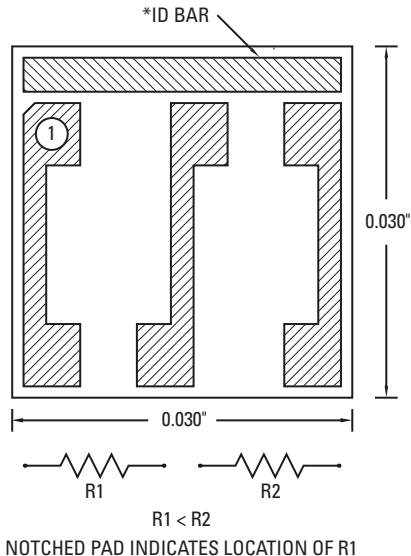


THIN FILM DUAL RESISTOR NETWORKS

MSDR3 SERIES

The MSDR series dual center-tapped chip resistor offers the high stability, low noise, and low T.C.R./T.C. tracking of thin film while providing greater flexibility in hybrid designs.



MECHANICAL DATA

SIZE	0.030" x 0.030" x 0.010" (± 0.003 ")
SUBSTRATE	SILICON, ALUMINA, QUARTZ, OR GLASS
RESISTOR	NICHROME OR TANTALUM NITRIDE
BOND PADS	15K Å MINIMUM GOLD STANDARD.; ALUMINUM AVAILABLE
BACKSIDE SURFACE	BARE SUBSTRATE; GOLD BACK OPTIONAL

ELECTRICAL DATA

RESISTANCE RANGE (Silicon, Quartz, and Glass)	VALUES FROM 1Ω TO 1MΩ PER SIDE; CONSULT SALES FOR SPECIFIC COMBINATIONS OR FOR HIGHER VALUES
ALUMINA	1Ω TO 125KΩ/SIDE
TOLERANCES	0.01%, 0.02%, 0.05%, 0.1%, 0.25%, 0.5%, 1%, 2%, 5%, 10% (R1 & R2 trimmed to absolute tolerance when total tolerance < 0.100Ω) R1 & R2 TRIMMED TO ABSOLUTE MINIMUM
CENTER TAP RATIO	$\pm 1\%$ STD.; AVAIL. TO $\pm 0.01\%$
T.C.R.	NICHROME: ± 25 ppm STD.; ± 10 ppm, ± 5 ppm OPTIONAL TANTALUM NITRIDE : ± 150 ppm STD.; ± 50 ppm, ± 25 ppm, ± 10 ppm OPTIONAL
T.C. TRACKING	TO ± 2 ppm/°C; VALUE DEPENDENT

SERIES DATA

CURRENT NOISE	-20dB TYPICAL
DIELECTRIC BREAKDOWN	400 V MIN.
INSULATION RESISTANCE	10^{12} Ω MIN.
OPERATING VOLTAGE	100 V MAX.
POWER RATING	
SILICON & ALUMINA	250 mW TOTAL (70°C DERATED LINEARLY TO 150°C). P = E ² /R
QUARTZ & GLASS	50 mW TOTAL (70°C DERATED LINEARLY TO 150°C). P = E ² /R
SHORT TIME OVERLOAD	5X RATED POWER, 25°C, 5 SEC., $\pm 0.25\%$ MAX. ΔR/R: 0.1% MSI TYPICAL
HIGH TEMP. EXPOSURE	150°C, 100 HRS., $\pm 0.25\%$ MAX. ΔR/R: 0.03% MSI TYPICAL
THERMAL SHOCK	MIL-STD 202, METHOD 107F, $\pm 0.25\%$ MAX. ΔR/R: 0.1% MSI TYPICAL
MOISTURE RESISTANCE	MIL-STD 202, METHOD 106, $\pm 0.5\%$ MAX. ΔR/R: 0.1% MSI TYPICAL
STABILITY	1000 HRS., 70°C, 125mW, $\pm 0.5\%$ MAX. ΔR/R: 0.1% MSI TYPICAL
OPERATING TEMP. RANGE	-55°C TO +125°C
STABILITY RATIO	0.1% MAX. ΔR/R STANDARD: 0.05% MAX. ΔR/R OPTIONAL
STRAY DISTRIBUTED CAPACITANCE	
SILICON	2pF
ALUMINA	0.06pF
QUARTZ	0.02pF

PART NUMBER DESIGNATION

MSDR 3	X	X	XXXXX / XXXXX	X/X	X
SERIES	SUBSTRATE	RESISTIVE FILM	OHMIC CODES R1 / R2	TOLERANCE CODES	OPTION DESIGNATOR (If Required)
	A = Alumina G = Glass Q = Quartz 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. EXAMPLES: 300R0F/500R0F 25000B/10001B	R1 < R2 S = 0.01% X = 0.02% Q = 0.05% B = 0.1% C = 0.25% D = 0.5% F = 1% G = 2% J = 5% K = 10%	A = ± 50 ppm/°C B = ± 25 ppm/°C C = ± 10 ppm/°C † D = ± 5 ppm/°C † E = Aluminum Bond Pads F = ± 100 ppm/°C **G = Gold Bond Pads GB = Gold Backside RB = 0.05% RATIO RC = 0.1% RATIO RD = 0.5% RATIO

EXAMPLES: MSDR 3ST-300R0B/500R0B-A = Silicon/Tantalum Nitride with
R1 = 300Ω; R2 = 500Ω, $\pm 0.1\%$ Tol., ± 50 ppm/°C T.C.R., w/ Gold Bond Pads

† Not Available on Alumina

* PART MARKING AVAILABLE, CONSULT SALES.

** STD. IF NO OTHER OPTION REQUIRED.

MSI
MINI-SYSTEMS, INC.
THIN FILM DIVISION
20 DAVID ROAD, N. ATTLEBORO, MA 02780
508-695-0203 FAX: 508-695-6076