



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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MODEL: EM-4015-BC
PRODUCT: Electret Condenser Microphone

TYPE: OMNI DIRECTIONAL BACK ELECTRET CONDENSER MICROPHONE

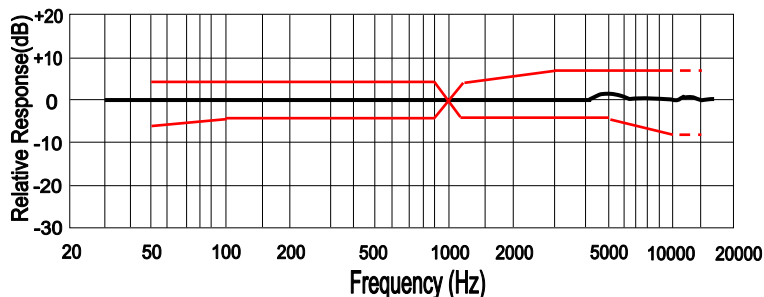
ELECTRICAL CHARACTERISTICS

Temperature = 20±2 °C Humidity=65±5%

parameter	symbol	condition	limits			unit
			min	center	max	
sensitivity	S	0dB=1V/Pa at 1kHz	-51	-48	-45	dB
output impedance	Z out	f=1kHz			2.2	KΩ
current consumption	I _{bc}	V _{cc} =2.0V, R _L =2.2KΩ			500	μA
signal to noise ratio	S/N	at 1kHz S.P.L=1Pa (A-Weighted Curve)	58			dB
decreasing voltage	ΔS	V _{cc} =3.0V to2.0V			-3	dB
operating voltage			1.0		10	V
maximum input S.P.L					115	dB
dimension		Ø4.0 x 1.5mm				

TYPICAL FREQUENCY RESPONSE CURVE

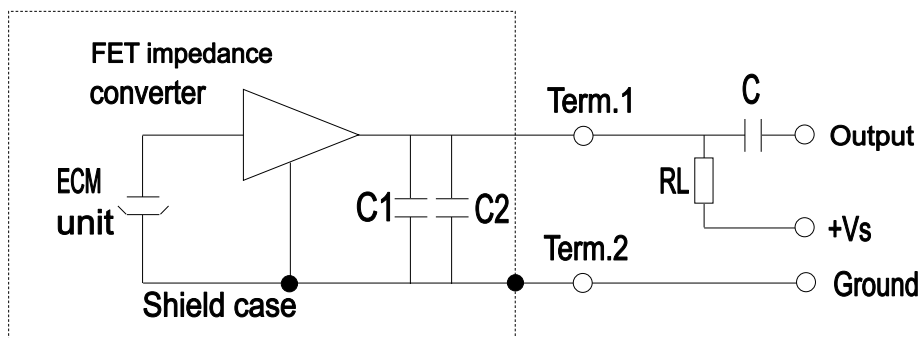
FREQUENCY RESPONSE



MICROPHONE RESPONSE TOLERANCE WINDOW

Frequency(Hz)	Lower Limit(dB)	Upper Limit(dB)
50	-6	+3
100	-3	+3
800	-3	+3
1000	0	0
1200	-3	+3
3000	-3	+8
5000	-3	+8
12000	-8	+8

MEASUREMENT CIRCUIT



RL = 2.2KΩ
Vs = 2.0V
C1 = 10PF
C2 = 33PF
C = 1μF



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TEMPERATURE CONDITIONS

storage temperature range -40C ~ +85C

operation temperature range -40C ~ +85C

Note: Store in electronic warehouse.

TERMINAL MECHANICAL STRENGTH

Terminal should be no interference in operation after pulled the terminal with 1kg for 1 minute.

