Challenge Electronics
95 East Jefryn Boulevard
Deer Park, NY 11729

Tel: 1-800-722-8197
1-631-595-2217
Fax: 1-631-667-5484

EMAIL: SALES@CHALLELEC.COM
WEB: WWW.CHALLENGEELECTRONICS.COM

PRODUCT INFORMATION

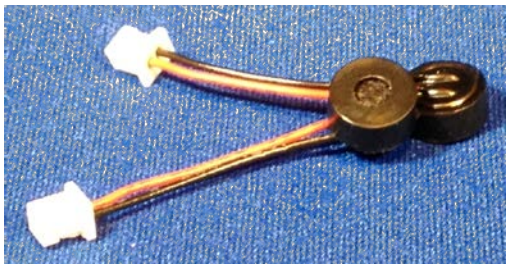
Part Numbers **CEM-OB60278-423G-XLZC01-AL-W** **Revision** **1-2012**

Type **Omni Directional, Back-Electret, Condenser Microphone**

Compliance

- **RoHS, Lead Free**
- **ISO 9001:2000**
- **ISO 14001:2004**
- **ISO/TS 16949:2002**

Description **C**hallenge **E**lectronics **M**icrophones, **O**mni Directional **B**ack-Electret**, 6.0** mm Diameter, **2.7** mm High, PCB version No. **8**, **–42** ± **3** dB Sensitivity, **G** Test Condition 2.2 K Ω / 2.0 V, **XLZ** Wire: XC-A30-25-1.0A-00-D235 and MOLEX 51021-0200 Connector Termination, **C01** built-in 10 and 33 pFD capacitors, **AL** JT-031 Rubber Boot, **W** IP57 compliant



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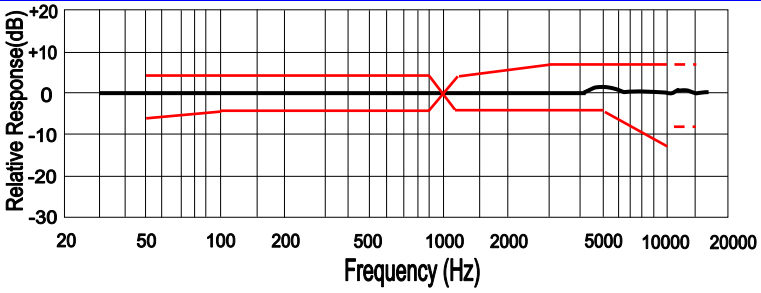
1. Electrical Characteristics

(All data taken at 23±2ºC, Relative Humidity 45%~65% unless otherwise specified)

Specification	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Directivity			**Omni-directional**			
Operating Voltage	Vc		**1.0**	**2.0**	**10**	**Vdc**
Current Consumption	**I**	Operating Voltage Range			**500**	**μA**
Frequency Range	**F**		**50**		**10,000**	**Hz.**
Sensitivity Range	**S**	0dB = 1V/Pa，at 1k Hz	**-45**	**-42**	**-39**	**dB(A)**
Output Impedance	**Z out**	@ 1,000 Hz.			**2,200**	**Ohms**
Signal to Noise Ratio	**S/N**	0dB = 1V/Pa，at 1k Hz	**58**			**dB(A)**
Typical Input Referred Noise	**ENL**	SPL A-weighted, type 2 meter		**35**		**dB(A)**
Decreasing Voltage	**ΔS**	V_{CC}=3.0V to2.0V			**-3**	**dB(A)**
Maximum Input Sound Level					**110**	**dB(A)**

2. Frequency Response Curve

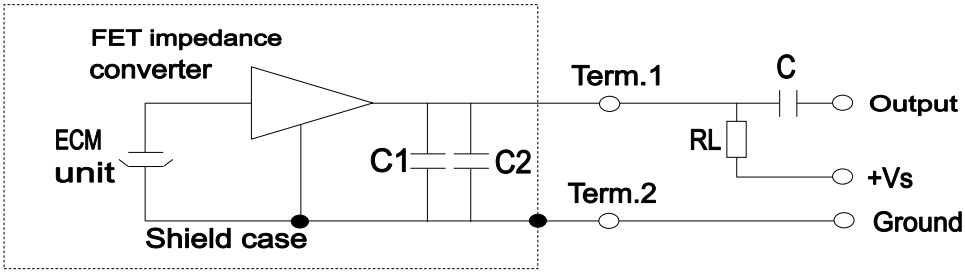
Frequency Response



Microphone Response Tolerance Window

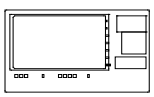
Frequency (Hz)	Lower Limit (dB)	Upper Limit (dB)
50	-6	+3
100	-3	+3
800	-3	+3
1,000	0	0
1,200	-3	+3
3,000	-3	+8
5,000	-3	+8
10,000	-8	+8

