



承认书
SPECIFICATION
 版本号 Version: A0

客户名称 : _____ 客户料号 : _____

Customer's Name : _____ Customer's Part No : _____

产品名称 : Microphone 送样编号 : _____

Production Name : _____ Sample No : _____

灵敏度 : -44±3dB 公司型号: SMD4013

Sensitivity : _____ Model : _____

CUSTOMER	CHECKER	APPROVER

如蒙承认请签名后回传，谢谢！

Please counter signed fax back to us to signify your acceptance. Thanks!

--	--	--	--	--	--

地址: 宁波市江东区朝晖路 416 弄 262 号
 电话: +86-574-87793491
 传真: +86-574-87792835
 邮编: 315040
 网址: www.fbeletech.com



邮箱: sales@fbele.com

1. 产品型号 Model NO.	SMD4013
-------------------	---------

2. 电性能 Electrical Characteristics

标准测试条件 Standard Test Condition : 温度 Temperature :15℃~35℃ 相对湿度 Rel.Humidity:45%~75%(RH) 气压/Pressure :86~106KPa

判定测试条件 Judgment Test Condition : 温度 Temperature :20℃±2℃ 相对湿度 Rel.Humidity:60%~70%(RH) 气压/ Pressure :86~106KPa

序号 NO.	参数 Parameter	符号 Symbol	条件 Condition	范围 Limits			单位 Unit
				最小值 Min.	标准值 standard	最大值 Max.	
1	尺寸 Dimension			Φ4.0×1.3(H)			mm
2	指向性 Directivity			全指向 Omni directional			
3	测试基准 test condition			2.0V 2.2KΩ			
4	灵敏度 Sensitivity	S	f=1KHZ, 0dB=1V/Pa	-47	-44	-41	dB
5	操作电压 Operating Voltage			1		10	V
6	输出阻抗 Output Impedance	ZOUT	f= 1KHZ			2.2	KΩ
7	消耗电流 Current Consumption	IDDS	Vc=2.0V , RL=2.2KΩ			400	uA
8	信噪比 Signal to Noise Ratio	S/N	f=1 KHZ , S.P.L=1Pa (A-Weighted)	58			dBA
9	减电压特性 Decreasing Voltage	△S-VS	Vc=2.0V to 1.5V			-3	dB
10	最大输入声压 Max Input Sound Level					110	dB
11	环保法规 Environmental Regulations			RoHS			

We use "Pascal (Pa)" indication of sensitivity as per the recommendation of I.E.C. (International Electro technical Commission).The Sensitivity of "Pa" will increase 20dB comparing with "ubar" indication.

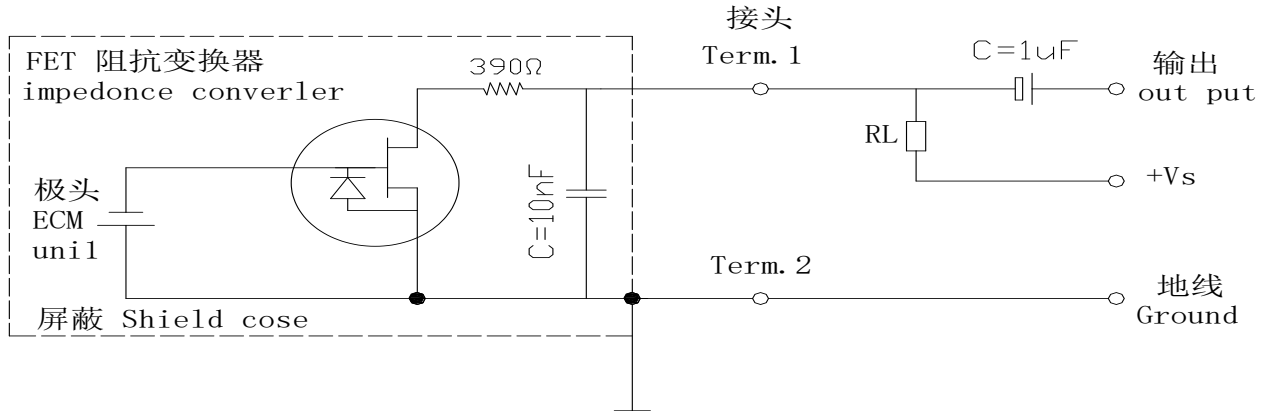


Example: $-60\text{dB} (0\text{dB}=1\text{V}/\text{ubar}) = -40\text{dB} (1\text{V}/\text{Pa})$

