

|                   |                          |
|-------------------|--------------------------|
| <b>Data Sheet</b> | <b>PNM-5054L-C3310-R</b> |
|-------------------|--------------------------|

PUI Audio’s noise-canceling microphones are designed with dipole inlets on the back of the microphone capsule to reduce background noise from wind and the road for the clearest possible pickup of a user’s voice—especially when used in automotive applications.

The frequency response of the microphone is exceptionally flat when placed 2.54cm from the acoustic source, but rolls-off at 2 to 5 dB/octave when placed 50cm away from the acoustic source.

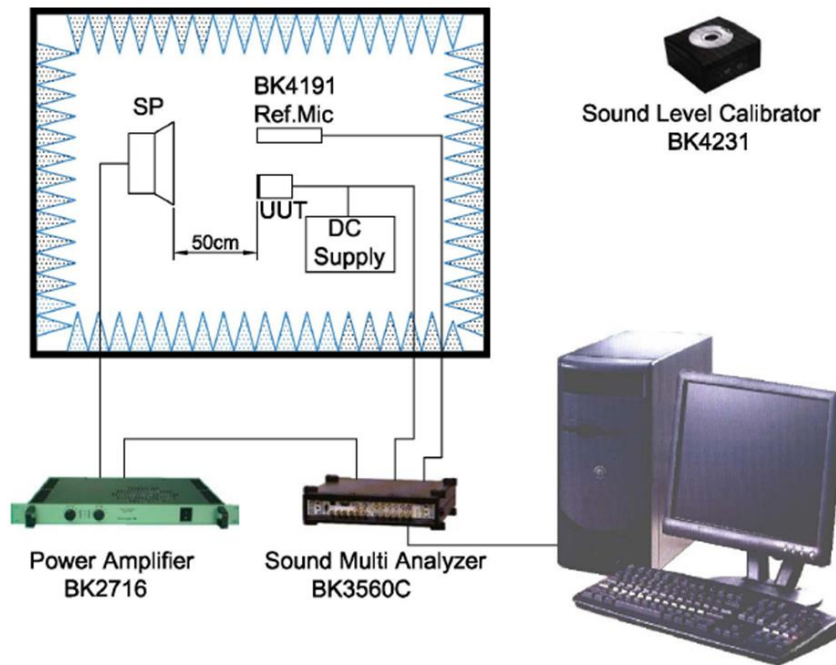
**Features:**

- 6mm diameter
- 5mm height
- -54 dB sensitivity @ 50cm
- >56 dB signal-to-noise ratio
- Dipole design reduces the effect of wind and road noise
- Integrated 33pF and 10pF buzz-blocking capacitors reduce GSM noise

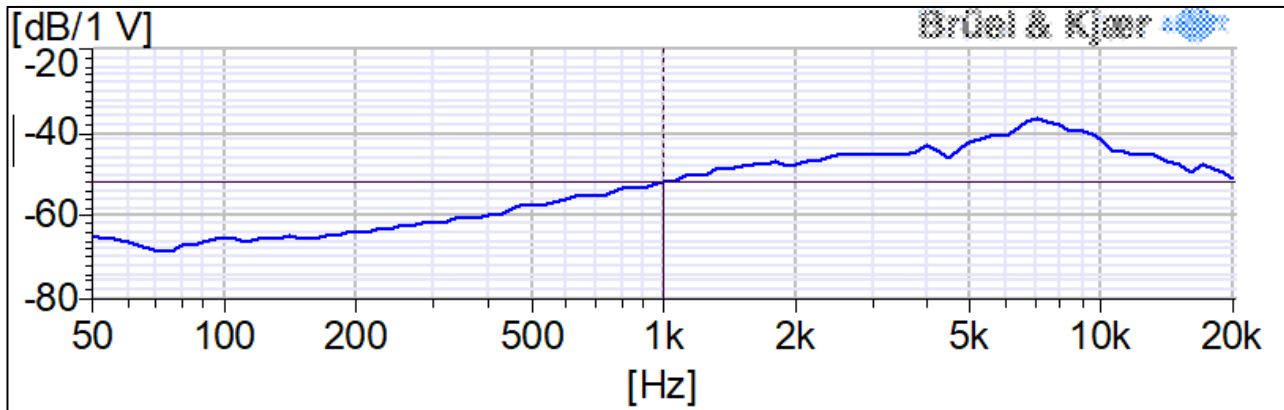
**Specifications**

| Parameters   | Values          | Units |
|--|-----------------|-------|
| Sensitivity (1 kHz @ 50cm)<br>0 dB=1V/Pa                 | -54 ±3          | dB    |
| Rated Voltage  | 2               | VDC   |
| Output Impedance (@ 1 kHz)                               | 0.68            | kΩ    |
| Current consumption<br>(3VS with 2.2 kΩ RL)              | 500             | μA    |
| Signal-to-Noise Ratio<br>(1kHz, 94 dB input, A-weighted) | >56             | dB    |
| Decreasing Voltage (2VS to 1.5VS)                        | -3              | dB    |
| Frequency Range (@ 2.54cm)                               | 20 ~ 20,000     | Hz    |
| Frequency Range (@ 50cm, -10 dB)                         | 250 ~ 20,000    | Hz    |
| Operating Voltage Range                                  | 1 ~ 10          | VDC   |
| Maximum SPL Input (THD<3%)                               | 110             | dB    |
| Directivity  | Noise-Canceling | -     |
| Operating Temperature                                    | -20 ~ +60       | °C    |
| Storage Temperature                                      | -40 ~ +70       | °C    |
| Weight   | <0.3            | Grams |

