

Features

- 2.75x1.85x0.90mm Bottom Port
- Single Ended Analog Output
- SNR of 65dBA
- RF Shielded
- Compatible with Standard SMD Reflow Technology
- RoHS Compliance & Halogen Free

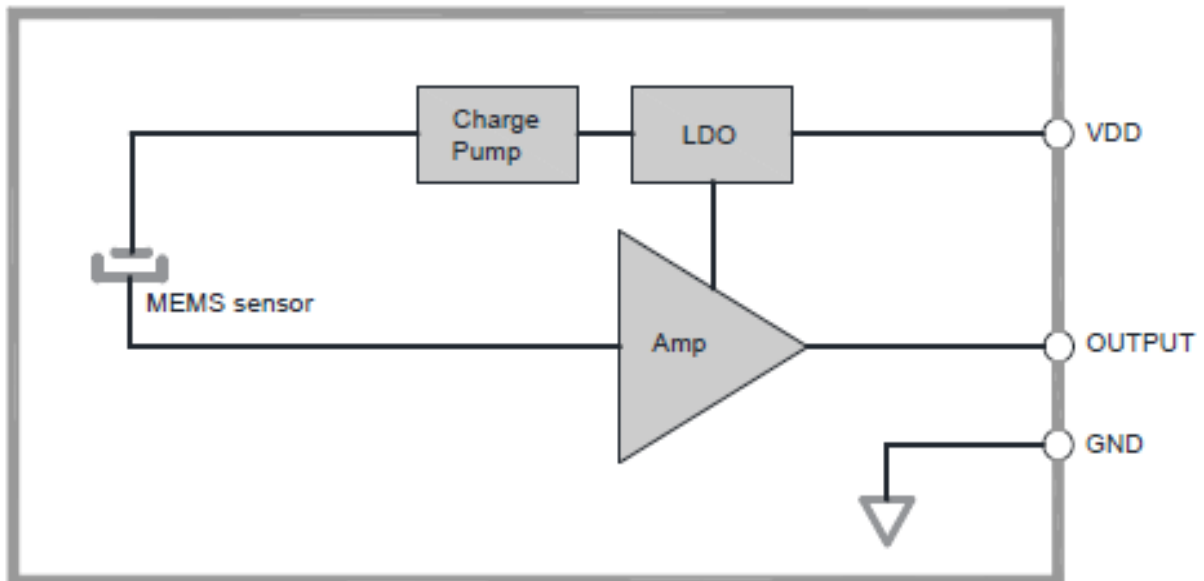
Applications

- Mobilephones
- Wireless Headsets
- Smart Speakers
- Wearable Electronics
- Portable Electronics
- Smart Home Electronics
- Laptop Computers



Description RMIC-94-3.6-2718-RG-NS10 is a small package, single-ended output bottom port analog MEMS microphone. The MEMS Microphones are buried with capacity and resistance, and integrated with specialized Pre-amplification ASIC to provide high sensitivity, high SNR output from a capacitive audio sensor. It's packaged for surface mounting and high temperature re-flow assembly.

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

| Parameters | Value | | | Unit |
|-----------------------------|-------|-----|-----|------|
| | min | typ | max | |
| Supply Voltage | | | 3.6 | V |
| Supply Current | | | 1 | mA |
| Output Current | | | 1 | mA |
| Operation Temperature Range | -40 | | +85 | °C |
| Storage Temperature Range | -40 | | +85 | °C |

Note : Stresses at the maximum ratings shown in Table may cause permanent damage to the device. These are stress ratings only at which the device may not function when an operation at these or any other condition beyond those specified under "Electro-Acoustic Specifications".

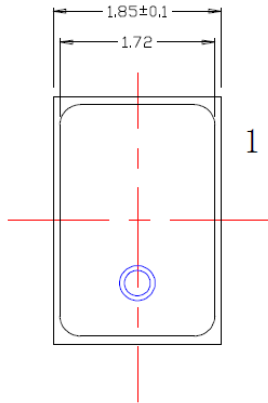
ELECTRICAL SPECIFICATIONS

Test condition: Vdd=2.75V, no load, unless otherwise specified.