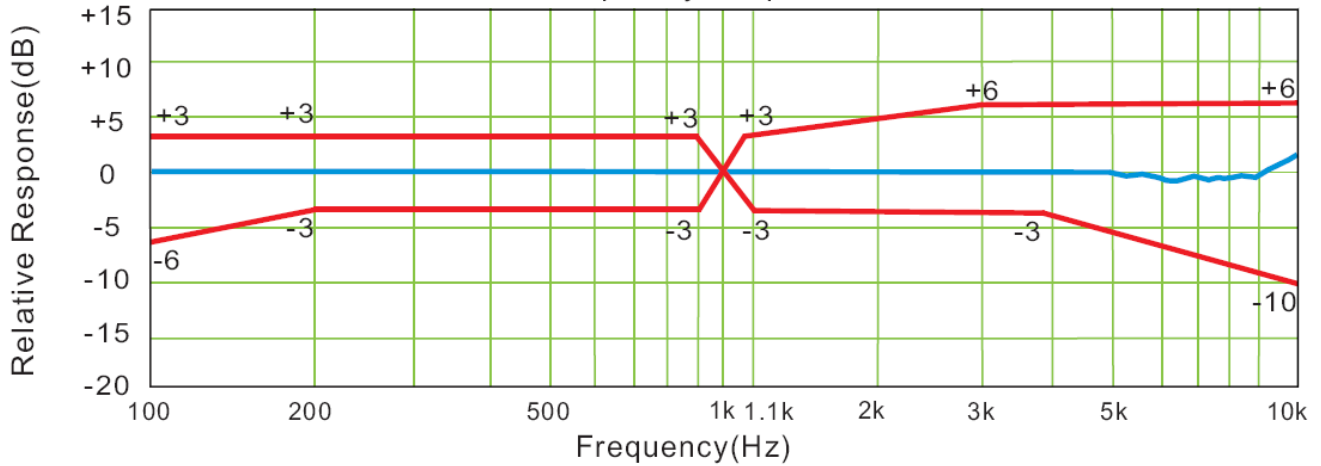
依I. E. C. (国际电子协会) 建议, 以“Pa”为灵敏度标示单位比“ubar”灵敏度标示单位增加20dB

例如: $-60\text{dB} (0\text{dB}=1\text{V}/\text{ubar}) = -40\text{dB} (1\text{V}/\text{Pa})$

