

Data Sheet

TOM-1242L-NF-C3310-R

PUI Audio’s omnidirectional electret condenser microphones (ECMs) capture sound from all directions with a 360° polar pattern.

Excellent for conference phone recording, these microphones are best suited for applications where the directionality of the acoustic source, with relation to the microphone, may be unknown or when placed centrally among multiple acoustic sources.

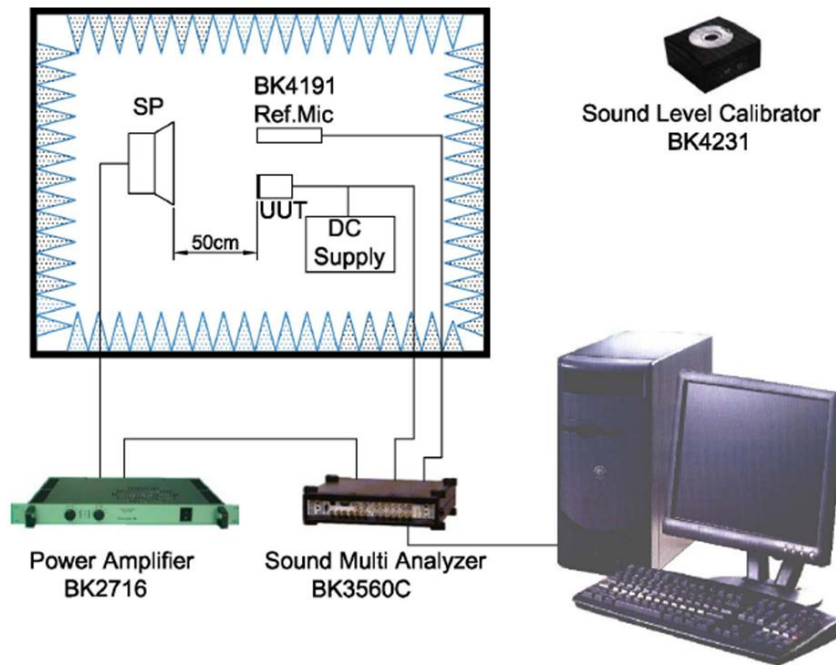
Features:

- Ultra-small 4mm diameter
- Thin 1.3mm height for mobile electronics
- -42 dB sensitivity @ 50cm
- >58 dB signal-to-noise ratio
- Circular polar pattern to capture all sounds equally well regardless of placement
- Integrated 33pF and 10pF buzz-blocking capacitors reduce GSM noise

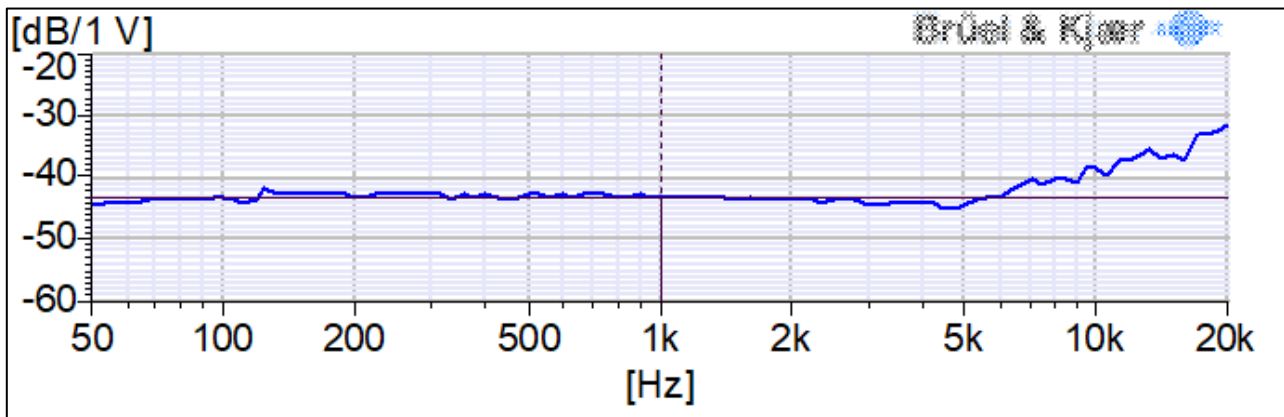
Specifications

| Parameters | Values | Units |
|--|-----------------|-------|
| Sensitivity (1 kHz @ 50cm) 0 dB=1V/Pa | -42 ±3 | dB |
| Rated Voltage | 2 | VDC |
| Output Impedance (@ 1 kHz) | 2.2 | kΩ |
| Current consumption (3VS with 2.2 kΩ RL) | 500 | μA |
| Signal-to-Noise Ratio (1kHz, 94 dB input, A-weighted) | >58 | 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 | Omnidirectional | - |
| Operating Temperature | -20 ~ +60 | °C |
| Storage Temperature | -40 ~ +70 | °C |
| Weight | <0.3 | Grams |