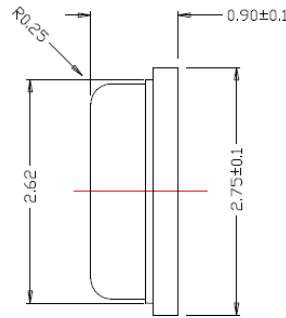
| Parameters | | Value | | | Unit |
|-------------------------------------|---|------------------|------|-----|--------|
| | | min | typ | max | |
| Directivity | | Omni-Directional | | | |
| Sensitivity (S) | 94db SPL@ 1kHz | -39 | -38 | -37 | dB |
| Current Consumption (I) | Vdd= 2.75V | | 110 | 150 | uA |
| Operating Voltage | Vdd | 2.4 | 2.75 | 3.3 | V |
| Output Impedance | @1kHz | | | 450 | Ω |
| S/N Ratio (SNR) | BW=20-20KHz A-Weight, 1kHz | | 65 | | dBA |
| Total Harmonic Distortion (THD) | @ 94dB SPL @1kHz | | 0.1 | 0.5 | % |
| Acoustic Overload Point (AOP) | @10% THD @1kHz | | 130 | | dB |
| Power Supply Rejection (PSR) | @100mVpp Square wave, 217Hz, A-weighted | | -95 | -85 | dB |
| Power Supply Rejection Ratio (PSRR) | @200mVpp Sinewave @1kHz | | 65 | | dB |
| Phase | 20-10KHz | -5 | | 5 | Degree |
| Low Frequency Roll Off | -3dB to 1kHz | | 28 | | Hz |
| Output Load | @ Cload | | | 150 | pF |
| | @ Rload | 10 | | 100 | kΩ |

Note: Frequency response, sensitivity, phase and current consumption are tested by 100% on product line.

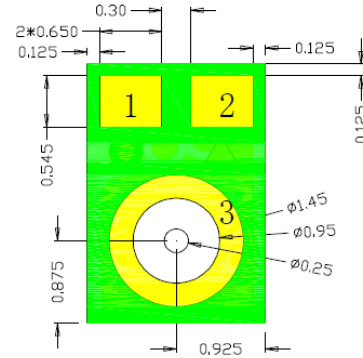
DIMENSIONS



Top View



Side View

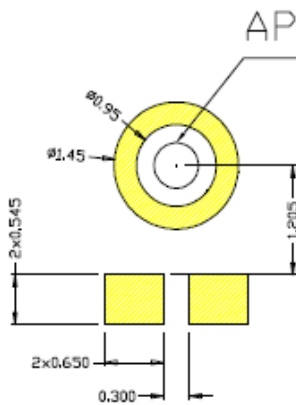


Bottom View

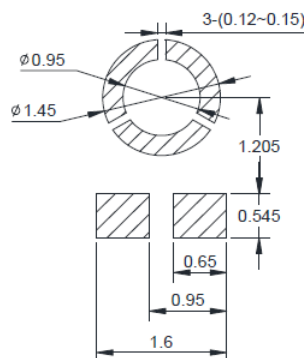
| Item | Dimension | Tolerance(+/-) |
|-------------------|-----------|----------------|
| Length(L) | 2.75 | 0.10 |
| Width(W) | 1.85 | 0.10 |
| Height(H) | 0.90 | 0.10 |
| Acoustic Port(AP) | Ø0.25 | 0.05 |

| Pin | Pin Name |
|-----|-----------------|
| 1 | V _{DD} |
| 2 | Output |
| 3 | GND |

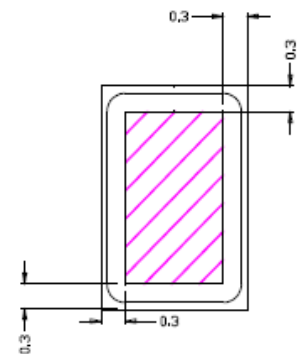
PICKUP TOOL PICK LOCATION & PCB SOLDER PAD LAYOUT