RELIABILITY TEST

After each of following tests, the sensitivity of the microphone should be within $\pm 3\text{dB}$ of initial sensitivity after 3 hours of conditioning at 20°C .

vibration test

frequency 10hz ~ 55hz

amplitude 1.52mm

change of frequency 1 octave/min

2 hours in each of axis

high temperature test +85°C for 240 hours

low temperature test -40°C for 240 hours

humidity test 90% ~ 95%RH, +60°C for 240 hours

thermal shocking test -40°C, 30 minutes \longleftrightarrow +80°C, 30 minutes, repeated 32 cycles \rightarrow room temperature, 3 hours

temperature cycles -40°C \longleftrightarrow +20°C \longleftrightarrow +85°C \longleftrightarrow +20°C \longleftrightarrow -40°C
 (2h) (0.5h) (2h) (0.1h) (2h) (0.5h) (2h) (0.5h) (2h) for 5 cycles

packing drop test

height 1.5m

procedure 5 times from each of axis

electrostatic discharge Tested to IEC61000-4-2 level 3

contact discharge The microphone shall operate normally after 10 discharges to is 6KV DC and the discharge network is 150pF & 330Ω.

air discharge The microphone shall operate normally after 10 discharges to is 8KV DC and the discharge network is 150pF & 330Ω

SOLDERING CONDITION

We suggest using an anti-static welding machine which can control soldering temperature automatically.

Soldering temperature should be controlled at under 320 °C and soldering time for each terminal should be 1~2 seconds.

Microphone should be fixed on the metal block (heat sink), which has high radiation effects, and heat sink shall contact with MIC tightly.

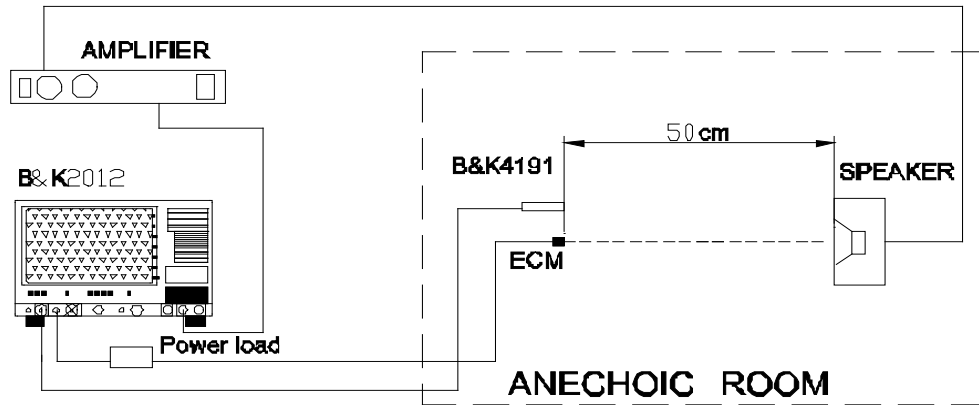
Microphone may easily be destroyed by the static electricity and the countermeasure for eliminating the static electricity shall be electrocution (**worktable and human body shall be ground connection**).



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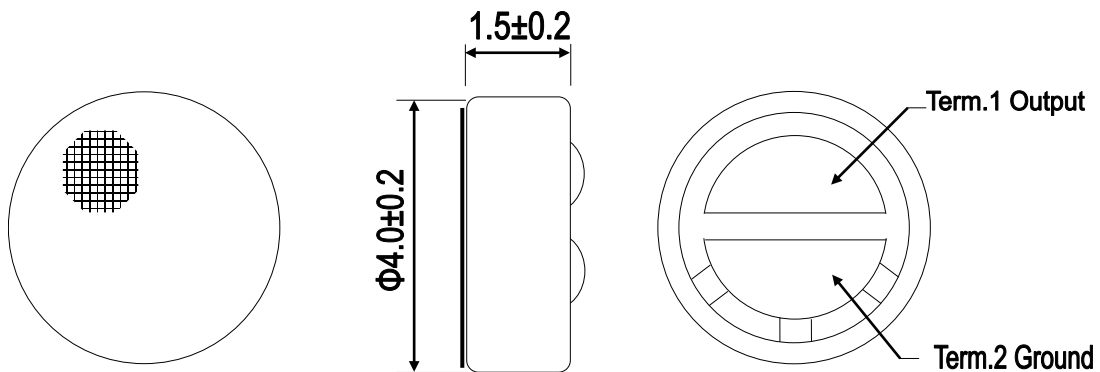
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MEASUREMENT SETUP DRAWING

