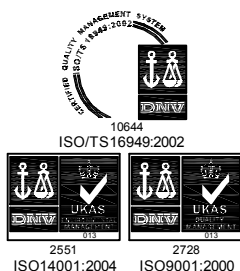


Specification of Electret Condenser Microphone (RoHS Compliance&Halogen-Free)

Customer Name : Foster
Customer Model : 557570
GoerTek Model : B4012AP422-003

GoerTek	CUSTOMER APPROVAL
<p><u>DESIGN</u> <u>Arthur Apr.17 2012</u></p> <p><u>CHECK</u> <u>Dave Apr.17 2012</u></p> <p><u>STANDARD</u> <u>Aimee Apr.17 2012</u></p> <p><u>APPROVAL</u> <u>Worden Apr.17 2012</u></p>	



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Restricted

1 Security warning

- 1.1 The information contained in this document is the exclusive property of GoerTek Inc. and should not be disclosed to any third party without the written consent of GoerTek Inc.
- 1.2 This product and all of its parts are ROHS Compliance and observe halogen free and Sb₂O₃ free.

2 Publication history

Version	Modified P/O No.	Date	Description	Design	Approval
1.0	/	2012.04.17	New Design	Arthur	Worden

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PRODUCT SPECIFICATIONS

Type : Electret Condenser Microphone

Model: B4012AP422-003

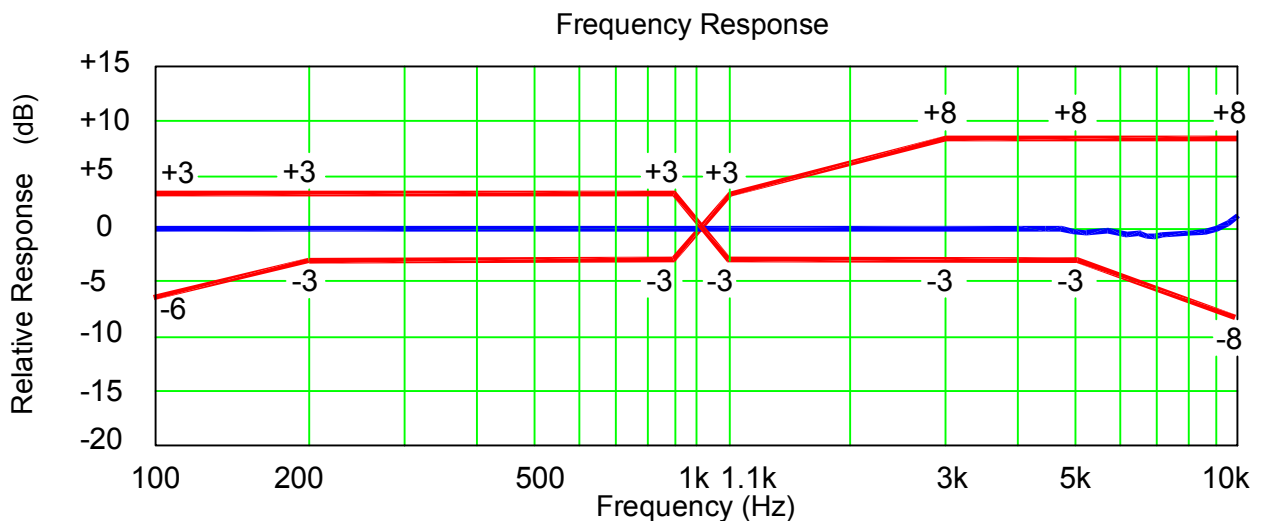
1 Test Condition ($V_s=2.1V$, $R_L=2.21k\Omega$, $L=50cm$)

Standard Conditions (Re. IEC 60268-4)	Temperature	Humidity	Air pressure
Environment Conditions	+15°C~+35°C	25%RH~75%RH	86kPa~106kPa
Judgement Conditions	+20°C±2°C	60%RH~70%RH	86kPa~106kPa

