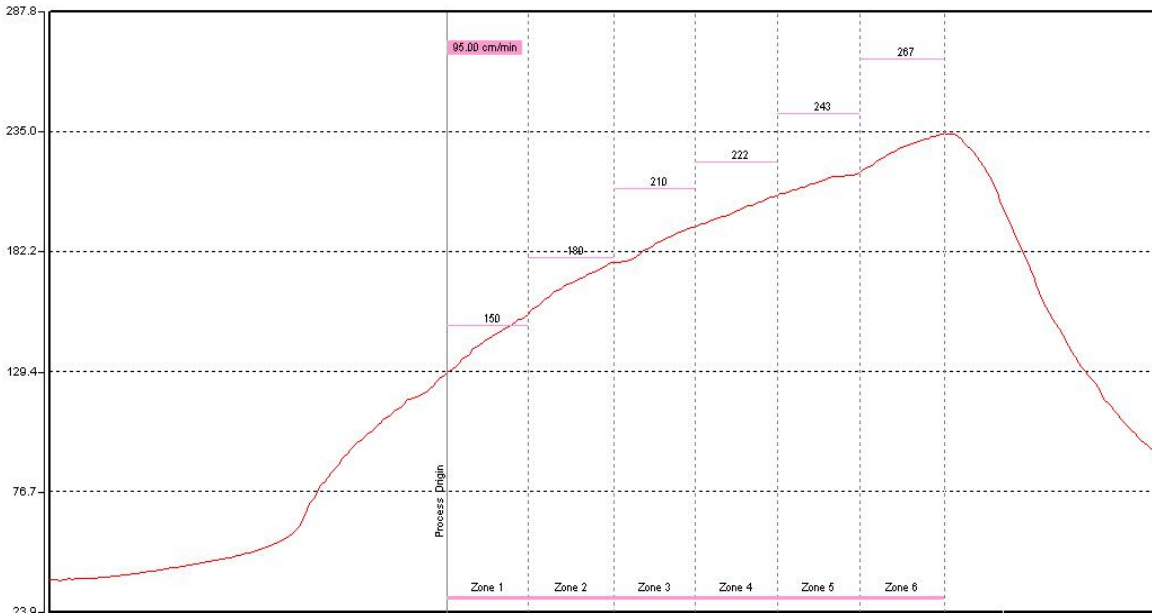
NO.	Item	Test condition	Evaluation standard
1	<b>Solderability</b> 焊锡附着性	Lead terminals are immersed in solder bath of $+240\pm 5^{\circ}\text{C}$ for $3\pm 1$ second. 焊盘置于锡膏内, 锡膏温度: $+240\pm 5^{\circ}\text{C}$ . 焊接时间: $3\pm 1$ 秒	95% surface of lead pads must be covered with fresh solder 锡膏须覆盖焊盘上方95%
2	<b>Soldering Heat Resistance</b> 焊锡耐热性	The product is followed the reflow temperature curve to test its reflow thermostability. 品依照回焊温度曲线测试回焊耐热性.	No interference in operation 操作上无任何不良
3	<b>Terminal Mechanical Strength</b> 焊盘强度	Lead pads shall be soldered on the pc board, and the force 9.8N (1.0kg) shall be applied behind the part for 10 seconds. 将焊盘焊在PC板上后, 对单体施以9.8N(1.0kg)拉力10秒.	No damage and cutting off 焊盘不松动, 不脱落.
4	<b>Vibration</b> 振动测试	Buzzer shall be measured after being applied vibration of amplitude of 1.5mm with 10 to 55hz band of vibration frequency to each of 3 per-pendicular directions for 2 hours. 振动周波数10~55HZ、全振幅1.5mm于 X.Y.Z 3个方向, 各2小时.	After the test the part shall meet specifications with-out any damage in appearance and the SPL should be in $\pm 10\text{dBA}$ compared with initial one.
5	<b>Drop test</b> 跌落测试	The part only shall be dropped from a height of 75cm onto a 40mm thick wooden board 3 times in 3 axes (X.Y.Z). (a total of 9 times). 单体从75公分高处, X. Y. Z. 3个方向, 各3回, 落于40mm厚木板上.	经测试后, 单体除音压外, 外观及电气特性须符合规格. 输出音压变化量须在 $\pm 10\text{dBA}$ 内.

