

MAT10000 Datasheet

0 dB Fixed Attenuator Pad

Revision Date: 11/13/2015

COBHAM

The most important thing we build is trust

Features

- Power Handling: 2 W CW maximum
- Flat Response from DC to 20 GHz
- Return Loss: > 18 dB, DC to 12 GHz
- Return Loss: > 16 dB, 12.1 to 20 GHz
- Space Saving Footprint: 0.030" X 0.030"
(0.762 X 0.762 mm)
- Very Good Stability Over Temperature
(TCR < 100 ppm/°C)
- Wraparound Ground (No ground bond wires required)
- RoHS compliant



0 dB



Applications

- Signal level attenuation

Description

The MAT10000 is a 0 dB fixed attenuator chip. This device is fabricated using the Cobham Metelics state of the art thin film metallization and advanced photolithography technology.

The attenuator chip has wraparound ground from the bottom to the top of the chip. This connection is made at each of the four corners of the chip so additional ground bond wires or ribbons are not required.

The chips may be attached to the circuit ground using conductive epoxy or solder preform. Gold contacts on the input and output pads facilitate reliable connection to the signal source and load using standard wire bonding equipment.

The MAT10000 is RoHS compliant and is suitable for use in commercial and high-reliability military and space applications.

Environmental Capabilities

The MAT10000 0 dB attenuator chip is capable of meeting the environmental requirements of MIL-STD-750 and MIL-STD-883.

ESD and Moisture Sensitivity Level Rating

Thin film attenuator pads are susceptible to damage from ESD events. Proper ESD prevention procedures should be followed. The ESD rating for this device is Class 0 (HBM).

MAT10000 Electrical Specifications

$T_A = 25\text{ }^{\circ}\text{C}$ (Unless Otherwise Defined)

Parameter	Test Conditions	Min. Value	Typ. Value	Max. Value	Units
Attenuation			0.0		dB
Return Loss	$DC \leq f \leq 12\text{ GHz}$	18	-	-	dB
	$12.1\text{ GHz} \leq f \leq 20\text{ GHz}$	16	-	-	

Absolute Maximum Ratings

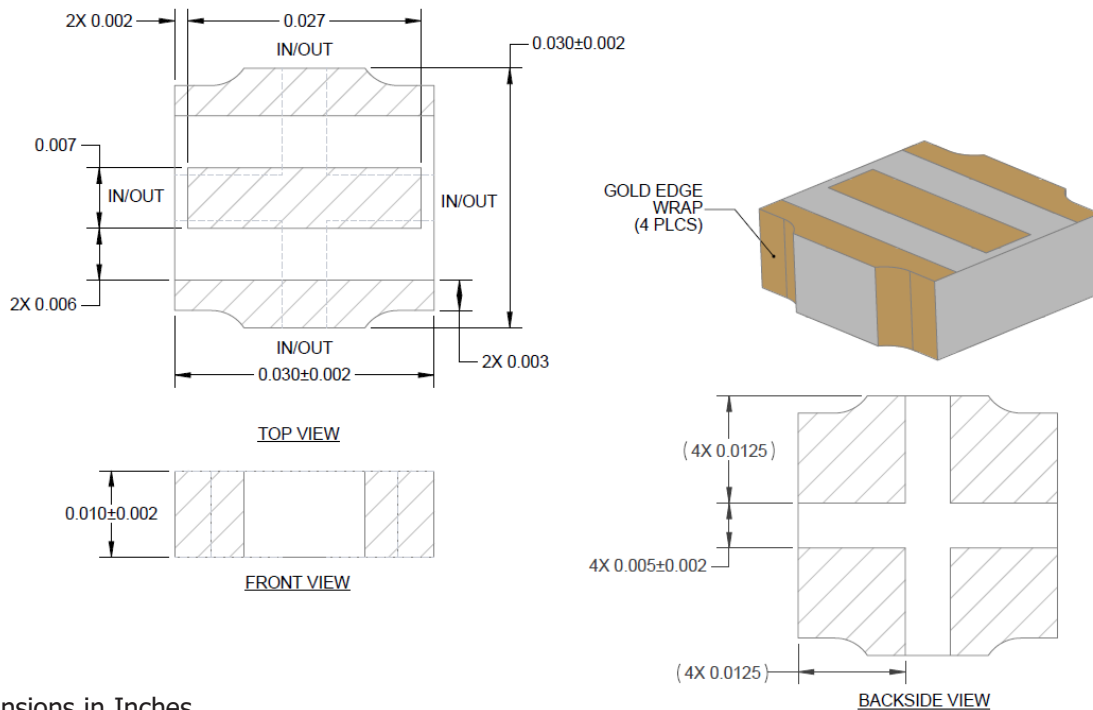
$T_A = +25\text{ }^{\circ}\text{C}$ (Unless Otherwise Defined)

Parameter	Conditions	Absolute Maximum Value
Operating Temperature		-55 $^{\circ}\text{C}$ to 150 $^{\circ}\text{C}$
Storage Temperature		-65 $^{\circ}\text{C}$ to 200 $^{\circ}\text{C}$
RF Incident Power	$T = 85\text{ }^{\circ}\text{C}$, source and load VSWR < 1.2 : 1	33 dBm
Assembly Temperature		200 $^{\circ}\text{C}$ for 10 seconds

Assembly Instructions

The MAT10000 attenuator pad may be placed onto circuit boards with pick and place manufacturing equipment from a wafer pack. The device is attached to the circuit using conductive epoxy or eutectic solder such as Au80 / Sn 20.

Outline



Notes:

- All Dimensions in Inches
- Material : 99.6% Alumina
- Front / Back Metallization : TiW (600 Å) / Au (10000 Å)

Part Number Ordering Information

Part Number	Description	Packaging
MAT10000	Fixed Attenuator Chip, 0 dB	Waffle Pack (Quantity = 100)

ISO 9001:2008 certified

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