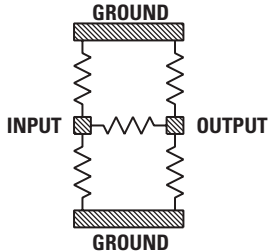
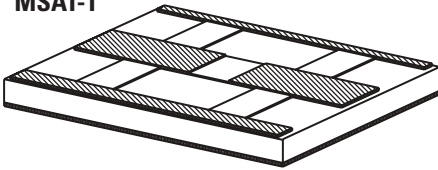


THIN FILM CHIP ATTENUATORS

MSAT-1, MSAT-2, MSAT-3, MSAT-10 SERIES

The MSAT series Thin Film chip attenuators provide attenuation accuracy for frequencies through 20 GHz. They offer the low noise, low stray capacitance and tight tolerance of Thin Film in compact sizes that make them ideal for smaller microwave and stripline applications.

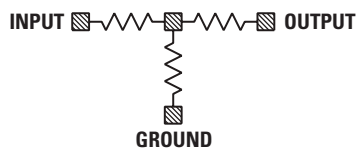
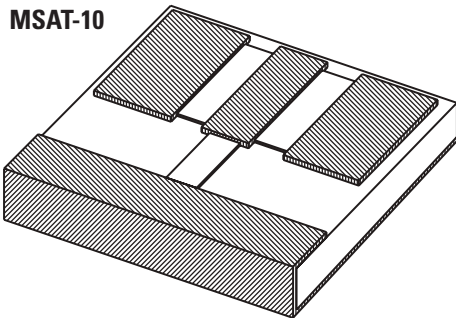
MSAT-1



MSAT-1 TOP CONTACT WITH GOLD BACK

SIZE	0.100" x 0.080" (±0.003") x 0.010" (±0.001")
SUBSTRATE	QUARTZ
BOND PADS	25K Å MIN. GOLD, WIRE OR RIBBON BONDABLE
BACKSIDE SURFACE	GOLD
RESISTOR MATERIAL	TANTALUM NITRIDE
T.C.R.	±150ppm/°C
ATTENUATION RANGES	-1dB THROUGH -24dB; (0.5 dB STEPS AVAILABLE)
ATTENUATION ACCURACY	±0.2dB
FREQUENCY RANGE	DC THROUGH 20 GHz
IMPEDANCE	50Ω
VSWR	1.5:1 MAX.
CURRENT NOISE	-20dB TYPICAL
POWER RATING	125mW (70°C DERATED LINEARLY TO 150°C); P = E ² /R
STRAY DISTRIBUTED CAPACITANCE	QUARTZ
	0.02pF

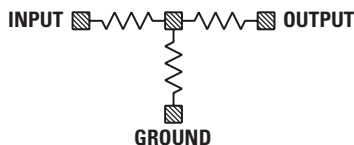
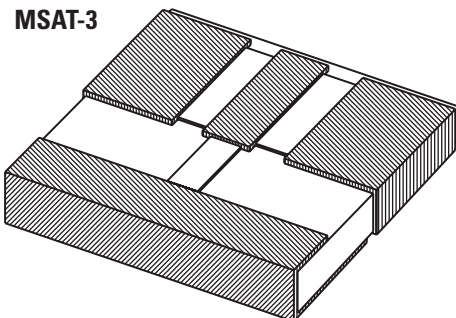
MSAT-2 & MSAT-10



MSAT-2 & MSAT-10 SERIES WITH WRAPAROUND GROUND

SIZE	0.050" x 0.050" (±0.003")
MSAT-2	0.020" (±0.003") THICK
MSAT-10	0.010" (±0.003") THICK
SUBSTRATE	99.6% ALUMINA
BOND PADS	25K Å MIN. GOLD, WRAPAROUND GROUND
BACKSIDE SURFACE	GOLD
RESISTOR MATERIAL	TANTALUM NITRIDE
T.C.R.	±150ppm/°C
ATTENUATION RANGES	-1dB THROUGH -24dB; (0.5 dB STEPS AVAILABLE)
ATTENUATION ACCURACY	±0.2dB
FREQUENCY RANGE	DC THROUGH 20 GHz
IMPEDANCE	50Ω
VSWR	1.5:1 MAX.
CURRENT NOISE	-20dB TYPICAL
POWER RATING	250mW (70°C DERATED LINEARLY TO 150°C); P = E ² /R
STRAY DISTRIBUTED CAPACITANCE	ALUMINA
	0.06pF

MSAT-3



MSAT-3 SERIES FULLY SURFACE MOUNTABLE

SIZE	0.050" x 0.050" (±0.003") x 0.020" (±0.003")
SUBSTRATE	99.6% ALUMINA
BOND PADS	25 Å MIN. GOLD, FULLY SURFACE MOUNTABLE
BACKSIDE SURFACE	GOLD
RESISTOR MATERIAL	TANTALUM NITRIDE
T.C.R.	±150ppm/°C
ATTENUATION RANGES	-1dB THROUGH -24dB; (0.5 dB STEPS AVAILABLE)
ATTENUATION ACCURACY	±0.2dB
FREQUENCY RANGE	DC THROUGH 20 GHz
IMPEDANCE	50Ω
VSWR	1.5:1 MAX.
CURRENT NOISE	-20dB TYPICAL
POWER RATING	250mW (70°C DERATED LINEARLY TO 150°C); P = E ² /R
STRAY DISTRIBUTED CAPACITANCE	ALUMINA
	0.06pF

PART NUMBER DESIGNATION

MSAT	—	XG	—	dB
SERIES		1, 2		
		3, 10		

EXAMPLE: MSAT 2G-01dB (MSAT 2 Series: -1dB)
Consult Sales For Other Configurations And Impedances



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THIN FILM DIVISION
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DCN TF 110-F-0306

CHIP
ATTENUATORS