## 6、ENVIRONMENT TEST 环境测试

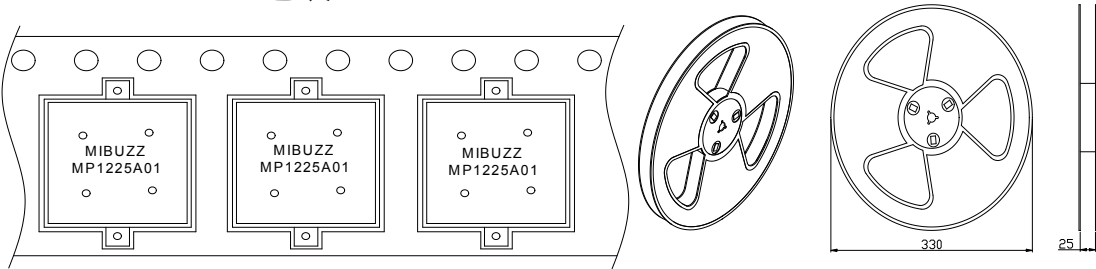
NO.	Item	Test condition	Evaluation standard
1	<b>High temp. test</b> 高温测试	After being placed in a chamber at $+80^{\circ}\text{C}$ for 96 hours. 置于 $+80^{\circ}\text{C}$ 环境中96小时	After the test the part shall meet specifications with-out any degradation in appearance and performance except SPL. after 4 hours at $+25^{\circ}\text{C}$ . the SPL should be in $\pm 10\text{dBA}$ compared with initial one.
2	<b>Low temp. test</b> 低温测试	After being placed in a chamber at $-30^{\circ}\text{C}$ for 96 hours. 置于 $-30^{\circ}\text{C}$ 环境中96小时	
3	<b>Thermal Shock</b> 热冲击试验	The part shall be subjected to 10 cycles. One cycle shall consist of; 对单体施以热冲击试验10次循环,其循环内容如图示 	
4	<b>Temp./ Humidity Cycle</b> 温度/湿度循环测试	The part shall be subjected to 5 cycles. One cycle shall be 24 hours and consist of; 单体承受温度/湿度循环测试5次. 24小时循环内容如图示 	

## 8、RECOMMENDED TEMPERATURE PROFILE FOR REFLOW OVEN

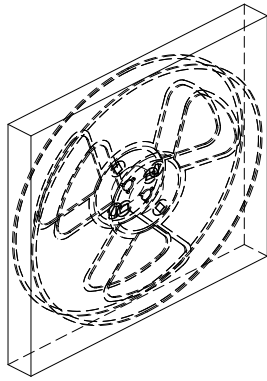
建议回焊炉温度曲线



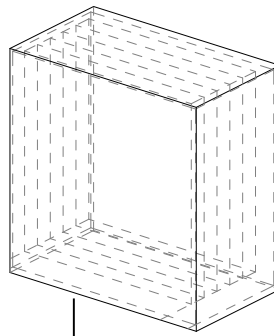
## 10、PACKAGE 包装



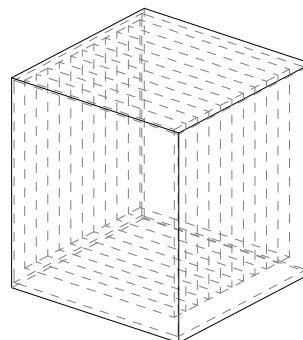
1 Reel: 1000 Pcs



Inner Box  
1 Layer Reel



Carton Box  
(5 Inner Box)



Carton Box  
(2 Inner Box)


**CAUTIONS FOR USE 注意事项**

<b>NO.</b>	<b>DECPRIPTION</b>
1	<p><b>As this product is not protected from foreign material entering, please make sure that any foreign materials do not enter this product in your production processes. (e.g. magnetic powder, washing solvent, flux, corrosive gas)</b> 由于本产品不能防止异物进入，请确保任何异物不会在生产过程中进入本产品。（例如磁粉，洗涤溶剂，焊剂，腐蚀性气体）</p>
2	<p><b>The functional degradation may occur if foreign material enter it. (e.g. SPL down)</b> 如果外来物质进入，则可能发生功能退化。（例如SPL下降）</p>
3	<p><b>Washing of the component is not acceptable. Because it is not seal.</b> 不可水洗的部件，因为它不密封。</p>
4	<p><b>After solder bath, the cooking time must be longer than 2 hours before function test.</b> 测试功能前，必须在过完锡炉后并冷却2小时以上。</p>
5	<p><b>Instar reserves the right to change product material without prior notice, guaranteeing the same specification. Materials are subject to change due to environmental regulations, sourcing, and process improvements.</b> 材料可能由于环境法规，物料及制程工艺精进而发生变动，Instar保证相同的规格，并有权保留更改产品材料的权利，恕不另行通知。</p>
6	<p><b>If you need more information, please contact our technology department, thank you.</b> 如您需要更多信息，请联系我们的技术部门，谢谢。</p>