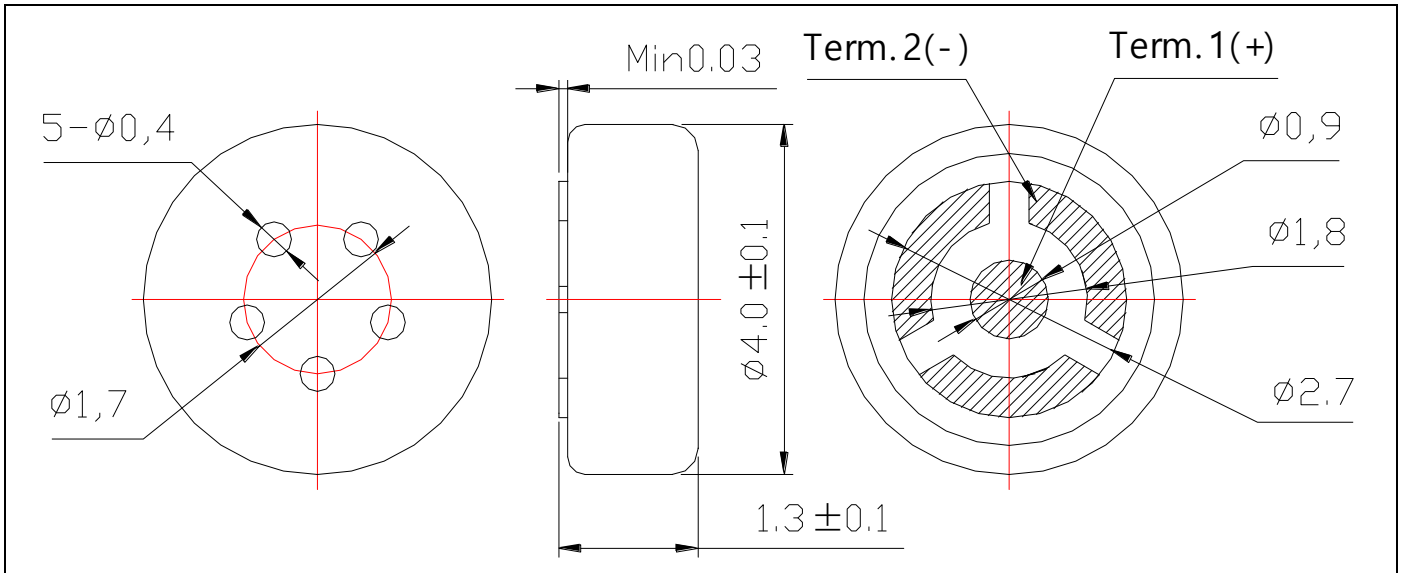
3. 测试电路图 Circuit Diagram



4. 典型频率响应曲线 Typical Frequency Response Curve (far field)



5. 外形图 Outside Drawing



6. 可靠性试验 Reliability Test

经过以下所有试验在温度 $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$ 和湿度 $45\% \sim 75\%$ 的条件下放置 3 小时后, 要求麦克风的灵敏度试验前后变化在 3dB 以内

After any following tests, the sensitivity of the microphone to be within $\pm 3\text{dB}$ of initial sensitivity after 3 hours of conditioning at $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$ and $45\% \sim 75\% \text{RH}$

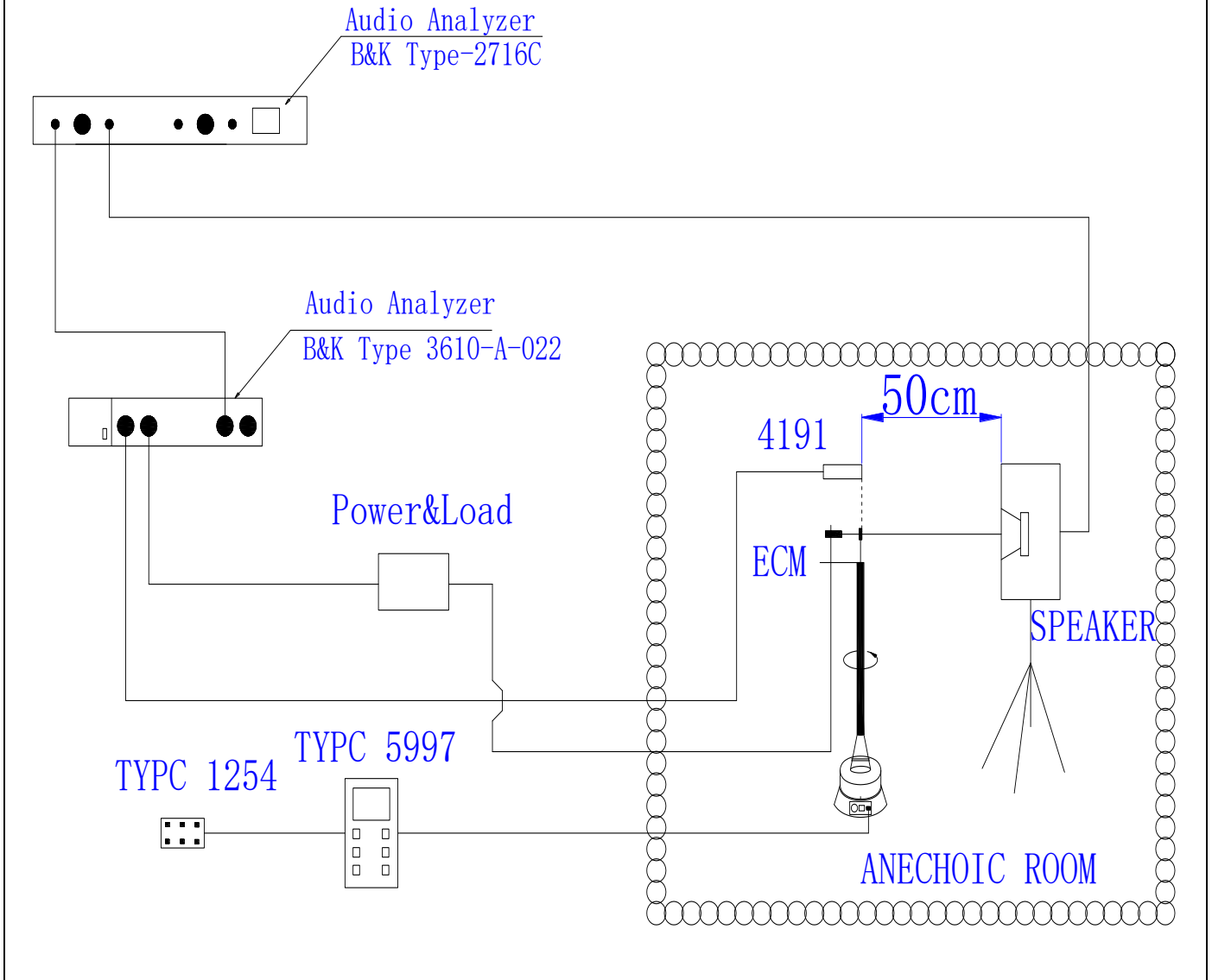
<p>6.1 振动试验 Vibration Test</p>	<p>1 分钟频率变化从 10Hz 到 55Hz, 振幅 1.52mm, 在三个方向各振动 2 小时 1 minute frequency from 10Hz to 55Hz, amplitude 1.52mm, the vibration in three directions 2 hours</p>
<p>6.2 跌落试验 Drop Test</p>	<p>分别把包装的三个面从 1.5 米高处自由落到地面上, 各 10 次 Three faces of package from 1.5 meters high free fall to the ground, each 10 times</p>
<p>6.3 高温试验 Dry Heat Test</p>	<p>在 $85^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 环境中维持 240 小时 $85^{\circ}\text{C} \pm 3^{\circ}\text{C}$ for 200 hours</p>
<p>6.4 低温试验 Dry Cold</p>	<p>在 $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 环境中维持 240 小时 $-40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ for 200 hours</p>
<p>6.5 高温高湿试验 Damp Heat Test</p>	<p>在温度 $60^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 和相对湿度 $90\% \sim 95\%$ 的环境下维持 240 小时 $60^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and $90\% \sim 95\% \text{RH}$ for 200 hours</p>



