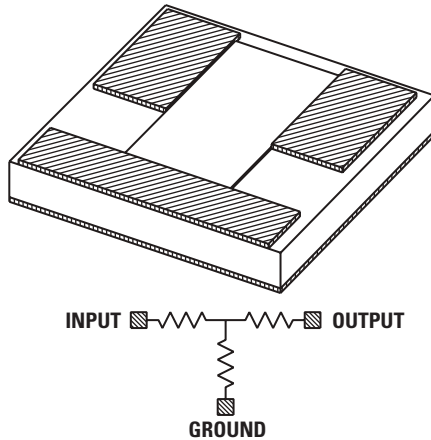


POWER THIN FILM ATTENUATORS

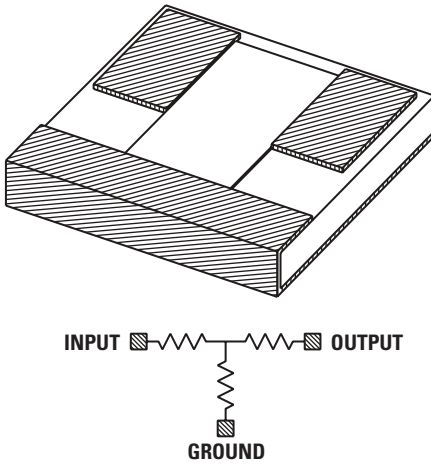
MSAT-21, MSAT-22, MSAT-23 SERIES

The MSAT series Thin Film Power chip attenuators provide attenuation accuracy for frequencies through 20 GHz. They offer the low noise, stray capacitance and tight tolerance of Thin Film in compact sizes that make them ideal for smaller microwave and stripline applications at operating powers to 250mW.

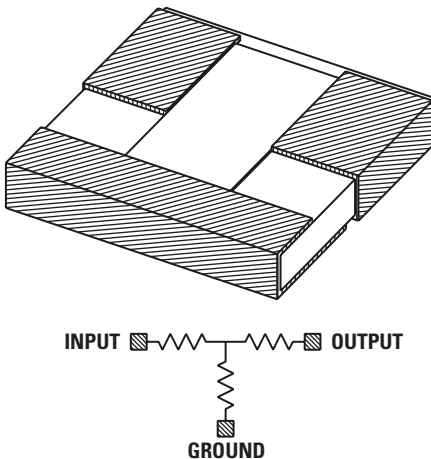
MSAT-21
TOP CONTACT W/ GOLD BACK



MSAT-22
TOP CONTACT W/ WRAPAROUND GROUND



MSAT-23
FULLY SURFACE MOUNTABLE



MECHANICAL DATA

SIZE	0.077" x 0.061" (±0.003") 0.015" (±0.003") THICK
SUBSTRATE	99.6% ALUMINA
BOND PADS	25K Å MIN. GOLD; WIRE OR RIBBON BONDABLE, OR SOLDERABLE.
BACKSIDE SURFACE	GOLD
RESISTOR MATERIAL	TANTALUM NITRIDE

ELECTRICAL DATA

ATTENUATION RANGE	-1dB THROUGH -24dB; (0.5dB STEPS AVAILABLE)
ATTENUATION ACCURACY	±0.2dB
FREQUENCY RANGE	DC THROUGH 20 GHz
IMPEDANCE	50Ω
VSWR	1.5:1 MAX.

COMMON SERIES DATA

CURRENT NOISE	-20dB TYPICAL
POWER RATING	250mW, (70°C DERATED LINEARLY TO 150°C) P = E ² /R
T.C.R.	±150ppm/°C
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
STABILITY	1000 HRS., 70°C, 100% POWER, ±0.5% MAX. ΔR/R: ±0.1% MSI TYPICAL
OPERATING TEMP RANGE	-55°C TO +150°C
STRAY DISTRIBUTED CAPACITANCE	ALUMINA 0.06pF

PART NUMBER DESIGNATION

MSAT	—	XG	—	dB
SERIES		21 22 23		03

EXAMPLE: MSAT 23G-03dB (MSAT 23 Series: -3dB)

CHIP
ATTENUATORS

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THIN FILM DIVISION
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