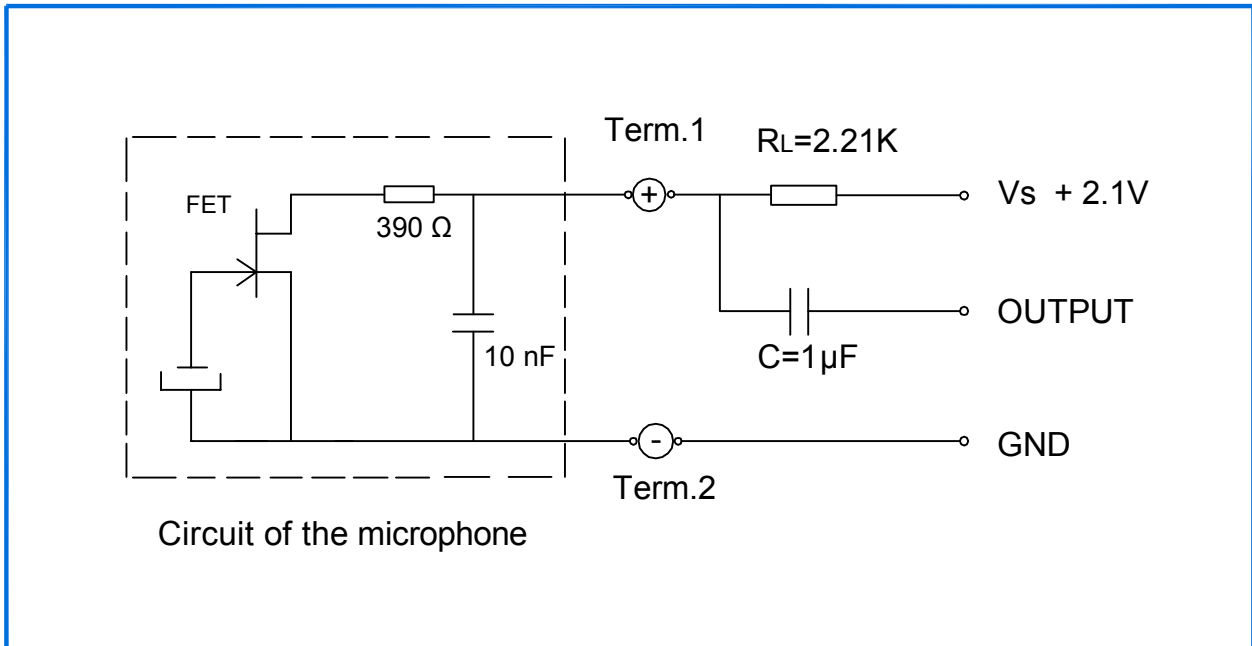
2 Electrical Characteristics

Item	Symbol	Test Conditions	Min	Typ	Max	Unit
Sensitivity	S	f=1kHz, Pin=1Pa	-44	-42	-40	dB 0dB=1V/Pa
Output Impedance	Zout	f=1kHz, Pin=1Pa			2.2k	Ω
Directivity	D(θ)	Omnidirectional				dB
Current Consumption	I	$V_s=2.1V$, $R_L=2.21k\Omega$	100		260	μA
S/N Ratio	S/N(A)	f=1kHz, Pin=1Pa A-Weighted Curve	58			dB
Decreasing Voltage Characteristic	ΔS	f=1kHz, Pin=1Pa $V_s=2.0--1.5V$			3	dB
Operating Voltage Range	V_s		1.1		10	V
Input SPL					120	dB

