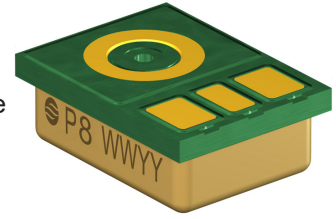


### Description

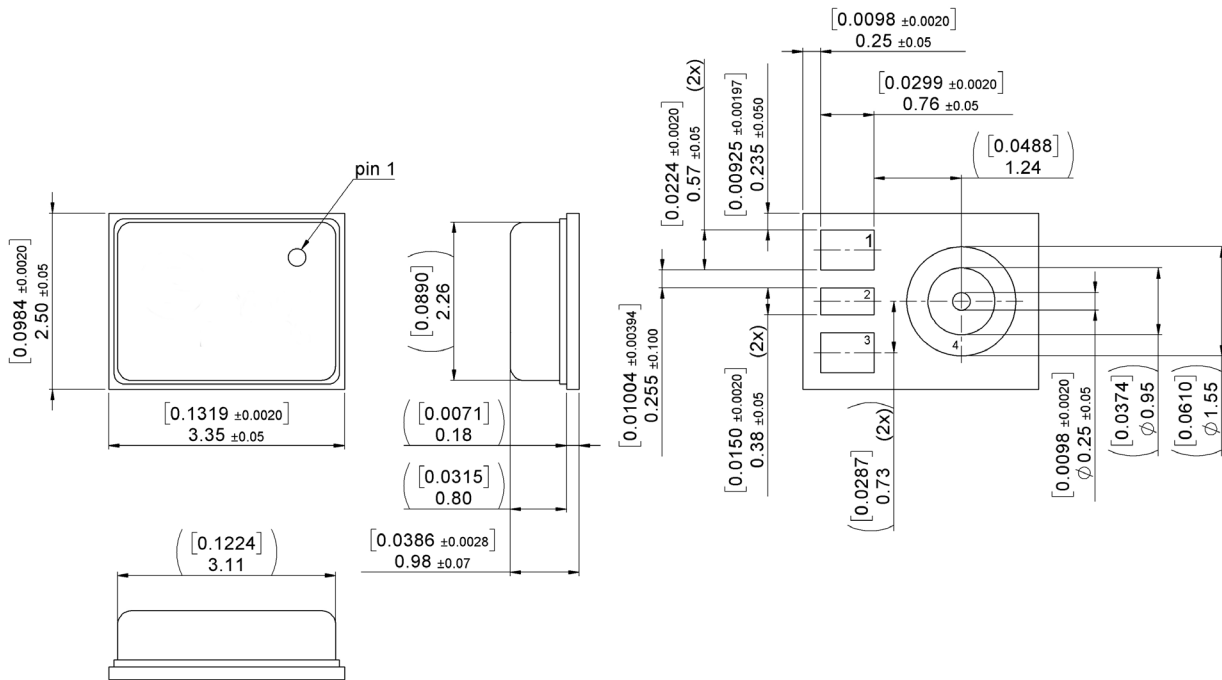
The P8AC03 is Sonion's next generation high performance MEMS microphone. Due to the upgraded sensor, the P8AC03 has improved SNR and is not sensitive to modulated light. The high electro-acoustic performance and tiny package volume (8.2 mm<sup>3</sup>), combined with the benefits of MEMS technology, make the P8AC03 the best microphone choice for hearing aids.



### Features

- Small surface-mount package: 3.35x2.50x0.98 mm
- Reflow compatibility
- Stable response curve with humidity
- Not sensitive to modulated light
- Non-inverting transfer
- Compatibility with p2i nanocoating process

### Product drawing - Dimensions in mm [inch]



### Pin configuration

1. Output: Analog output signal
2. GND: Ground\*
3. VDD: Power supply
4. GND: Ground\*

\* Pin 2 and Pin 4 should both be grounded

Sonion reserves the right to make changes at any time to improve reliability, function or design, in order to provide the best product possible.

## Specifications

All parameters are specified at 0.9 V and 1 MOhm // <200pF load impedance, AC-coupled with 1μF, unless specified otherwise. Environmental conditions: 23°C (73.4F), 50% RH.

