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#### Data Sheet

#### PUM-5250L-C3310-R

PUI Audio's unidirectional electret condenser microphones (ECMs)—also known as cardioid microphones—are purpose-built to only capture sound from one direction. Four holes on the rear of the microphone capsule focus the sweet spot of the microphone's polar pattern to directly in front of the microphone.

Excellent for use in recording a single acoustic source, unidirectional microphones are great as boom microphones to record sound at distance, rejecting unwanted noise, or are used in pairs for two-channel stereo recording.

#### Features:

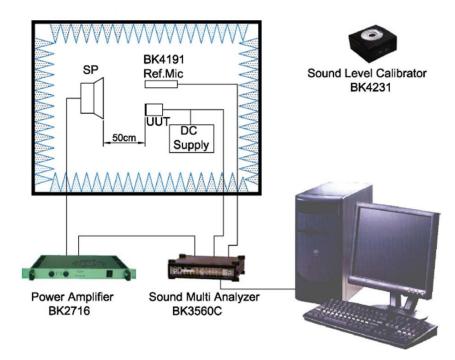
- 6mm diameter •
- 5mm height
- -50 dB sensitivity @ 50cm
- >55 dB signal-to-noise ratio
- Cardioid shaped polar pattern for focused acoustic pickup
- Integrated 33pF and 10pF buzz-blocking capacitors reduce GSM noise

#### Parameters Values Units Sensitivity (1 kHz @ 50cm) 0 dB=1 V/Pa-50 ±4 dB Rated Voltage VDC 2 Output Impedance (@ 1 kHz) 0.68 kΩ Current consumption (2VS with 2.2 k $\Omega$ RL) 500 μA Signal-to-Noise Ratio (1kHz, 94 dB input, A-weighted) >55 dB Decreasing Voltage (2VS to 1.5VS) -3 dB 20 ~ 20.000\*\* Frequency Range (@ 50cm, -10 dB) Hz **Operating Voltage Range** 1~10 VDC Maximum SPL Input (THD<3%) 110 dB Directivity\* Unidirectional **Operating Temperature** °C -20 ~ +60 Storage Temperature $-40 \sim +70$ °C Weight < 0.3 Grams \*Minimum -12 dB drop in output at 180°±20° at 1 kHz \*\*On-axis 0° measurement

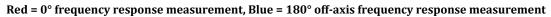
#### **Specifications**

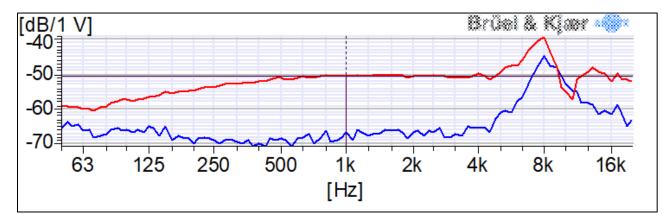
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#### Measurement Method (in Anechoic Chamber)

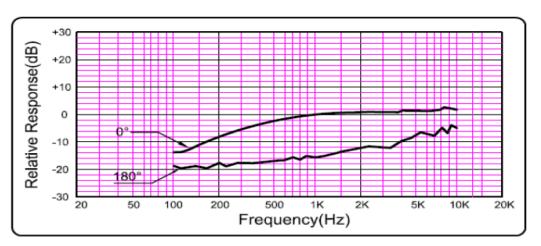


### Typical Frequency Response (measured at 50cm with 2V input and 94 dB source)





Typical Frequency Response at 0° Vs 180°



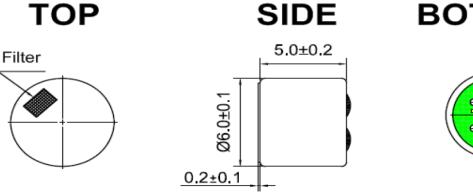
PUI Audio, Inc., 3541 Stop Eight Road, Dayton, OH 45414 Tel: (937) 415-5901 Fax: (937) 415-5925

# **Reliability Testing**

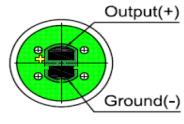
| Type of Test                     | Test Specifications  |  |
|----------------------------------|--|--|
| High Temperature Test            | 200 hours at +60°C ± 3°C followed by two hours in normal room temperature  |  |
| Low Temperature Test             | 200 hours at -20°C ± 3°C followed by two hours in normal room temperature  |  |
| Humidity Test                    | 200 hours at +40°C ± 3°C with relative humidity<br>at 90% to 95% followed by 2 hours in normal<br>room temperature   |  |
| Temperature Cycle Testing        | 30 minutes at -25°C, 10 minutes at 20°C, 30<br>minutes at +70°C, 10 minutes at 20°C for five<br>cycles, followed by 2 hours in normal room<br>temperature                                  |  |
| Vibration Test                   | 10 to 55 Hz for 1 minute with 1.52mm distance,<br>followed by a two-hour 3 axis test in packaging  |  |
| Drop Test                        | Drop microphones in packaging onto concrete<br>floor from 1-meter height in each of 3-axis   |  |
|                                  | <ol> <li>Contact discharge - Discharge 6000 VDC<br/>from capacitor into microphone output<br/>through 330Ω resistor ten times.</li> <li>Air discharge - Discharge 8000 VDC into</li> </ol> |  |
| ESD Test (according to IEC 6100) | sound hole of the microphone ten times.  |  |

After each test, the speaker's SPL shall be  $\pm 3$  dB of the original SPL

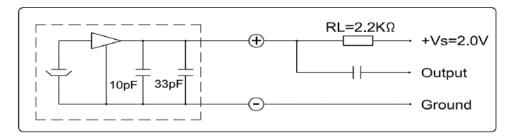
# Dimensions



# BOTTOM



# **Recommended Drive Circuit**



## **Microphone Handling Precautions**

High temperature and/or static electricity may damage microphones. To ensure careful handling, we suggest following these precautions:

- Ensure the power rating of the soldering iron is below 90 watts
- The temperature of the soldering iron must be limited to 360°C ±10°C (680°F ±50°F)
- Soldering duration for each terminal shall be at or under 2 seconds
- If practical, use a metal fixture to hold the microphone in-place and to act as a heatsink. A fixture should have appropriate diameter holes drilled through the entire fixture to prevent pressure from being placed on the diaphragm (as below)



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#### **Specifications Revisions**

| Specifications Revisions |                           |          |
|--------------------------|---------------------------|----------|
| Revision                 | Description               | Date     |
| -                        | Released from Engineering | 9/4/2018 |

Note:

- 1. Unless otherwise specified:
  - A. All dimensions are in millimeters.
  - B. Default tolerances are  $\pm 0.5$ mm and angles are  $\pm 3^{\circ}$ .
- 2. Specifications subject to change or withdrawal without notice.
- 3. This part is RoHS 2011/65/EU Compliant.