PCB land pattern



Solder Stencil Pattern



Pick up area

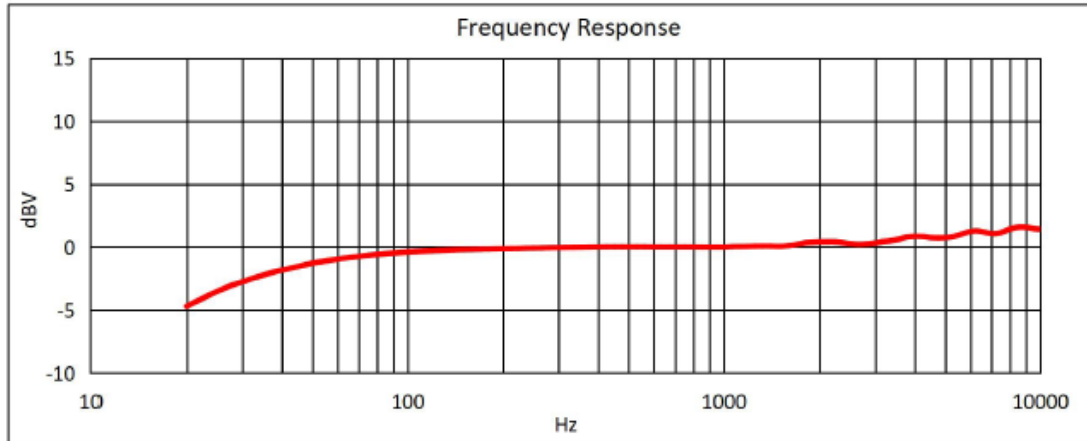
Notes:

Dimensions are in millimeters(mm) unless otherwise specified.

Tolerance is ±0.1mm unless otherwise specified.

The recommended non-plated hole("AP") diameter of PCB is 0.5-0.7mm.

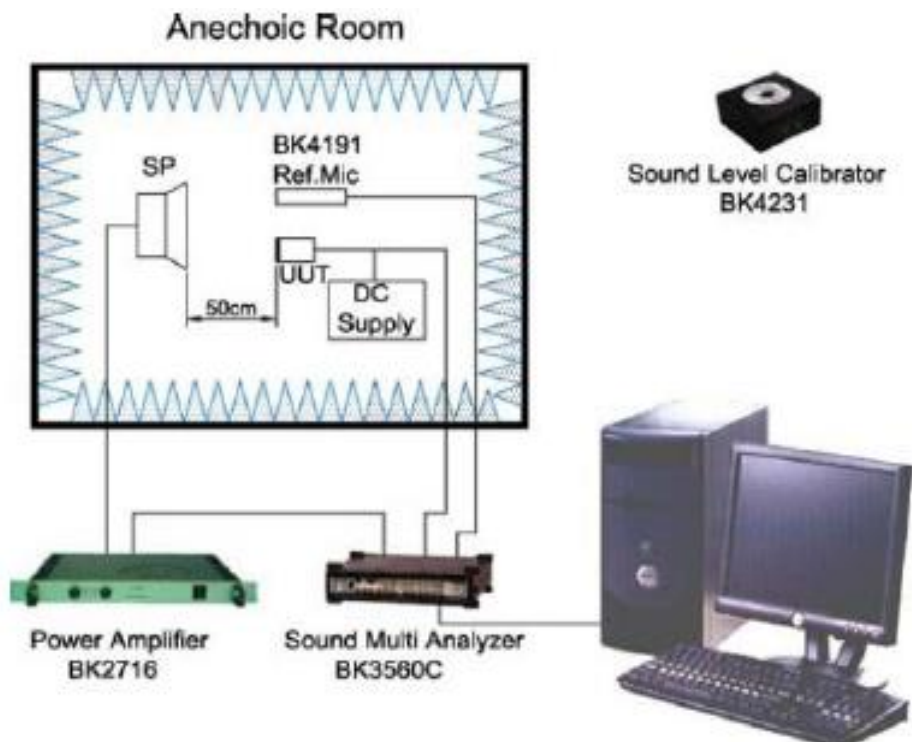
FREQUENCY CHARACTERISTICS



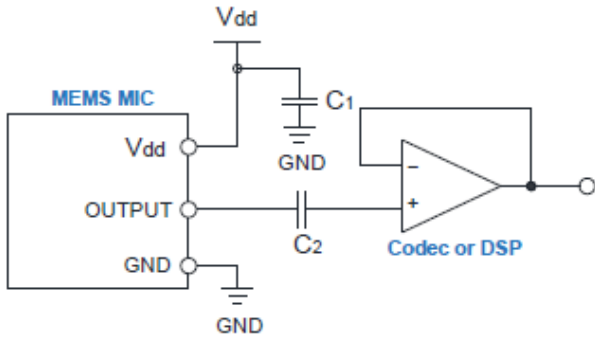
Frequency response curve normalized to 1kHz

| Frequency (Hz) | LSL | USL | Unit |
|----------------|-----|-----|------|
| 20 | -6 | -3 | dB |
| 100 | -1 | 1 | dB |
| 900 | -1 | 1 | dB |
| 1000 | 0 | 0 | dB |
| 1100 | -1 | 1 | dB |
| 8000 | -1 | 4 | dB |
| 10000 | 0 | 9 | dB |