3. Measurement Circuit



R_L = 2.2 K Ω
V_S = 2.0 V
C1= 10 pFD
C2 = 33 pFD
C = 1 μFD

4. Measurement Setup Drawing



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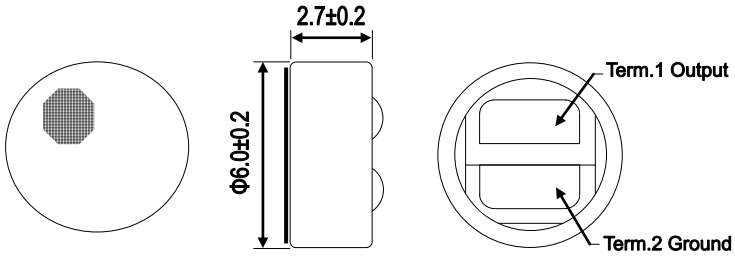
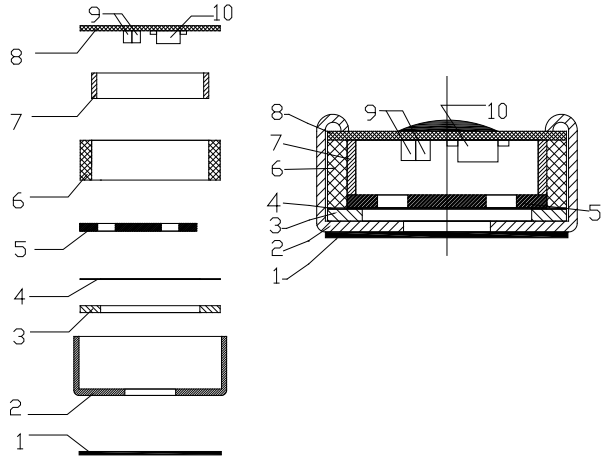
5. Mechanical Characteristics

5.1. Part weight 0.2 grams
5.2. All dimensions are in millimeter (mm)
5.3. Tolerance ±0.1 mm unless otherwise specified



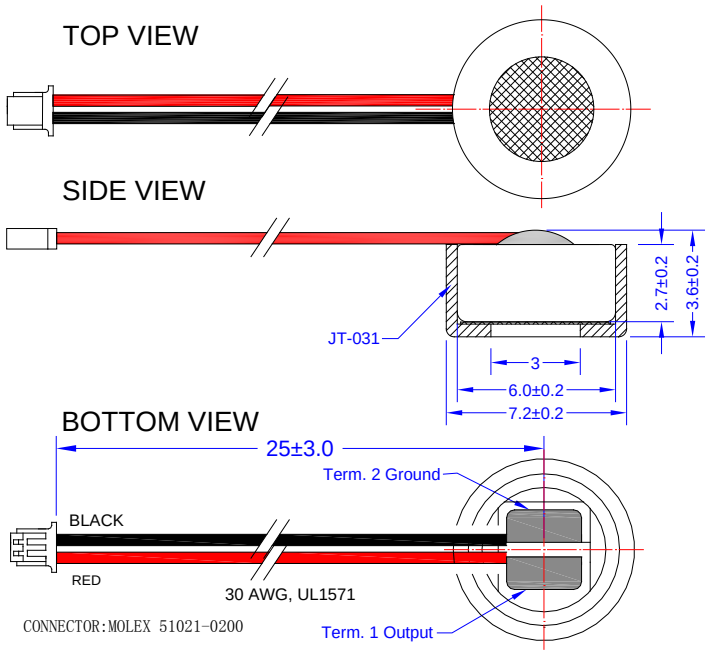
6. Material And Structure



No.	Name	Material	QTY	Remark
1	Felt	Non-weave cloth	1	
2	Case	Al-Mg alloy	1	
3	Polarized Diaphragm		1	
4	Spacer		1	
5	Electret Back		1	
6	Chamber		1	
7	Copper ring		1	
8	P.C.B	FR-4	1	
9	Chip Capacitor		2	10 + 33 pFD
10	FET		1	

7. Accessory Drawing

7.1. All dimensions are in millimeter (mm)
7.2. Tolerance ±0.1 mm unless otherwise specified



8. Temperature Conditions

8.1. Storage Temperature Range	**8.2.** Operation Temperature Range
-40ºC to +85ºC	-40ºC to +85ºC

9. Terminal Mechanical Strength

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

10. Reliability Test

10.1. Vibration Test *

10.1.a. Frequency: 10 Hz~55 Hz 3
10.1.b. Amplitude: 1.52 mm
10.1.c. Change of Frequency: 1 octave / min
10.1.d. Procedure: 2 hours in each of axes

10.2. High Temperature Test *

+85ºC for 240 hours

10.3. Low Temperature Test *

-40ºC for 240 hours

10.4. Humidity Test *

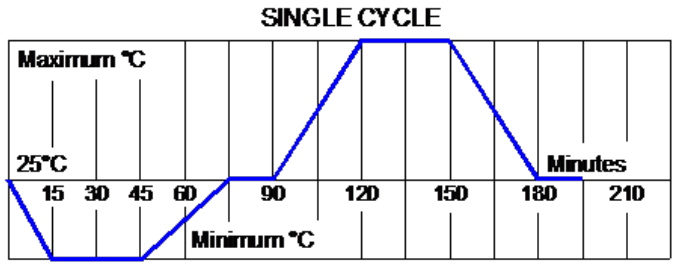
90%~95%RH,+60ºC for 240 hours.