<p>6.6 温度循环试验 Temperature Cycles Test</p>	<p>按如图温度和时间循环 10 次 According to the figure of temperature and time cycle, each 10 times</p> <p>The diagram illustrates a temperature cycle with the following stages and durations: a 2-hour hold at -20°C, a 1-hour ramp up, a 2-hour hold at +25°C, a 1-hour ramp up, and a 2-hour hold at +70°C. The total duration of one cycle is 8 hours.</p>
<p>6.7 温度冲击试验 Temperature Impact Test</p>	<p>在-40℃±3℃环境中放置 60 分钟,然后在 80℃±3℃环境中放置 60 分钟, 这样循环 10 次。 -40℃±3℃ for 60 minutes, and then 80℃±3℃ for 60 minutes, each 10 times</p>
<p>6.8 静电试验 ESD Test</p>	<p>The microphone under test must be discharged between each ESD exposure without ground, (contact: ±4kV, air±6kV)</p>
<p>7 储存环境 Storage environment</p>	
<p>7.1 贮存温度/湿度 Storage Temperature/ Humidity :</p>	<p>-40℃ ~ +80℃ / 35%~85% RH</p>
<p>7.2 工作温度/湿度 Operating Temperature/ Humidity :</p>	<p>-30℃ ~ +70℃ / 35%~85% RH</p>



