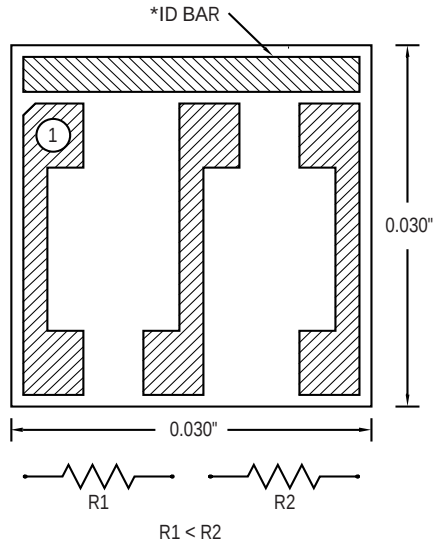
THIN FILM DUAL RESISTOR NETWORKS

MSDR 3 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.



R1 < R2

NOTCHED PAD INDICATES LOCATION OF R1

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 STD.; ALUMINUM AVAILABLE
BACKSIDE SURFACE	BARE SUBSTRATE; GOLD BACK OPTIONAL

ELECTRICAL DATA

RESISTANCE RANGE	VALUES FROM 1Ω TO 1MΩ PER SIDE; CONSULT SALES FOR SPECIFIC COMBINATIONS OR FOR HIGHER VALUES
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	±1% STD.; AVAIL. TO ±0.01%
T.C.R.	NICHROME: ±50ppm STD.; ±25ppm, ±10ppm, ±5ppm OPTIONAL TANTALUM NITRIDE : ±100ppm STD.; ±50ppm, ±25ppm, ±10ppm OPTIONAL
T.C. TRACKING	TO ±2ppm/°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., ±0.25% MAX. ΔR/R: 0.1% MSI TYPICAL
HIGH TEMP. EXPOSURE	150°C, 100 HRS., ±0.25% MAX. ΔR/R: 0.03% MSI TYPICAL
THERMAL SHOCK	MIL-STD 202, METHOD 107F, ±0.25% MAX. ΔR/R: 0.1% MSI TYPICAL
MOISTURE RESISTANCE	MIL-STD 202, METHOD 106, ±0.5% MAX. ΔR/R: 0.1% MSI TYPICAL
STABILITY	1000 HRS., 70°C, 125mW, ±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;
FREQUENCY	TO 20 GHz (RESISTOR GEOMETRY DEPENDENT)
STRAY DISTRIBUTED CAPACITANCE	
SILICON / NiCr OR TaN	2pF
ALUMINA / NiCr	0.06pF
ALUMINA / TaN	0.08pF
QUARTZ / NiCr	0.02pF
QUARTZ / TaN	0.05pF
GLASS / NiCr	0.04pF
GLASS / TaN	0.06pF

PART NUMBER DESIGNATION

MSDR 3	X	X	—	XXXXX / XXXXX	X/X	—	X
SERIES	SUBSTRATE	RESISTIVE FILM		OHMIC CODES R1 / R2 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	TOLERANCE CODES R1 < R2		OPTION DESIGNATOR (If Required)
	A = Alumina G = Glass Q = Quartz S = Silicon	N = Nichrome T = Tantalum Nitride			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 = ±50ppm/°C B = ±25ppm/°C C = ±10ppm/°C D = ±5ppm/°C E = Aluminum Bond Pads F = ±100ppm/°C **G = Gold Bond Pads GB = Gold Backside RB = 0.05% RATIO RC = 0.1% RATIO RD = 0.5% RATIO ** Std. if no other option required.

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

* PART MARKING AVAILABLE, CONSULT SALES.

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