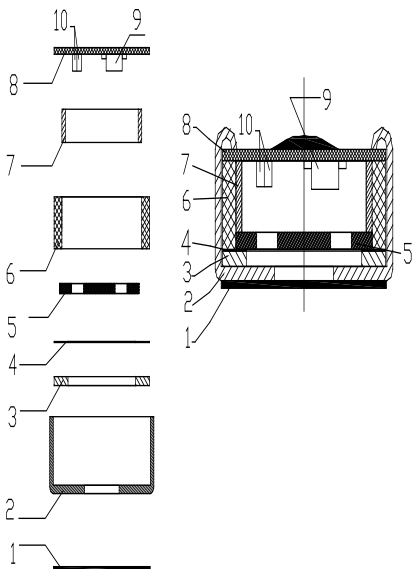


PRODUCT EXTERNAL VIEW AND DIMENSION

Unit : mm



EXPLODED DRAWING AND MATERIAL TABLE



	Name	Material	Quantity	Remark
1	Dustproof gauze	Non-weave cloth	1	
2	Case	Al-Mg alloy	1	
3	Diaphragm		1	
4	Spacer		1	
5	Electret plate		1	
6	Chamber		1	
7	Copper ring		1	
8	PCB		1	
9	FET		1	
10	PIN		2	
11	Capacitor		1	10+33pF