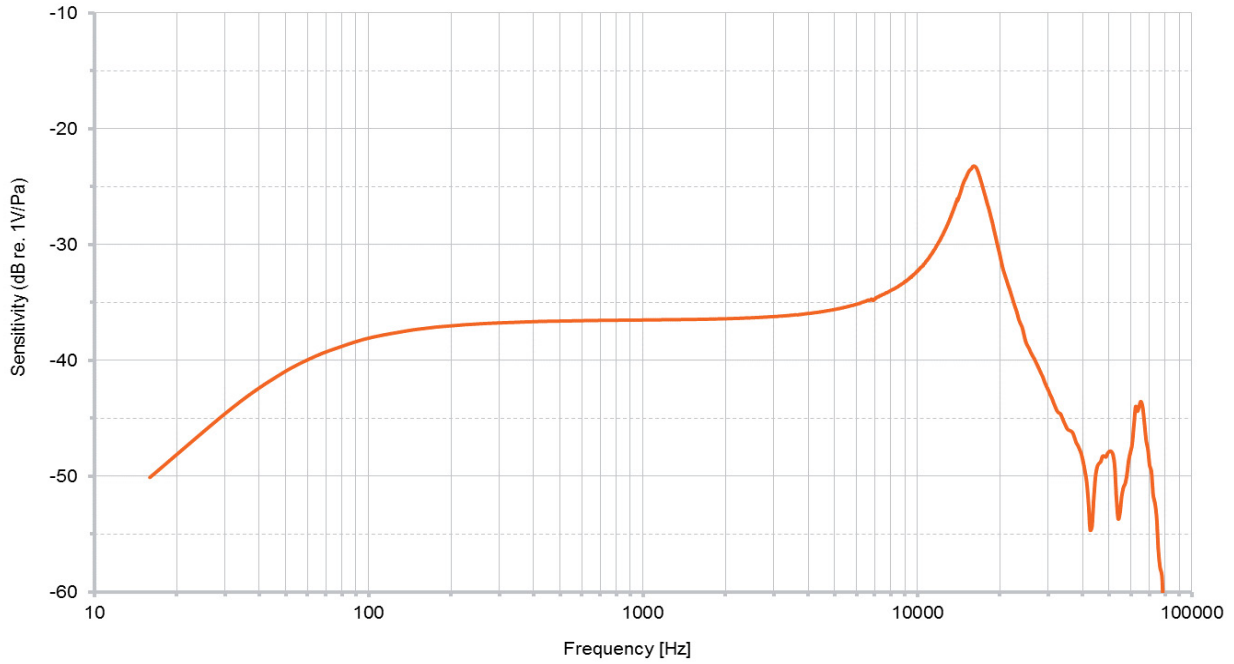
| Parameters  | Min          | Typ   | Max   | Unit  | Comments |  |
|---|--------------|-------|-------|-------|----------|--|
| Sensitivity   | @ 60 Hz      | -5    | -3    | -2    | dB       | re. 1 kHz value  |
|   | @ 1 kHz      | -37.5 | -36.5 | -35.5 | dB       | re. 1V per Pascal  |
|   | @ 10 kHz     | 3     | 4     | 5     | dB       | re. 1 kHz value  |
|   | @ 25 kHz     |       | -2    | 0     | dB       | re. 1 kHz value  |
|   | @ 32 kHz     |       | -7.5  | -5.5  | dB       | re. 1 kHz value  |
| Resonant peak   | frequency    | 15.5  | 16.5  | 17.5  | kHz      |  |
|   | amplitude    |       | 14.5  | 16    | dB       | re. 1 kHz value  |
| Equivalent noise (A-weighted)   | 10 Hz- 8 kHz |       | 25    | 26    | dB SPL   |  |
|   | 10 Hz-20 kHz |       | 28    | 29    | dB SPL   |  |
| 1/3 Octave equivalent input noise   |              |       | 12.5  | 14.5  | dB SPL   | @ 1 kHz  |
| Power supply feedthrough  |              |       | -42   | -35   | dB       |  |
| Battery voltage range   |              | 0.88  | 0.9   | 1.4   | VDC      | absolute maximum 2.1 VDC                                 |
| Battery drain   |              |       | 32    | 35    | μA       |  |
| Output impedance  |              | 3     | 4.5   | 5.5   | kOhm     |  |
| DC output voltage   |              | 350   | 450   | 550   | mV       |  |
| Maximum input level @ 1 kHz   |              | 117   | 118   |       | dB SPL   | 5% THD   |
| Startup time  |              |       | 0.25  | 1     | sec      | to within 0.5 dB of final sens.                          |
|   |              |       |       | 5     | sec      | to within 0.1 dB of final sens.                          |
| Peak battery drain at startup   |              |       | 150   |       | μA       | for ~2.5μs duration *                                    |
| Recovery time from overload   |              |       |       | 1     | sec      | to within 0.5 dB of final sens.                          |
|   |              |       |       | 5     | sec      | to within 0.1 dB of final sens.                          |
| Input-referred vibration sensitivity  |              |       | 66    | 68    | dB SPL/g | @ 1 kHz  |
| Humidity coefficient of sensitivity   |              |       |       | 0.005 | dB/%RH   |  |
| Input-referred EMI noise  | 0.7-0.96 Ghz |       |       | 25    | dB SPL   | according to IEC 60118-13 Ed 4.0 and with pin 4 grounded |
|   | 1.4-2.0 GHz  |       |       | 25    | dB SPL   |  |
|   | 2.0-2.7 GHz  |       |       | 25    | dB SPL   |  |
| Operating temperature range   |              | -10   |       | 65    | °C       |  |
| Storage temperature range   |              | -55   |       | 150   | °C       |  |
| ESD protection level: Class 2 according to MIL-STD-750D, test method 1020,2       |              |       |       |       |          |  |
| Apply protection in accordance with IEC 61340-5-1 and 61340-5-2.                  |              |       |       |       |          |  |
| * Details in application note: Sonion Microphone O&P Startup Behavior - AN rev0xx |              |       |       |       |          |  |