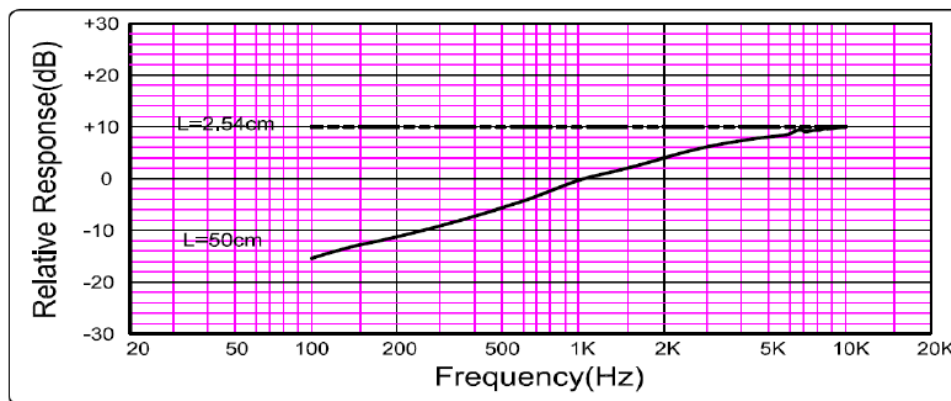
## Measurement Method (in Anechoic Chamber)



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



## Typical Frequency Response Near-Field vs. Far-Field (2.54cm vs 50cm)

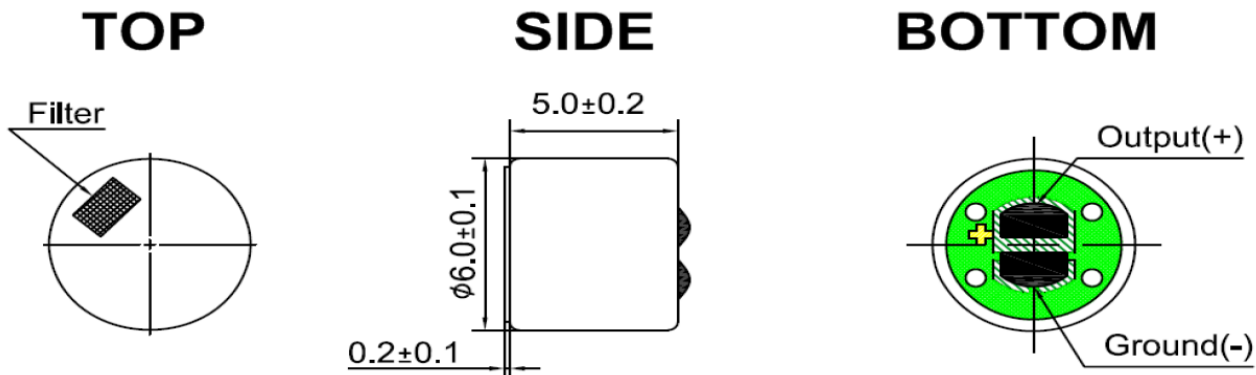


## Reliability Testing

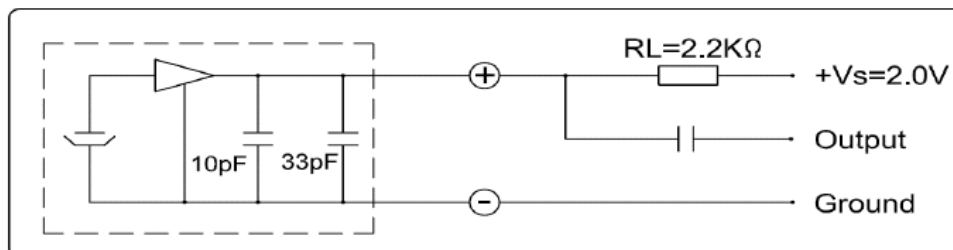
| Type of Test                     | Test Specifications  |
|----------------------------------|--|
| High Temperature Test            | 200 hours at +60°C ± 3°C followed by two hours in normal room temperature  |
| Low Temperature Test             | 200 hours at -20°C ± 3°C followed by two hours in 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"> <li>Contact discharge - Discharge 6000 VDC from capacitor into microphone output through 330Ω resistor ten times.</li> <li>Air discharge - Discharge 8000 VDC into sound hole of the microphone ten times.</li> </ol> |

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

## Dimensions



## Recommended Drive Circuit



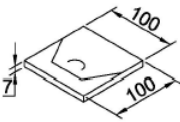
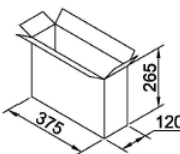
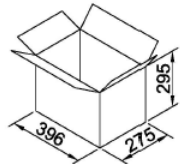
## Microphone Handling Precautions

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)



## Packaging

|                | Drawing   | Qty (pcs.)         | Size(mm)<br>L×W×H | Material |
|----------------|---|--------------------|-------------------|----------|
| Packing        |  | 100                | 100×100×6.5       | Paper    |
| Middle Package |  | 10000<br>(100×100) | 375×120×265       | Paper    |
| Outer Package  |  | 20000<br>(2×10000) | 396×275×295       | Paper    |

**Specifications Revisions**

| <b>Revision</b> | <b>Description</b>        | <b>Date</b> |
|-----------------|---------------------------|-------------|
| -               | 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.