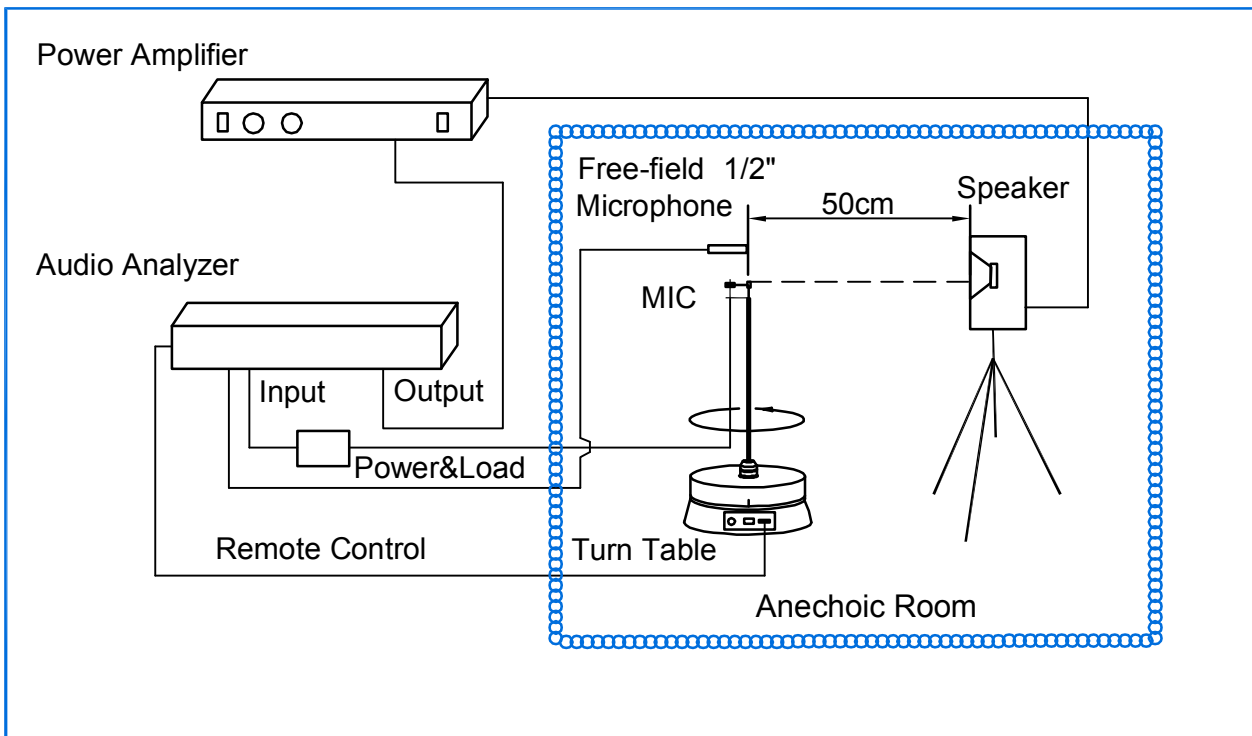
3 Frequency Response Curve and Limits



4 Measurement Circuit

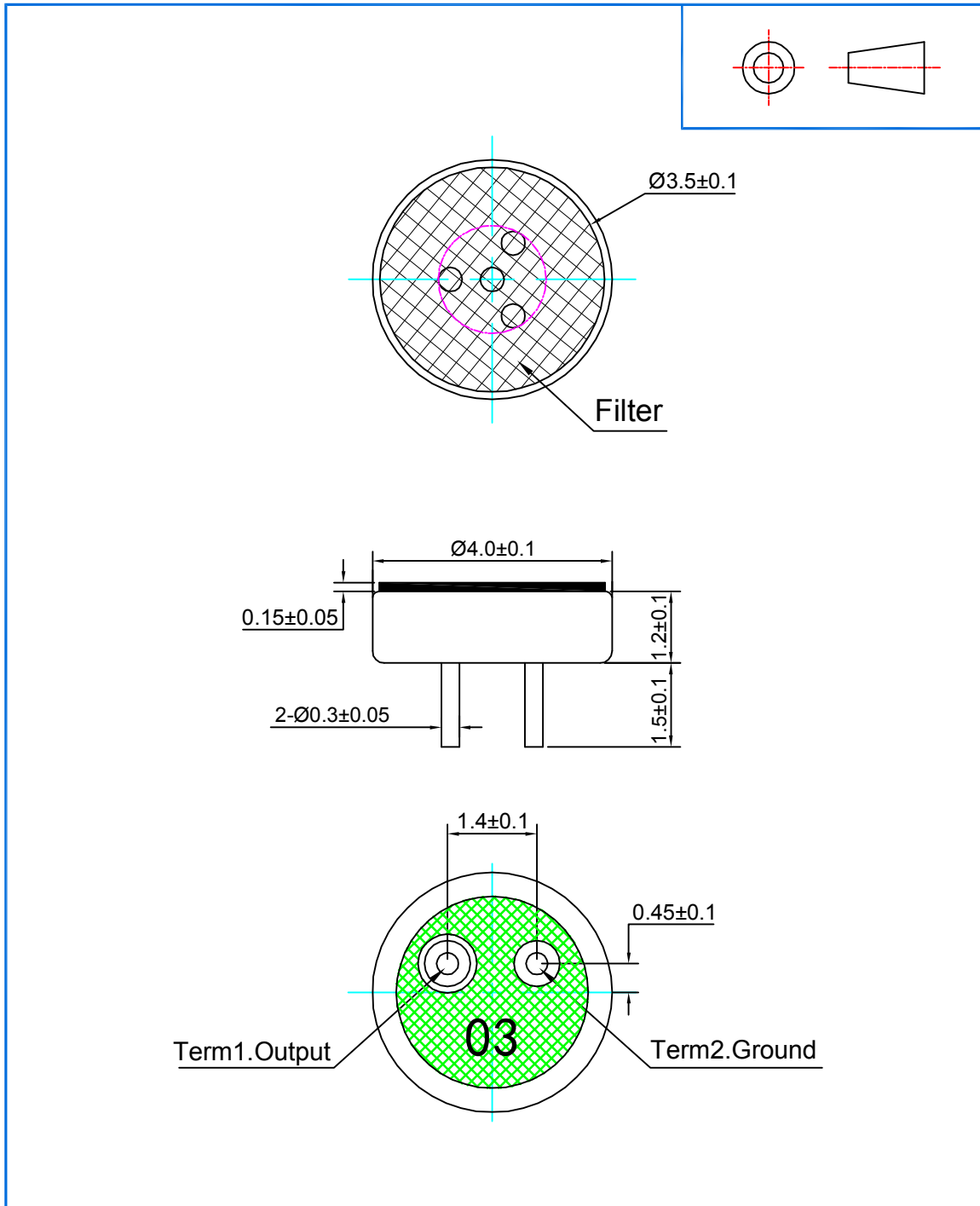


5 Test Setup Drawing



6 Mechanical Characteristics

6.1 Appearance Drawing (Unit: mm)

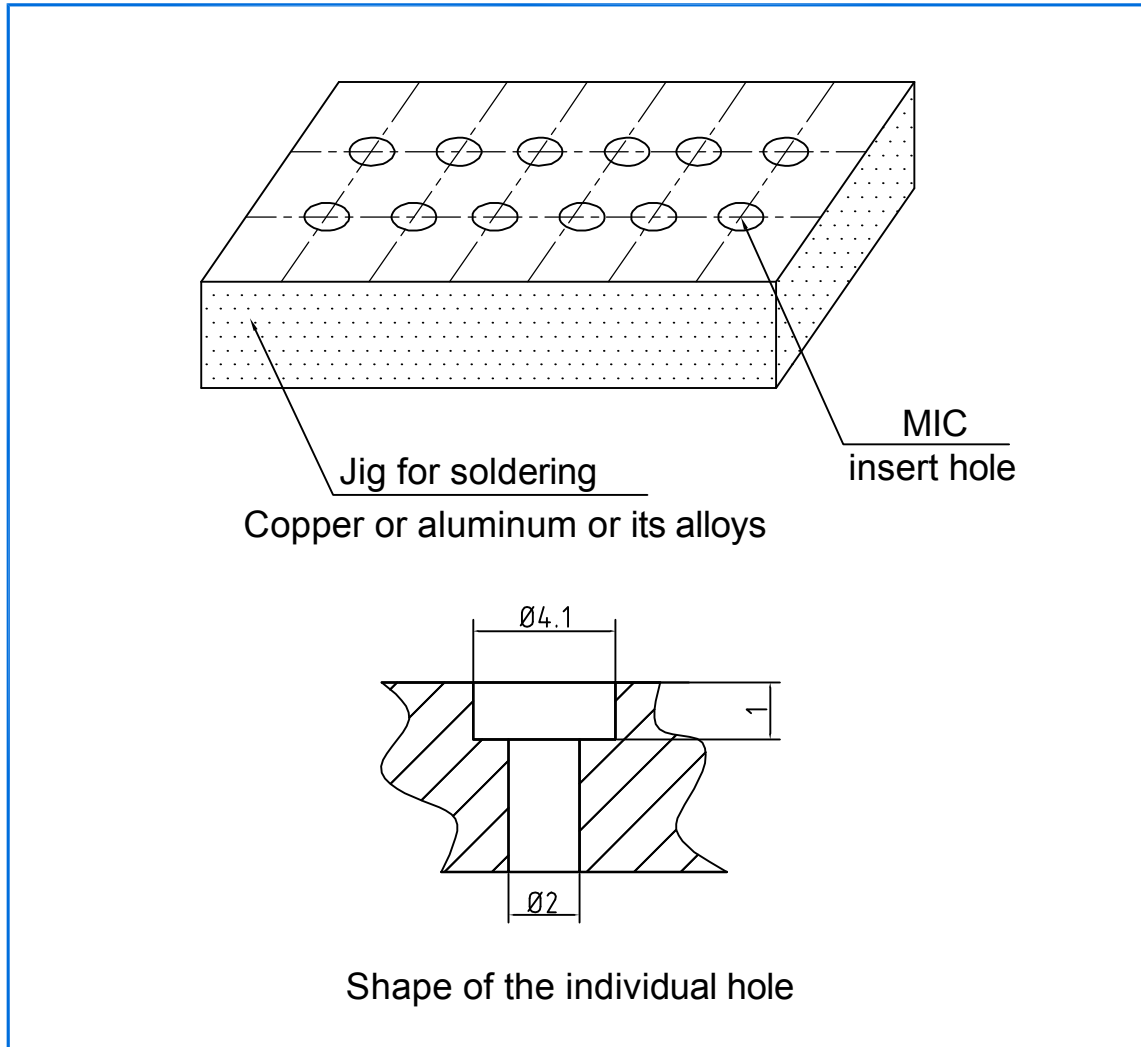


6.2 Weight

Less than 0.2g.

7 Soldering

7.1 Jig for soldering (Unit: mm)



7.2 Cautions

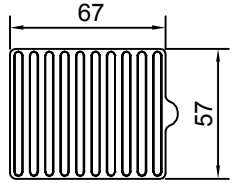
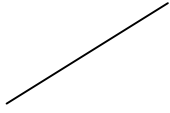
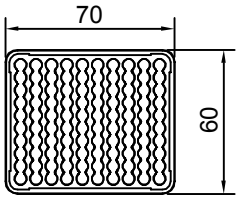