## Mechanical data

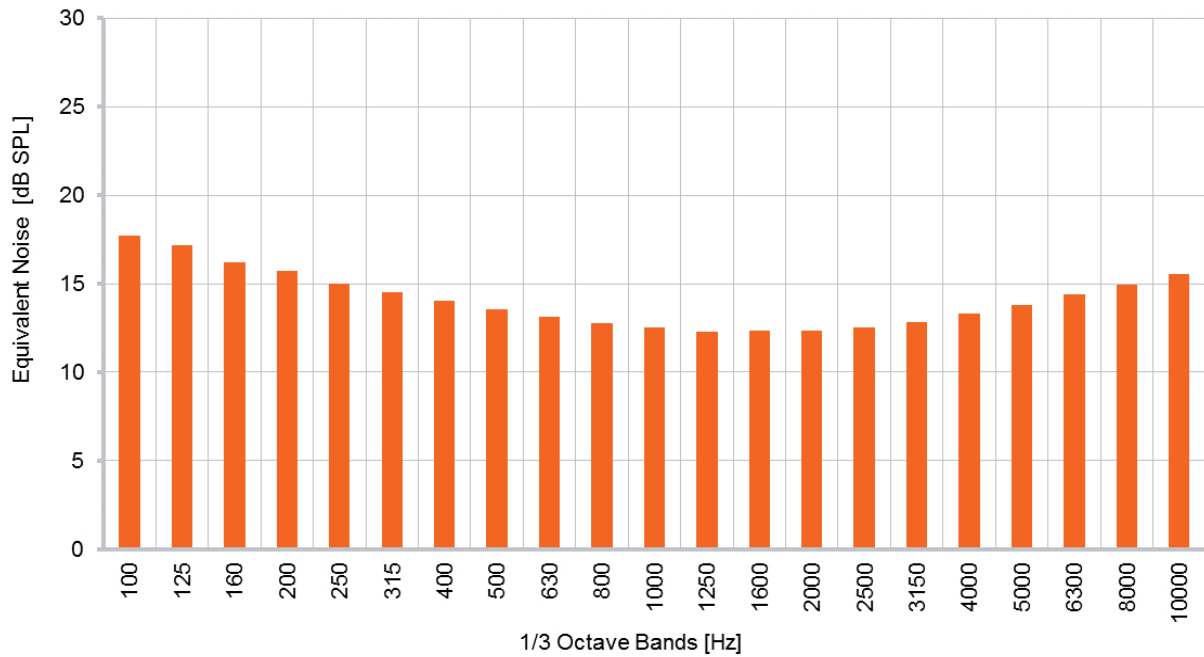
|                    |                            |
|--------------------|----------------------------|
| Weight             | 0.016 gr                   |
| Package type       | 4-Terminal LGA + Metal lid |
| Lid                | Ni/Au, SS304               |
| Substrate          | Ni/Au, 4L RC               |
| Solder pad content | Cu/Ni/Au                   |

