APPLICATIONS

The MEMS-Pirani has proven an invaluable tool in vacuum packaging process development and performance assessment. This internal cavity pressure measurement over time is a non-destructive method with leak rate detection limit lower than conventional helium tests.

- Pressure monitoring in hermetic vacuum packages
- Reliability testing and accelerated life testing
- General vacuum control
- Vacuum pressure measurement in semiconductor and coating industries

FEATURES AND BENEFITS

- Extended measuring range from $1 \times 10^{-3}$ Torr to 1 atm
- Ultra-compact design: easy integration in packages
- Low ambient temperature sensitivity
- User-friendly software for direct pressure measurement
- Quick hermeticity test
MEMS-PIRANI
PRESSURE MICROSENSOR AND CONTROL SOFTWARE WITH IMPROVED READING UNIT

SOFTWARE AND READING UNIT

- Reading speed: 0.25 to >2 seconds
- Repeatability: $1.06 \times 10^{-11}$ (0.5 sec)
- Autonomus, plug and play, logarithmic analog output
- 250 cc size (COTS, could be 160 cc with current PCB)
- Simple USB connection to computer or +5V supply

SPECIFICATIONS*

<table>
<thead>
<tr>
<th>SENSOR TYPE</th>
<th>MEMS-Pirani</th>
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<tr>
<td>MEASUREMENT RANGE</td>
<td>&lt;1 $\times 10^{-3}$ Torr to 1 atm</td>
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<tr>
<td>ACCURACY (typical)</td>
<td>$\pm 5%$ of reading from 3 mTorr to 10 mTorr $\pm 2%$ of reading from 10 mTorr to 760 Torr (10 mTorr to 10 Torr, TRL-06 unit)</td>
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<tr>
<td>REPEATABILITY (typical)</td>
<td>$\pm 2 \times 10^{-4}$ Torr or $\pm 1.5%$ of reading from 1 mTorr to 760 Torr</td>
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<tr>
<td>CALIBRATION STABILITY WITH TEMPERATURE</td>
<td>$\pm 5 \times 10^{-5}$ Torr/$^\circ$C or $\pm 0.7%$/°C from 5 mTorr to 40 Torr (5 mTorr to 10 Torr, TRL-06 unit)</td>
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<tr>
<td>BAKEOUT TEMPERATURE</td>
<td>300°C (572°F) maximum</td>
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<tr>
<td>RESPONSE TIME</td>
<td>&lt; 100 ms</td>
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<tr>
<td>CHIP SIZE (typical)</td>
<td>&lt; 2 mm x 2 mm</td>
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*All calibrations were made using air as a calibration gas.
Note: All specifications are subject to change without notice