

Data Sheet	PUM-5250L-C3310-R
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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:

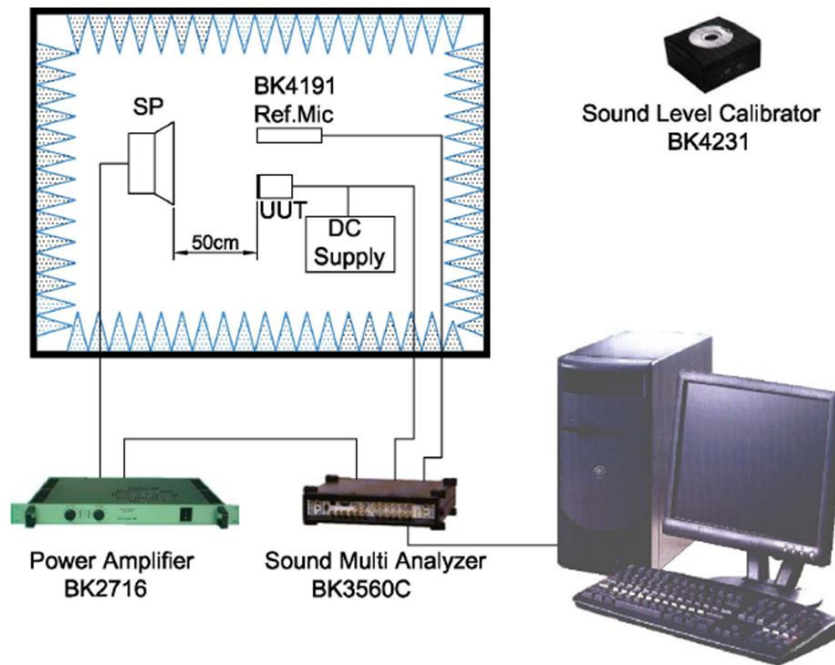
- 6mm diameter
- 5mm height
- -50 dB sensitivity @ 50cm
- >55 dB signal-to-noise ratio
- Cardioid shaped polar pattern for focused acoustic pickup
- Integrated 33pF and 10pF buzz-blocking capacitors reduce GSM noise

Specifications

Parameters	Values	Units
Sensitivity (1 kHz @ 50cm) 0 dB=1V/Pa	-50 ±4	dB
Rated Voltage	2	VDC
Output Impedance (@ 1 kHz)	0.68	kΩ
Current consumption (2VS with 2.2 kΩ RL)	500	μA
Signal-to-Noise Ratio (1kHz, 94 dB input, A-weighted)	>55	dB
Decreasing Voltage (2VS to 1.5VS)	-3	dB
Frequency Range (@ 50cm, -10 dB)	20 ~ 20,000**	Hz
Operating Voltage Range	1 ~ 10	VDC
Maximum SPL Input (THD<3%)	110	dB
Directivity*	Unidirectional	-
Operating Temperature	-20 ~ +60	°C
Storage Temperature	-40 ~ +70	°C
Weight	<0.3	Grams

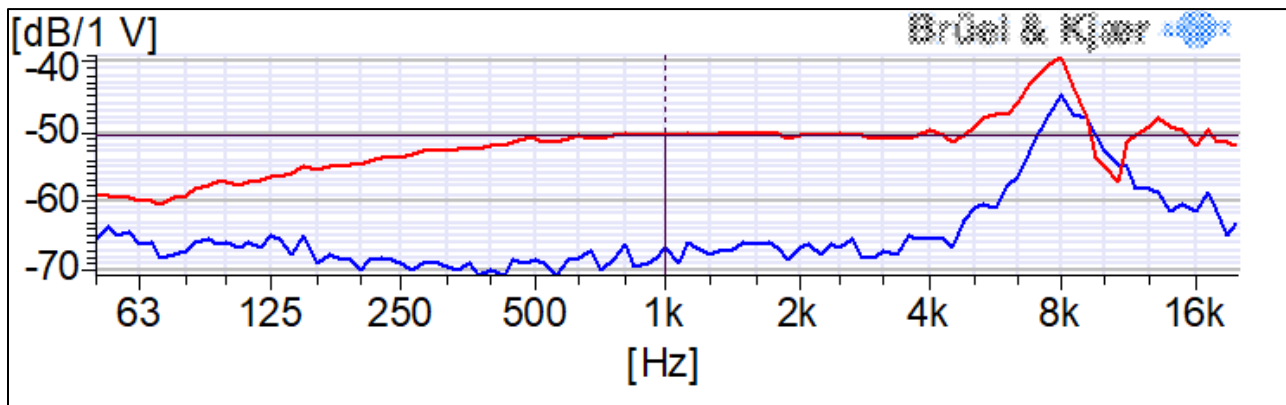
*Minimum -12 dB drop in output at 180°±20° at 1 kHz **On-axis 0° measurement

Measurement Method (in Anechoic Chamber)