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### Typical response curve



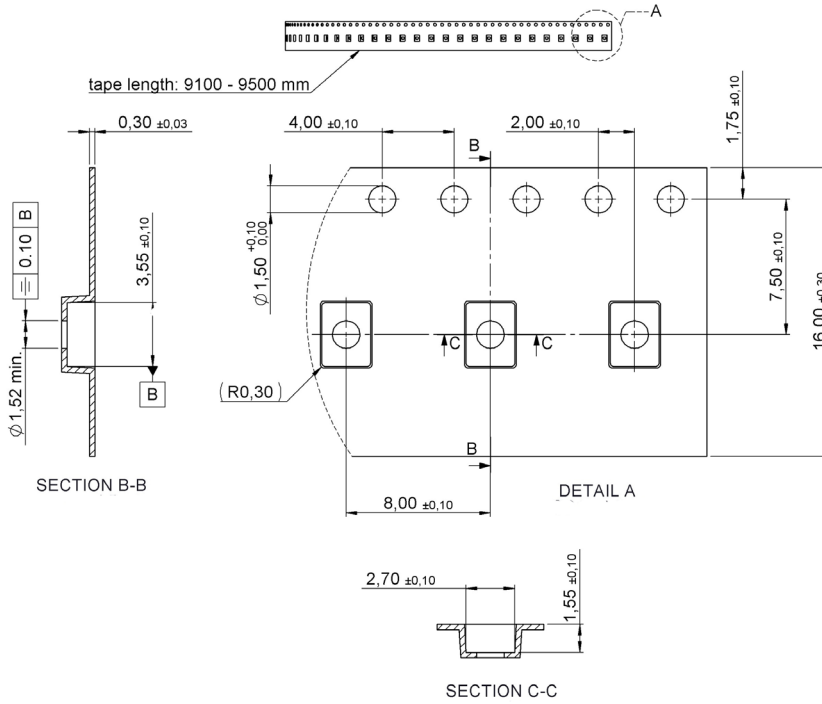
### Typical 1/3 octave equivalent noise



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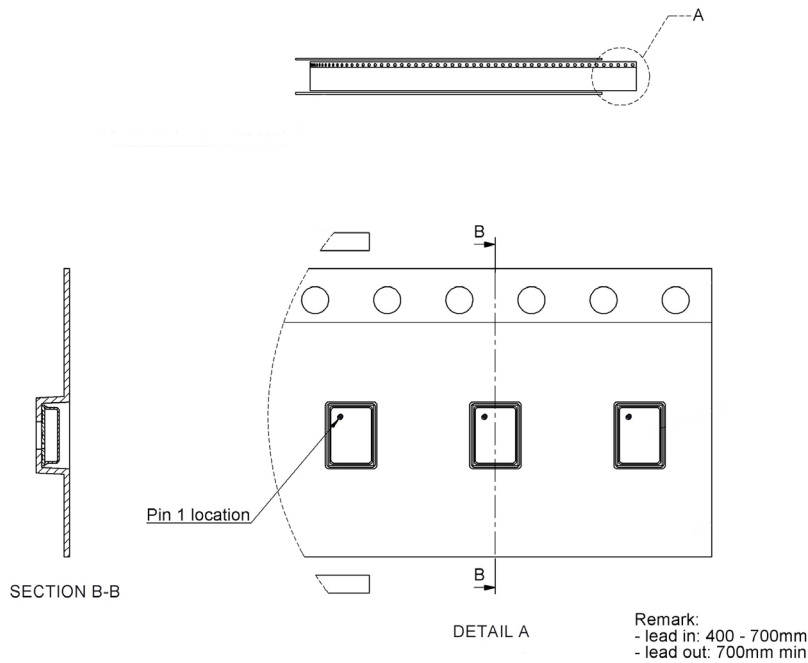
## Packaging - Dimensions in mm

Reel diameter 180 mm (7 inch)



## Packaging - Product orientation

Maximum quantity per reel 1000



**Note:** Packaging MSL (Moisture Sensitivity Level) Class1. Tape and Reel in according with EIA-481

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