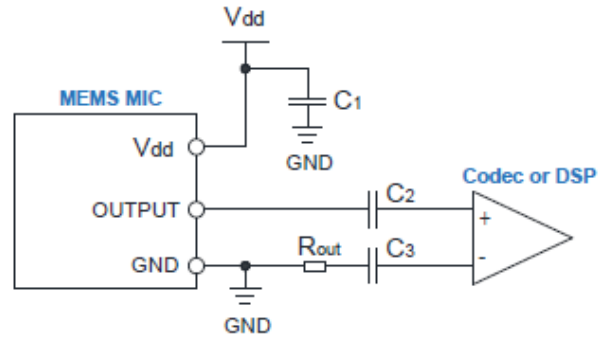
MEASUREMENT SYSTEM SETUP



TYPICAL APPLICATION CIRCUIT

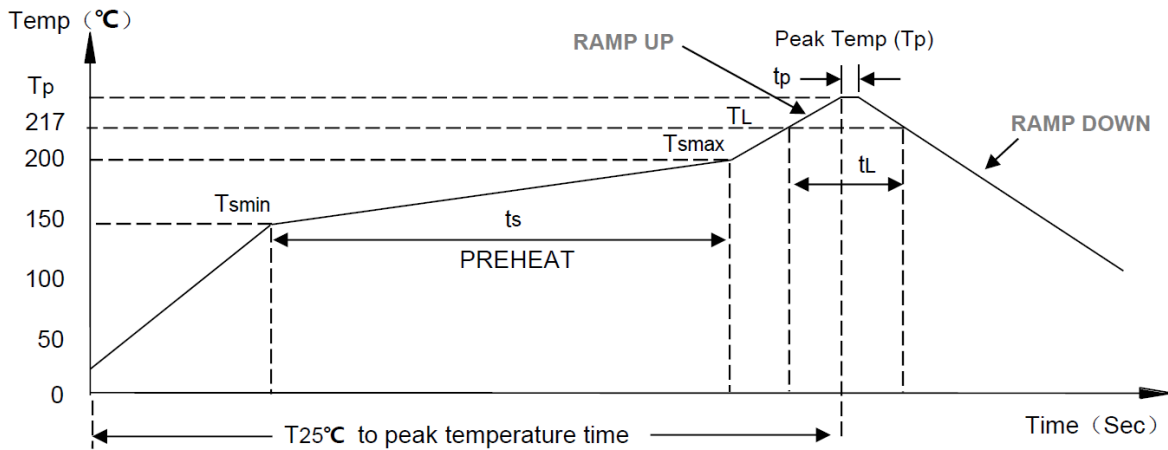


Single ended input interface circuit



Differential input interface circuit

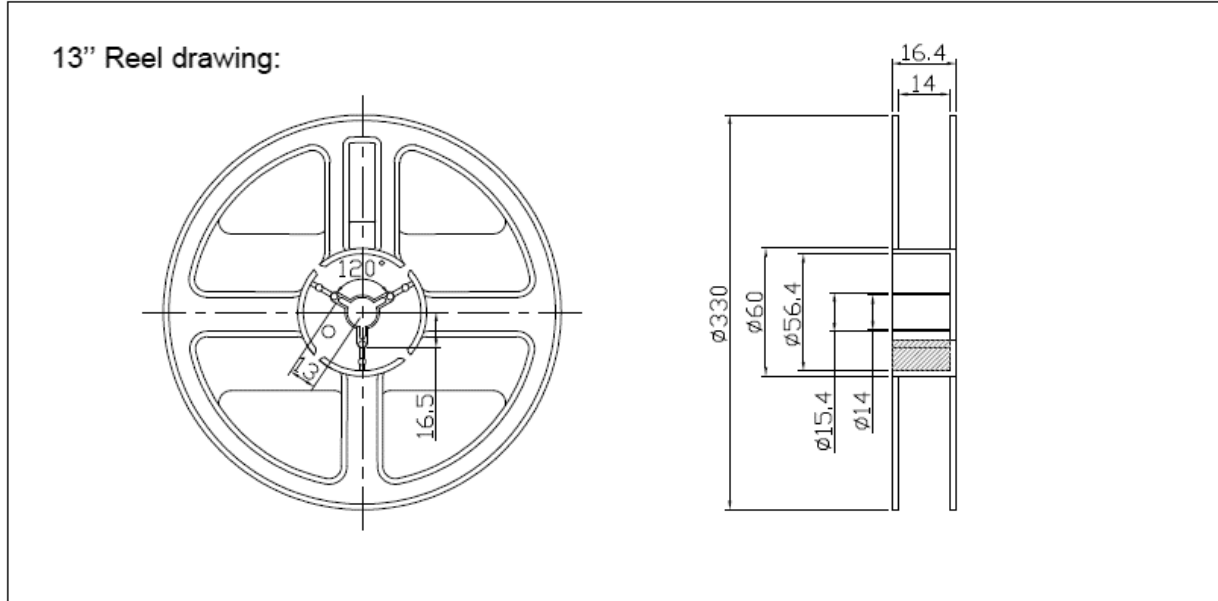
REFLOW PROFILE



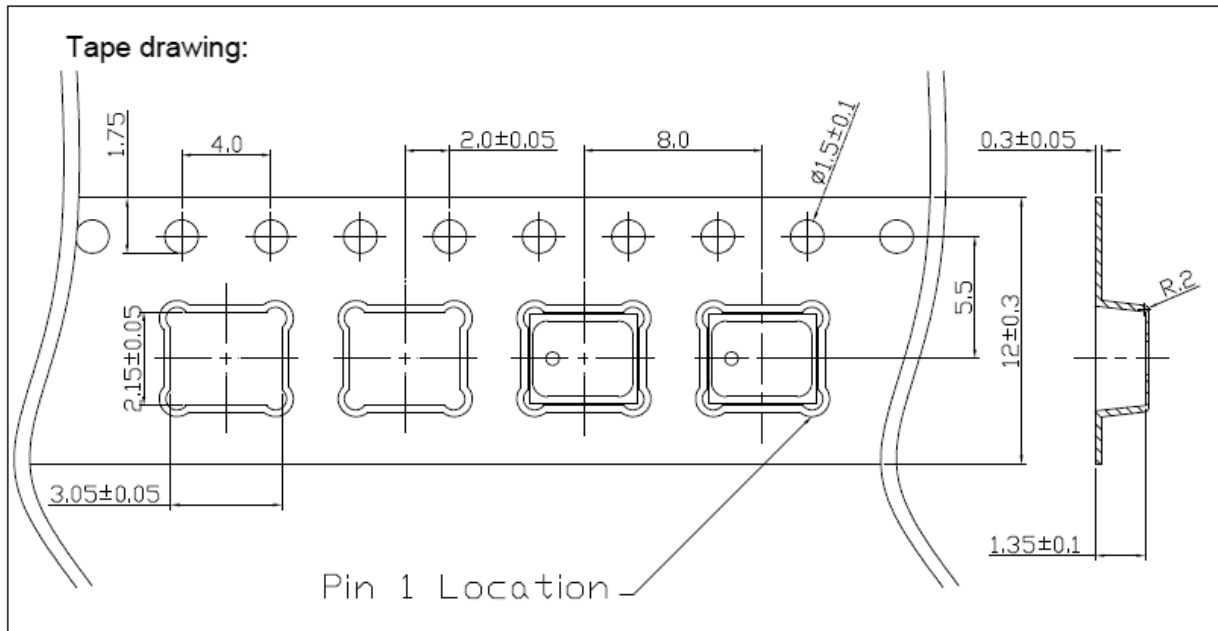
| Parameter | | Specification |
|---|-------------------------|------------------|
| Average temperature change rate (TSMAX to TP) | | 3°C /second max. |
| Preheat | Temperature min.(TSMIN) | 150°C |
| | Temperature max.(TSMAX) | 200°C |
| | Time TSMIN to TSMAX | 60-180 Seconds |
| Time Maintained Above Liquidous | | 60-150 Seconds |
| Liquidous Temperature | | 217°C |
| Peak Temperature | | 260°C +0°C/-5°C |
| Time Within +5°C of Actual Peak Temperature | | 20 sec to 40 sec |
| Ramp-Down Rate | | 3°C/sec max |
| Time +25°C (t25°C) to Peak Temperature | | 8 min max |

PACKAGING

13" Reel drawing:



Tape drawing:



Pin 1 Location

APPROVAL

| | |
|-------------|--------------------|
| DRAWN BY | JS, May 28, 2024 |
| APPROVED BY | AR, May 28, 2024 |
| REVISION | A, Initial Release |

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