

# Attenuator DIE

## DC - 20 GHz



**MAT10xxx Series**  
Rev. V5

### Features

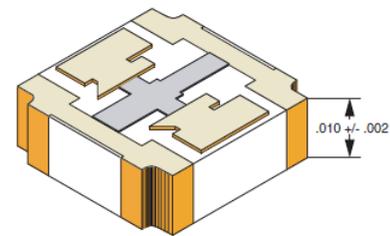
- Medium Power Handling 2 W CW
- Flat Response from DC to 20 GHz
- Return Loss:
  - >18 dB DC to 12 GHz
  - >16 dB 13 to 20 GHz
- Space Saving Footprint:  
0.030" x 0.030" (0.762 x 0.762 mm)
- Very Good Stability Over Temperature  
(TRC <100 PPM)
- Ground Wrap to Top  
(No ground bonding required)
- RoHS\* Compliant

### Description

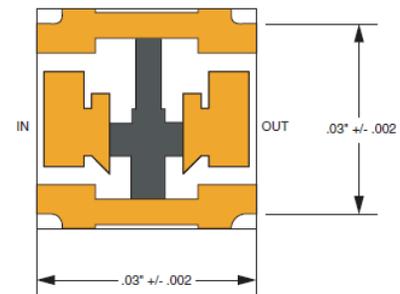
These fixed attenuator chips are fabricated using our state of the art thin film metallization and advanced photolithography technology.

All devices are available in chip form with a metalized ground connection on the back. This ground is wrapped around on the four corners of the chip so additional ground bonding ribbon is not required.

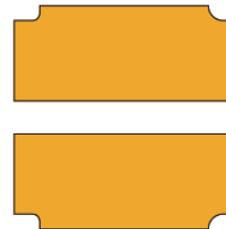
The chips may be attached using conductive epoxy or solder preform. Gold contacts on the input and output pads make assembly, using standard bonding equipment, fast and reliable. Custom values and configuration available on request.



Front to back metallization in 4 places



Bonding pad sizes and resistor outline may differ from value to value.



Back Side

### Electrical Specifications: $T_A = +25^\circ\text{C}$

Part Number	Attenuation (dB)	Insertion Loss (dB)	Return Loss (dB)
MAT10000	0	+/-0.30	>18
MAT10010	1	+/-0.30	>18
MAT10020	2	+/-0.30	>18
MAT10030	3	+/-0.30	>18
MAT10040	4	+/-0.30	>18
MAT10050	5	+/-0.30	>18
MAT10060	6	+/-0.35	>18
MAT10070	7	+/-0.35	>18
MAT10080	8	+/-0.35	>18

CONTINUED

1 \* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

**Electrical Specifications: T<sub>A</sub> = +25°C**

Part Number	Attenuation (dB)	Insertion Loss (dB)	Return Loss (dB)
MAT10090	9	+/-0.35	>18
MAT10100	10	+/-0.35	>18
MAT10110	11	+/-0.40	>18
MAT10120	12	+/-0.40	>18
MAT10130	13	+/-0.40	>18
MAT10140	14	+/-0.40	>18
MAT10150	15	+/-0.40	>18
MAT10160	16	+/-0.50	>18
MAT10170	17	+/-0.50	>18
MAT10180	18	+/-0.50	>18
MAT10190	19	+/-0.50	>18
MAT10200	20	+/-0.50	>18
MAT10210	21	+/-0.60	>18
MAT10220	22	+/-0.60	>18
MAT10230	23	+/-0.60	>18
MAT10240	24	+/-0.60	>18
MAT10250	25	+/-0.60	>18
MAT10260	26	+/-1.00	>18
MAT10270	27	+/-1.00	>18
MAT10280	28	+/-1.00	>18
MAT10290	29	+/-1.00	>18
MAT10300	30	+/-1.00	>18

**Absolute Maximum Ratings<sup>1,2</sup>**

Parameter	Absolute Maximum
RF Incident Power	33 dBm
Operating Temperature	-55°C to +150°C
Storage Temperature	-65°C to +150°C
Assembly Temperature	+280°C for 10 seconds

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. MACOM does not recommend sustained operation near these survivability limits.

2

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