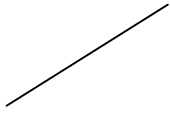
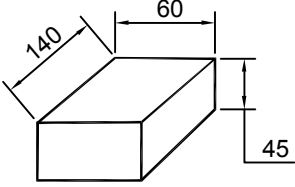
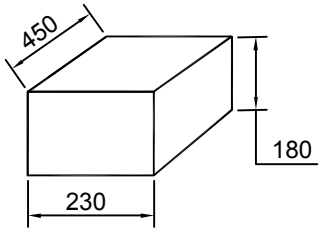
- 7.2.1 We use antistatic welding machine which can control soldering temperature automatically during soldering process.
- 7.2.2 The temperature of the high-frequency electric welding machine is set at 310°C and welding time less than 2 seconds.
- 7.2.3 ECM should be fixed on the soldering jig which has higher heat radiation effects during soldering process.
- 7.2.4 ECM may be destroyed by static electricity easily, so the measures for eliminating static electricity should be executed.
- 7.2.5 Don't do the X-ray inspection on ECM after being assembled on the main board.
- 7.2.6 Don't do the cleaning process with any kind of volatile solvent (Acetone, TCE, alcohol, etc.), water, or detergent. Any dust or particle got into ECM can reduce the sensitivity of the microphone.
- 7.2.7 Process conditions may affect the acoustic characteristics.
- 7.2.8 Wave soldering conditions may affect the acoustic characteristics.

