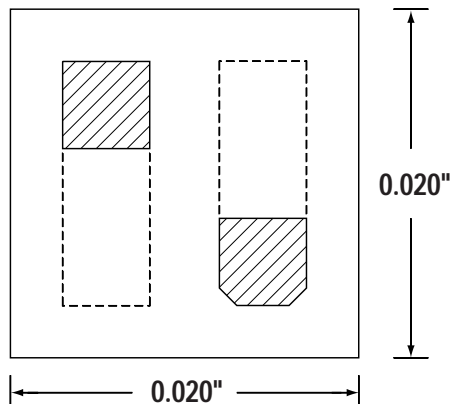


# THIN FILM BACK CONTACT RESISTORS

## MSBC SERIES



----- Minimum bonding area  
for < 100 Ohm Resistance.

The MSBC series back contact chip resistor offers a space-saving design in a 0.020" x 0.020" size that requires only one wire bond. The chip backside provides the other contact with eutectic or conductive epoxy attachment to the substrate. Wire bonding is made to the notched pad on top of the chip; the rectangular pad is a contact via to the backside connection. MSBC's offer the high stability, low noise, and low T.C.R. of thin film while providing greater flexibility in hybrid designs.

### MECHANICAL DATA

|                  |  |
|------------------|--|
| SIZE             | 0.020" x 0.020" x 0.010" ( $\pm 0.003$ ")                                    |
| SUBSTRATE        | SILICON  |
| RESISTOR         | TANTALUM NITRIDE   |
| BOND PADS        | 15,000 Å ALUMINUM TYPICAL<br>(NOTCHED BOND PAD INDICATES WIRE BOND LOCATION) |
| BACKSIDE SURFACE | GOLD; Suitable for eutectic or conductive epoxy bonding                      |

### ELECTRICAL DATA

|                  |  |
|------------------|--|
| RESISTANCE RANGE | 5 $\Omega$ TO 1.5M $\Omega$  |
| TOLERANCES       | 0.05%, 0.1%, 0.25%, 0.5%, 1%, 2%, 5%, 10% (RESISTOR VALUE DEPENDENT)                 |
| T.C.R.           | $\pm 250$ ppm STANDARD; $\pm 100$ ppm Available $\geq 500\Omega$ , $\leq 250K\Omega$ |

### SERIES DATA

|                               |  |
|-------------------------------|--|
| CURRENT NOISE                 | -35dB MAX. 100 $\Omega$ TO 250K $\Omega$ TYPICAL<br>-20dB MAX. < 100 $\Omega$ OR > 250K $\Omega$ |
| DIELECTRIC BREAKDOWN          | 400 V MIN.   |
| INSULATION RESISTANCE         | 10 <sup>12</sup> $\Omega$ MIN.   |
| OPERATING VOLTAGE             | 100 V MAX.   |
| POWER RATING                  | 250 mW TOTAL (70°C DERATED LINEARLY TO 150°C) P = E <sup>2</sup> /R                              |
| SHORT TERM OVERLOAD           | 5X RATED POWER, 25°C, 5 SEC., $\pm 0.25\%$ MAX. $\Delta R/R$ : $\pm 0.1\%$ MSI TYPICAL           |
| HIGH TEMP EXPOSURE            | 150°C, 100 HRS., $\pm 0.25\%$ MAX. $\Delta R/R$ : $\pm 0.03\%$ MSI TYPICAL                       |
| THERMAL SHOCK                 | MIL-STD 202, METHOD 107F, $\pm 0.25\%$ MAX. $\Delta R/R$ : $\pm 0.1\%$ MSI TYPICAL               |
| MOISTURE RESISTANCE           | MIL-STD 202, METHOD 106, $\pm 0.5\%$ MAX. $\Delta R/R$ : $\pm 0.1\%$ MSI TYPICAL                 |
| STABILITY                     | 1000 HRS., 70°C, 100% power, $\pm 0.5\%$ MAX. $\Delta R/R$ : $\pm 0.1\%$ MSI TYPICAL             |
| OPERATING TEMP RANGE          | -55°C TO +125°C  |
| STRAY DISTRIBUTED CAPACITANCE | 2 pf   |

### PART NUMBER DESIGNATION

| MSBC 2 | X           | X                    | ----- | XXXXX   | ----- | X  | ----- | X   |
|--------|-------------|----------------------|-------|---|-------|--|-------|---|
| SERIES | SUBSTRATE   | RESISTIVE FILM       |       | OHMIC VALUE   |       | TOLERANCE  |       | OPTION  |
|        | S = Silicon | T = Tantalum Nitride |       | 5-Digit Number: 1st 4 Digits Are Significant<br>With "R" As Decimal Point When required.<br>5th Digit Represents Number of Zeros. |       | Q = 0.05% **<br>B = 0.10% **<br>C = 0.25%<br>D = 0.5%<br>F = 1%<br>G = 2%<br>J = 5%<br>K = 10% |       | E = Aluminum Bond Pads Std.<br>F = $\pm 100$ ppm/°C |

EXAMPLES: MSBC 2ST-10001F-E = 10K $\Omega$ ,  $\pm 1\%$  STANDARD T.C.R.

\*\* Consult sales for available values

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