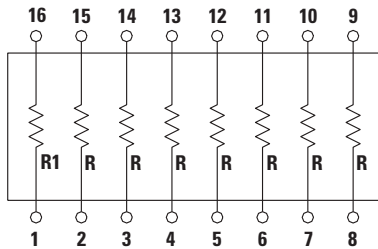
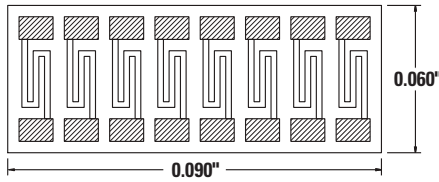


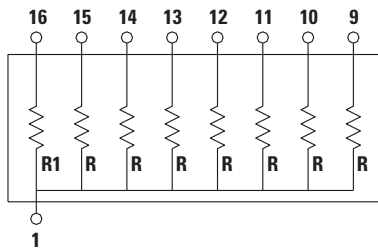
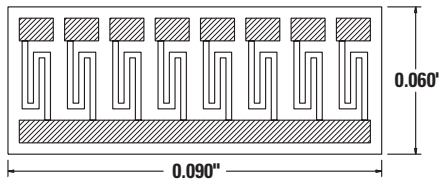
THIN FILM RESISTOR ARRAYS

MSRA/MSRB/MSRC SERIES

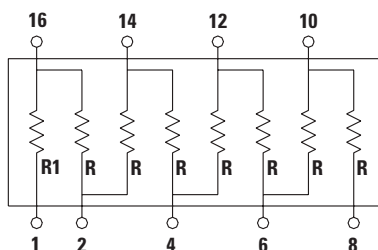
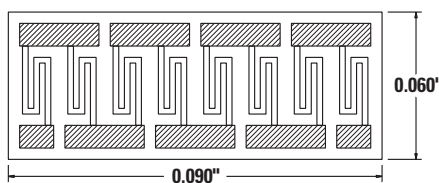
MSRA



MSRB



MSRC



The MSRA Series, isolated connection resistor array, MSRB Series, common connection resistor array, and MSRC Series, series connection resistor array, all with 10 mil centers, are ideal for the hybrid designer seeking a SIP or DIP configuration in chip form. All three series are designed with eight resistors of the same value and tolerance. They feature excellent T.C.R. tracking and are of optimum use when space is a premium. Different arrays from 3-12 resistors are also available.

MECHANICAL DATA

SIZE	0.090" x 0.060" x 0.010" (± 0.003 ") (for the 8-resistor array)
SUBSTRATE	SILICON
RESISTOR	NICHROME OR TANTALUM NITRIDE
BOND PADS	15,000 Å MINIMUM GOLD; 10,000 Å MINIMUM: ALUMINUM OPTIONAL
BACKSIDE SURFACE	BARE SUBSTRATE GOLD BACK OPTIONAL

ELECTRICAL DATA

RESISTANCE RANGE	10 Ω TO 1M Ω
TOLERANCE	0.01%, 0.05%, 0.1%, 0.25%, 0.5%, 1%, 2%, 5%, 10%
RATIO TOLERANCE	EQUAL TO ABSOLUTE TOLERANCE OR $\pm 1\%$, WHICHEVER IS LESS; TO $\pm 0.05\%$ AVAILABLE
T.C.R.	± 50 ppm (NiCr) to ± 5 ppm OPTIONAL; ± 150 ppm (TaN) to ± 10 ppm OPTIONAL
T.C. TRACKING	± 5 ppm/ $^{\circ}$ C to ± 2 ppm/ $^{\circ}$ C
CURRENT NOISE	-20dB TYPICAL
DIELECTRIC BREAKDOWN	400 V MIN.
INSULATION RESISTANCE	10 12 Ω MIN.
OPERATING VOLTAGE	100 V MAX.
POWER RATING	50 mW PER RESISTOR. (70 $^{\circ}$ C DERATED LINEARLY TO 150 $^{\circ}$ C). P=E 2 /R
SHORT TERM OVERLOAD	5X RATED POWER, 25 $^{\circ}$ C, 5 SEC., $\pm 0.25\%$ MAX. $\Delta R/R$: $\pm 0.1\%$ MSI TYPICAL
HIGH TEMP EXPOSURE	150 $^{\circ}$ 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 $^{\circ}$ C, 100% POWER, ABSOLUTE $\pm 0.5\%$ MAX. $\Delta R/R$; RATIO $\pm 0.1\%$ MAX $\Delta R/R$; $\pm 0.1\%$ ABS. MSI TYPICAL

PART NUMBER DESIGNATION

MSRX	X	X	X	XXXX	X	X
SERIES	# OF RES.	SUBSTRATE	RESISTIVE FILM	OHMIC VALUE	TOLERANCE	OPTION
A	3-12	S = Silicon	N = Nichrome T = Tantalum Nitride	5-Digit Number: 1st 4 Digits Are Significant With "R" As Decimal Point When Required. 5th Digit Represents Number of Zeros.	S = 0.01%* Q = 0.05%* B = 0.1% C = 0.25% D = 0.5% F = 1% G = 2% J = 5% K = 10%	A = ± 50 ppm/ $^{\circ}$ C B = ± 25 ppm/ $^{\circ}$ C C = ± 10 ppm/ $^{\circ}$ C D = ± 5 ppm/ $^{\circ}$ C E = Aluminum Bond Pads F = ± 100 ppm/ $^{\circ}$ C G = Gold Bond Pads GB = Gold Backside RA = $\pm 0.01\%$ RATIO RB = $\pm 0.05\%$ RATIO RC = $\pm 0.1\%$ RATIO RE = $\pm 0.25\%$ RATIO RD = $\pm 0.5\%$ RATIO

EXAMPLES: MSRA-8-SN-10001F-AE = 8 Resistors - 10K Ω each, $\pm 1\%$ Tol., ± 50 ppm/ $^{\circ}$ C TCR, Aluminum Bond Pads. Isolated Resistor Configuration

* Consult Sales for available value
Custom configurations available upon request. Consult Sales for ohmic values > 1M Ω



MINI-SYSTEMS, INC.

THIN FILM DIVISION

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