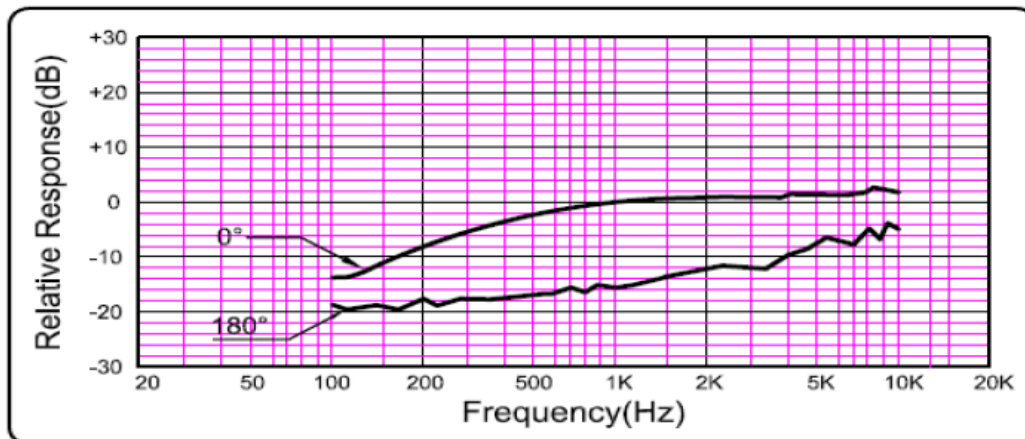


Typical Frequency Response (measured at 50cm with 2V input and 94 dB source)

Red = 0° frequency response measurement, Blue = 180° off-axis frequency response measurement



Typical Frequency Response at 0° Vs 180°

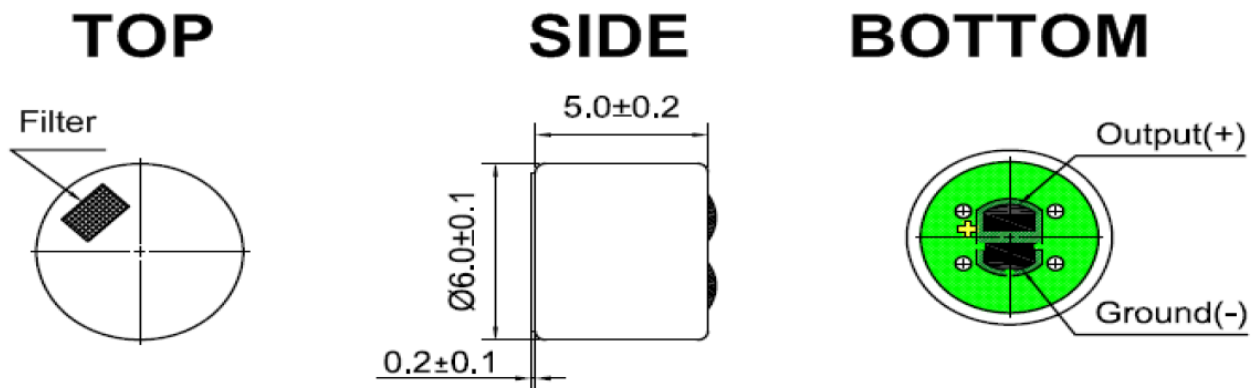


Reliability Testing

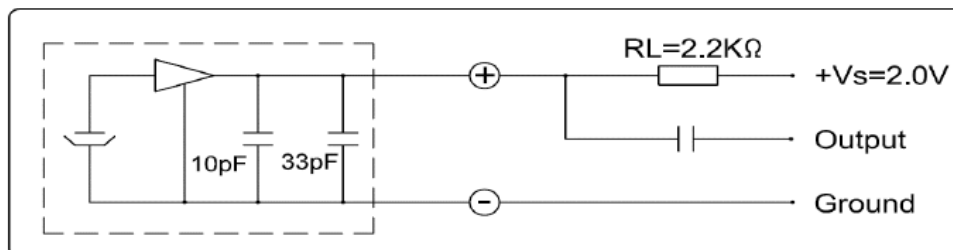
Type of Test	Test Specifications
High Temperature Test	200 hours at +60°C ± 3°C followed by two hours in normal room temperature
Low Temperature Test	200 hours at -20°C ± 3°C followed by two hours in normal room temperature
Humidity Test	200 hours at +40°C ± 3°C with relative humidity at 90% to 95% followed by 2 hours in normal room temperature
Temperature Cycle Testing	30 minutes at -25°C, 10 minutes at 20°C, 30 minutes at +70°C, 10 minutes at 20°C for five cycles, followed by 2 hours in normal room temperature
Vibration Test	10 to 55 Hz for 1 minute with 1.52mm distance, followed by a two-hour 3 axis test in packaging
Drop Test	Drop microphones in packaging onto concrete floor from 1-meter height in each of 3-axis
ESD Test (according to IEC 6100)	<ol style="list-style-type: none"> Contact discharge - Discharge 6000 VDC from capacitor into microphone output through 330Ω resistor ten times. Air discharge - Discharge 8000 VDC into sound hole of the microphone ten times.

After each test, the speaker's SPL shall be ±3 dB of the original SPL

Dimensions



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 $360^{\circ}\text{C} \pm 10^{\circ}\text{C}$ ($680^{\circ}\text{F} \pm 50^{\circ}\text{F}$)
- 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)



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 $\pm 0.5\text{mm}$ and angles are $\pm 3^\circ$.
2. Specifications subject to change or withdrawal without notice.
3. This part is RoHS 2011/65/EU Compliant.