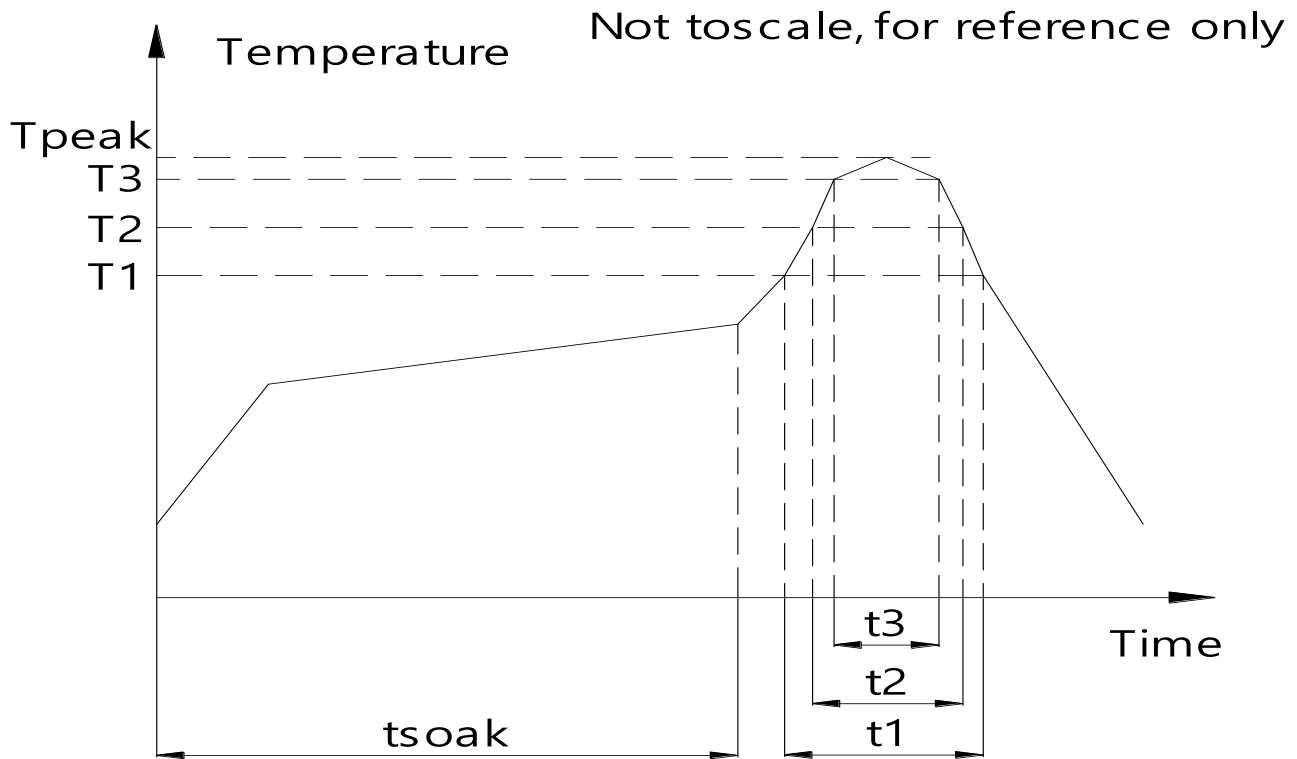
8. 测量系统 Measuring System





9. 回流焊条件 Reflow process condition

Parameter	Reference	Specification
Average temperature gradient in preheating		2.5° C/s
Soak time	tsoak	2-3 minutes
Time above 217° C	t1	Max 60s
Time above 230° C	t2	Max 50s
Time above 250° C	t3	Max 10s
Peak temperature in reflow	Tpeak	255° C (-0/+5° C)
Temperature gradient in cooling		Max -5° C/s



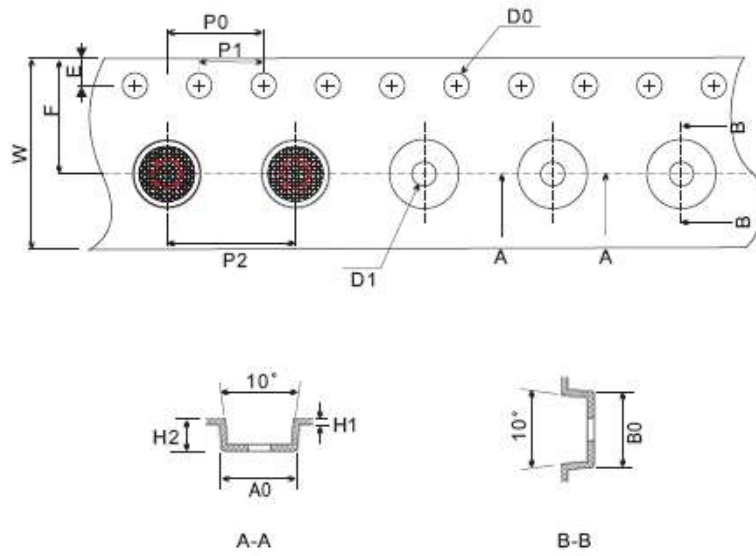
*After the initial reflow, the MIC shall be resumed to ambient temperature if more reflow required. *Do not perform it more than twice.