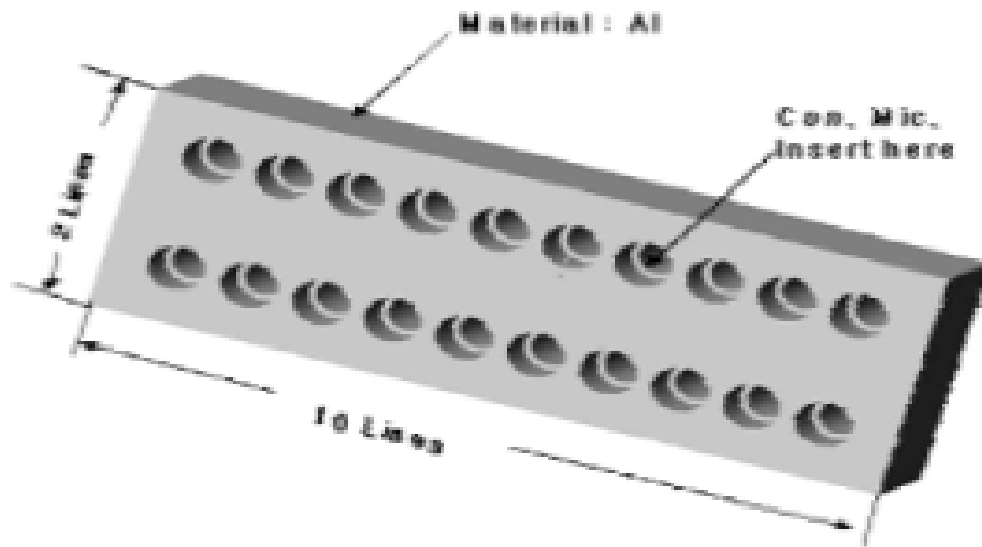


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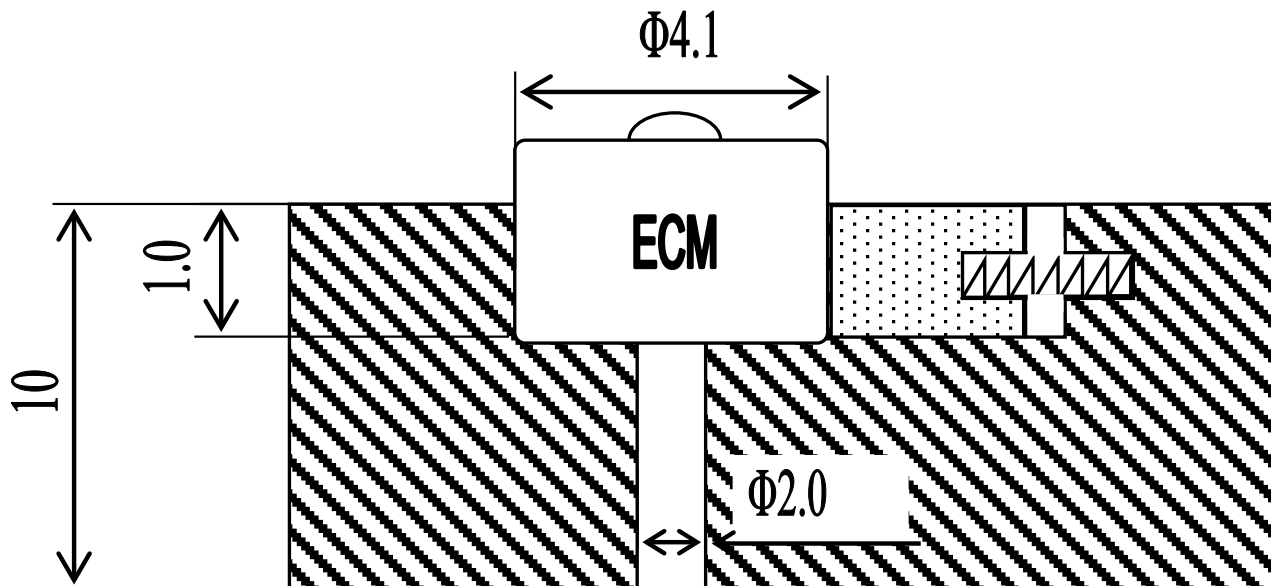
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HEAT SINK

SHAPE OF HEAT SINK



SHAPE OF HOLE AT FIXED PART





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PACKING

DIMENSION: (LENGTH*WIDTH *HEIGHT)

Anti-Static Bag: 80mm*80mm*2mm

SMALL PACKET: 80mm*80 mm*10mm

MIDDLE BOX:175mm*85mm*50mm

CARTON SIZE: 550mm*230mm*235mm

QUANTITY AND WEIGHT

100PCS/Small Box

1000PCS/Mid Box

30000PCS/Per Carton

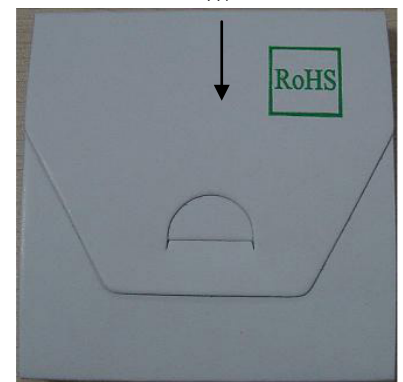
1PC=0.1g

NET WEIGHT 3.0kg

GROSS WEIGHT 7.0kg



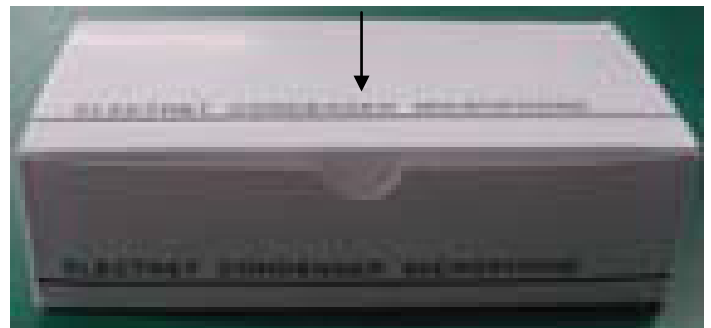
X1



X14

100PCS →

1400PCS →



X20

28000PCS →