10.5. Thermal shocking test *

–40ºC, 30 minutes ↔ +80ºC, 30 minutes, repeated 32 cycles → room temperature, 3 hours

10.6. Temperature Cycles *

5 cycles of **Minimum and Maximum Operating Temperature**
Each cycle shell be set per diagram below and is three (3) hours long



10.7. Packing Drop Test *

Height: 1.5 m
Procedure: 5 times from each of axes

10.8. Electrostatic discharge

Tested to IEC61000-4-2 level 3:

10.8.a. Contact discharge

The microphone shall operate normally after 10 discharges to is 6 K Vdc and the discharge network is 150 pFD and 330 Ω

10.8.b. Air discharge

The microphone shall operate normally after 10 discharges to is 8 K Vdc and the discharge network is 150 pFD and 330 Ω

10.9. * Reliability Test Performance

Parts should conform to original performance within ±3dB, after 3 hours of recovery period

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Soldering Condition

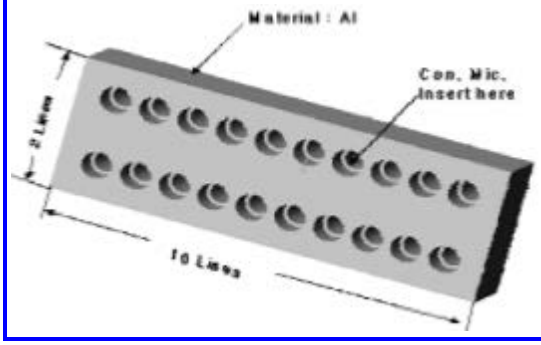
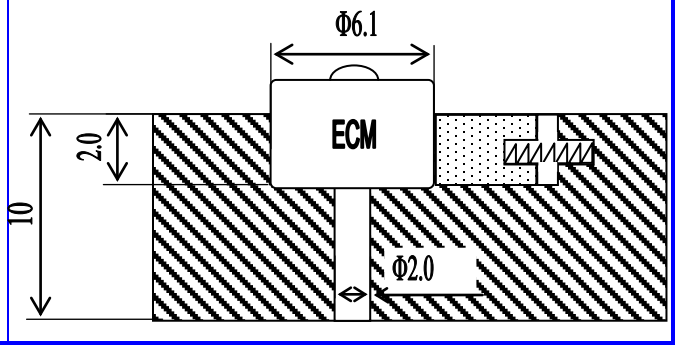
10.10. We suggest using anti-static welding machine which can control soldering temperature automatically.

10.11. Soldering temperature should be controlled under 320ºC and soldering time for each terminal should be 1~2 seconds

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

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

10.14. Heat Sink

10.14.a. Shape of heat sink	10.14.b. Shape of hole at fixed part
	

11. Part Number Code Explanation

NAME	EXPLANATION
CEM-	Challenge Electronics Microphone
O	Omni-directional Microphone
B	Back Electret
60	D= 6.0 mm
27	T= 2.7 mm
8	PCB version No. 8
-	Dash
423	Sensitivity –42 ± 3 dB
G	Test Condition 2.2 K Ω / 2.0 V
-	Dash
XLZ	Wire: XC-A30-25-1.0A-00-D235
C01	Capacitance: 10 + 33 pFD
-	Dash
AL	Rubber: JT-031
-	Dash
W	IP57

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PACKAGING

TRAY


BUNDLE

SHIPPING BOX

MARKING	TRAY		
Bundle	Dimensions	**X1**	**10 cm.**
Customer PN		**Y1**	**10 cm.**
Other PN if required		**Z1**	**1 cm.**
Quantity	Quantity		**100**
Lot and/or Date Code	**BUNDLE**		
Bundle Number	Dimensions	**X2**	**20.5 cm.**
Shipping Box		**Y2**	**10.5 cm.**
Customer Part Number		**Z2**	**5 cm.**
Other PN (if required)	Quantity		**20,000**
Quantity	**SHIPPING BOX**		
Lot and/or Date Code	Dimensions	**X3**	**55 cm.**
PO Number		**Y3**	**23 cm.**
Net Weight		**Z3**	**23.5 cm.**
Gross Weighjt	Number of Bundles		**1**
Box Number	Quantity		**20,000**
of Number of Boxes	Approximate Net Weight		**4 kg**
Made in China	Approximate Gross Weight		**8 kg**