*After two SMT tests, the sensitivity of the MIC unit shall change less than ±2dB for initial value

*The MIC should be exposed to room temperature for 3 hours and tested.

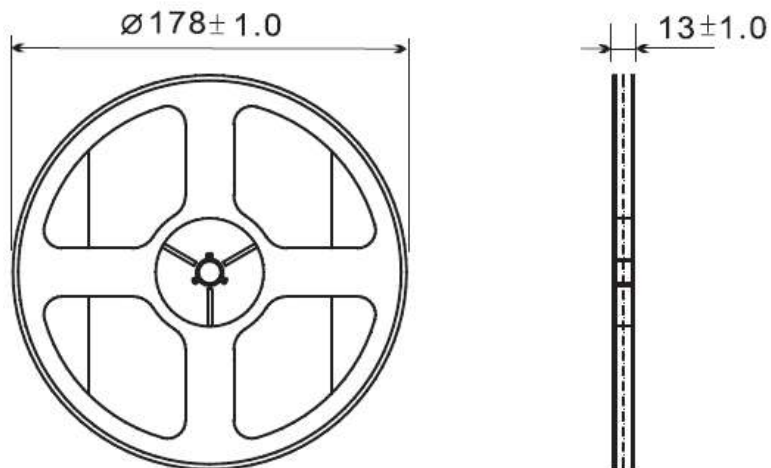


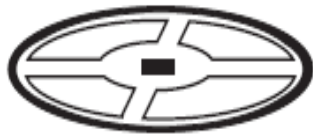
10. 包装图 Packing diagram



The dimensions follows:

ITEM	W	E	F	D0	D1
DIM(mm)	12.0±0.3	1.75±0.1	5.50±0.1	∅1.55±0.05	∅1.5±0.1
ITEM	P0	P1	P2	A0	H1
DIM(mm)	6.0±0.1	4.0±0.1	8.0±0.1	∅4.3±0.1	0.4±0.05
ITEM	H2	B0			
DIM(mm)	1.7±0.1	∅4.3±0.1			





1000PCS



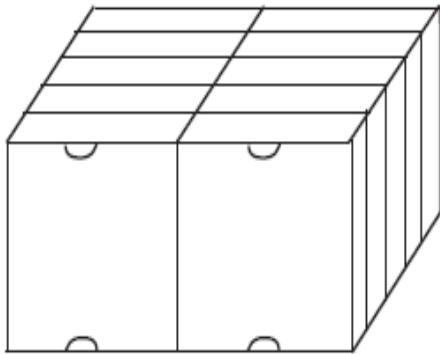
Prevent static energy bag



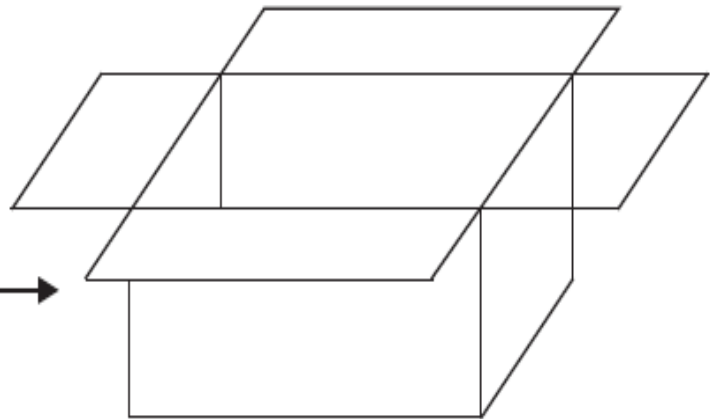
2 layers



Mid box



5 layers



Big box

Mid box	190mm×185mm×45mm	2×1000pcs=2000pcs
Big box	385mm×240mm×200mm	10×2000pcs=20000pcs