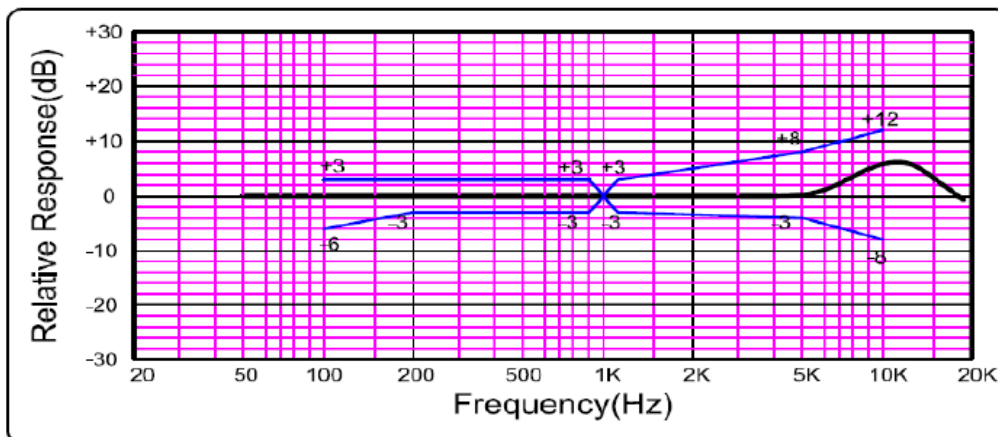
Measurement Method (in Anechoic Chamber)



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



Frequency Response Mask (for pass/fail testing)

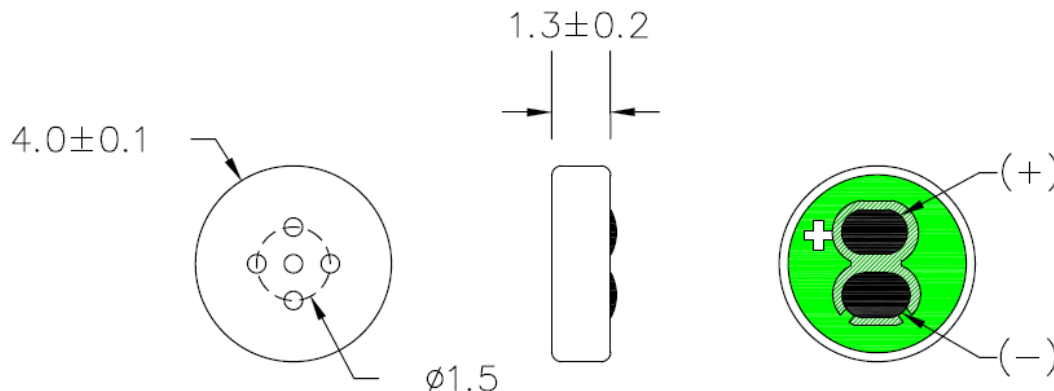


Reliability Testing

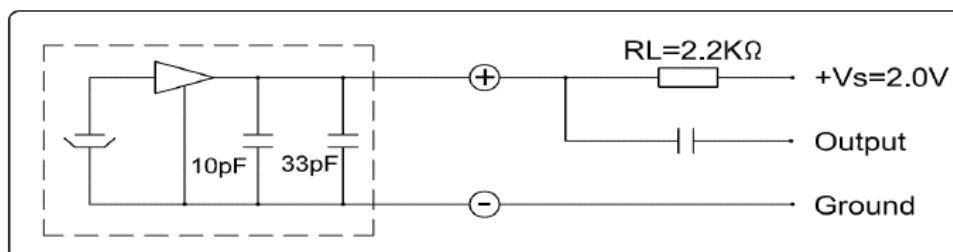
| Type of Test | Test Specifications |
|----------------------------------|--|
| High Temperature Test | 200 hours at $+60^{\circ}\text{C} \pm 3^{\circ}\text{C}$ followed by two hours in normal room temperature |
| Low Temperature Test | 200 hours at $-20^{\circ}\text{C} \pm 3^{\circ}\text{C}$ followed by two hours in normal room temperature |
| Humidity Test | 200 hours at $+40^{\circ}\text{C} \pm 3^{\circ}\text{C}$ 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 $+70^{\circ}\text{C}$, 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 |
| A | Revised Signal to Noise Ratio | 2/21/2020 |

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.