

## ELECTRONIC PRODUCTS

# 29th Annual PRODUCT OF THE YEAR AWARDS



From the thousands of products introduced in 2004, the editors of **Electronic Products** have chosen the most outstanding. The selections are based on significant advances in technology or its application, a decided innovation in design, or a substantial gain in price-performance. As usual, picking winners was made difficult by the many impressive products announced during the year. Here, then, are the 2004 award winners. Here is a product by **Microbridge Technologies** chosen as a 2004 award winner.

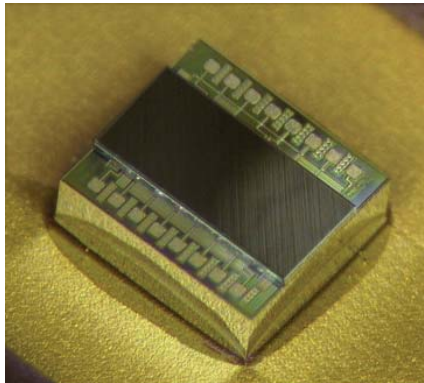
## Microresistor trims circuits electronically

Whether done at wafer level or after a design is complete, trimming analog circuits is a necessity for optimizing designs, either to dial in very precise performance or compensate for component drift over time. However, traditional methods—fusible passiveresistor arrays, mechanical and digital potentiometers, or laser trimming—often force designers to accept limitations in precision, frequency range, performance, or cost.

The Rejutor passive microresistor (see *Electronic Products*, Sept. 2004, p. 59) offers a cost-effective high-precision means for circuit calibration that minimizes the limitations and exploits the advantages of traditional methods. The industry's first precision device adjustable via electrical signals, the nonvolatile device enables multiple bidirectional adjustments to within 0.1% to 0.002% over a 30% range.

Based on standard semiconductor (CMOS, BiCMOS) and MEMS processing, the Rejutor is available as a

discrete device or in a resistor array, and the technology can be integrated with semiconductor or MEMS-



The Rejutor microresistor from Microbridge Technologies

based sensors and integrated circuits. The company also claims this is the industry's first device capable of measuring and trimming TCR at the component level enabling, for instance, the measurement and adjust-

ment of the RTCR for resistor pairs.

Fabrication of the Rejutor produces an IC wafer that has electronic circuits. A trimmable microresistance structure and interdigitated secondary resistor are suspended over an etched cavity, offering thermal isolation from the wafer and allowing for temperatures to reach up to 1,000°C.

The trimmable resistor is adjusted locally by heating the secondary resistor in cycles, which changes the physical properties of the former. Resistance range is from about 50  $\Omega$  to several megohms, and the part is rated for 1-mW power dissipation.

Operating voltages are from 2 to 12 V at 2 to 5 mA. (From \$0.40 ea/1,000,000—prod qty, 2005.)

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