8 Reliability Test

<p>8.1 Vibration Test</p>	<p>To be no interference in operation after vibrations,10Hz to 55 Hz for 1 minute full amplitude 1.52mm,for 2 hours at three axes in state of standard packing,sensitivity to be within $\pm 3\text{dB}$ from initial sensitivity. (The measurement to be done after 2 hours of conditioning at $+15\text{ }^{\circ}\text{C} \sim +35\text{ }^{\circ}\text{C}$, R.H 25%~75%)</p>
<p>8.2 Drop Test</p>	<p>To be no interference in operation after dropped to concrete floor 6 time from 1 meter height in state of Outer packing,sensitivity to be within $\pm 3\text{dB}$ from initial sensitivity. (The measurement to be done after 2 hours of conditioning at $+15\text{ }^{\circ}\text{C} \sim +35\text{ }^{\circ}\text{C}$, R.H 25%~75%)</p>
<p>8.3 High Temperature Test</p>	<p>After exposure at $+85\text{ }^{\circ}\text{C}$ for 200 hours, sensitivity to be within $\pm 3\text{dB}$ from initial sensitivity. (The measurement to be done after 2 hours of conditioning at $+15\text{ }^{\circ}\text{C} \sim +35\text{ }^{\circ}\text{C}$, R.H 25%~75%)</p>
<p>8.4 Low Temperature Test</p>	<p>After exposure at $-40\text{ }^{\circ}\text{C}$ for 200 hours, sensitivity to be within $\pm 3\text{dB}$ from initial sensitivity. (The measurement to be done after 2 hours of conditioning at $+15\text{ }^{\circ}\text{C} \sim +35\text{ }^{\circ}\text{C}$, R.H 25%~75%)</p>
<p>8.5 Humidity Test</p>	<p>After exposure at $+50\text{ }^{\circ}\text{C}$ and 95% relative humidity for 120 hours,sensitivity to be within $\pm 3\text{dB}$ from initial sensitivity. (The measurement to be done after 2 hours of conditioning at $+15\text{ }^{\circ}\text{C} \sim +35\text{ }^{\circ}\text{C}$, R.H 25%~75%)</p>
<p>8.6 Temperature Cycle Test</p>	<p>After exposure at $-25\text{ }^{\circ}\text{C}$ for 30 minutes, at $20\text{ }^{\circ}\text{C}$ for 10 minutes, at $+70\text{ }^{\circ}\text{C}$ for 30 minutes,at $20\text{ }^{\circ}\text{C}$ for 10 minutes,5 cycles,sensitivity to be within $\pm 3\text{dB}$ from initial sensitivity. (The measurement to be done after 2 hours of conditioning at $+15\text{ }^{\circ}\text{C} \sim +35\text{ }^{\circ}\text{C}$, R.H 25%~75%)</p>
<p>8.7 Temperature Shock Test</p>	<p>After exposure at $-25\text{ }^{\circ}\text{C}$ for 60 minutes, at $+70\text{ }^{\circ}\text{C}$ for 60 minutes(change time 20 seconds), 32 cycles,sensitivity to be within $\pm 3\text{dB}$ from initial sensitivity. (The measurement to be done after 2 hours of conditioning at $+15\text{ }^{\circ}\text{C} \sim +35\text{ }^{\circ}\text{C}$, R.H 25%~75%)</p>
<p>8.8 ESD Shock Test</p>	<p>The microphone under test must be discharged between each ESD exposure without ground. (contact:$\pm 8\text{kV}$,air:$\pm 15\text{kV}$) There is no interference in operation after 10 times exposure.</p>

9 Packing

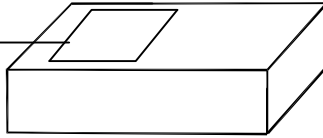
9.1 Packing Specification

	Drawing(Unit: mm)	Qty(pcs.)	Material	Marking
Packing		100	Plastic Lid	
		100	Plastic Tray	
Middle Box		20×100	Paper	Particular for Customer's P.O
Outer Box		30×2000	Paper	Particular for Customer's P.O

9.2 Packing explain

The Middle Box labeling

Customer packaging
requirement



10 Stock and Transportation

- 10.1 Keep ECM in warehouse with less than 75% humidity and without sudden temperature change, acid air, any other harmful air or strong magnetic field.
- 10.2 The ECM with normal pack can be transported by ordinary conveyances. Please protect products against moist, shock, sunburn and pressure during transportation.
- 10.3 Storage Temperature Range : $-25^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- 10.4 Operating Temperature Range : $-25^{\circ}\text{C} \sim +70^{\circ}\text{C}$

11 Output Inspection standard

Output inspection standard is excuted according to 《ISO2859-1:1999》 .

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