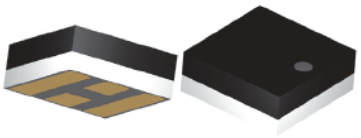
MEST2G-150-10-CM32

Pin Diode Switch Element

Rev. V1

Features

- High Power Handling 150 W @ 1.5 GHz or less
- Low Insertion Loss:
  - 0.15 dB @ 1.0 GHz
  - 0.20 dB @ 2.0 GHz
- Medium Isolation: 10 dB @ 1.0 GHz
- RoHS* Compliant



(CM32)
non-hermetic

Description

The MEST2G-150-10-CM32 is a thermal to ground series diode switch element (EST2G) in an Aluminum Nitride package. This part is designed for a reliable high power switch application up to 150 watts. Usable up to 2.0 GHz.

Electrical Specifications: T_C = +25°C (unless otherwise specified)

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Breakdown Voltage (V_{BR})	I_R = 10 µA	V	500	—	—
Leakage Current (I_R)	V_R = 100 V	nA	—	80	250
Forward Voltage (V_F)	I_F = 100 mA	V	—	900	—
Series Resistance (R_S)	I_F = 100 mA, 100 MHZ	Ω	—	0.22	—
Resistance (R_{LIM})	Spice Model	Ω	—	0.20	—
Total Capacitance (C_T)	V_R = 50 V, 1 MHz	pF	—	0.50	—
Junction Capacitance (C_J)	Spice Model	pF	—	0.41	—
Lifetime (t)	I_F = 10 mA, I_R = 6 mA, 50%	ns	—	3000	—
I-Region (w)	I-Layer	µm	—	80	—
Input / Output Return Loss (I/OR_L)	I_F = 100 mA, 1.0 GHz I_F = 100 mA, 2.0 GHz	dB	15 25	20 30	—
Insertion Loss (I_L)	I_F = 100 mA, 1.0 GHz I_F = 100 mA, 2.0 GHz	dB	—	0.12 0.14	0.20 0.20
Isolation (I_{SO})	V_R = 10 V, 1.0 GHz V_R = 10 V, 2.0 GHz	dB	10 —	12 7	—

* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

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Absolute Maximum Ratings[1,2]

Parameter	Absolute Maximum
Breakdown Voltage (V_R)	500 V
Forward Current (I_{FDC})	500 mA
Thermal Resistance (θ_{JC})	25°C/W
Junction Temperature (T_J)	-40°C to 175°C
Storage Temperature (T_{STG})	-55°C to +150°C
Mounting Temperature (T_{MTG})	+260°C per JEDEC STD-J-20C

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.

Handling Procedures

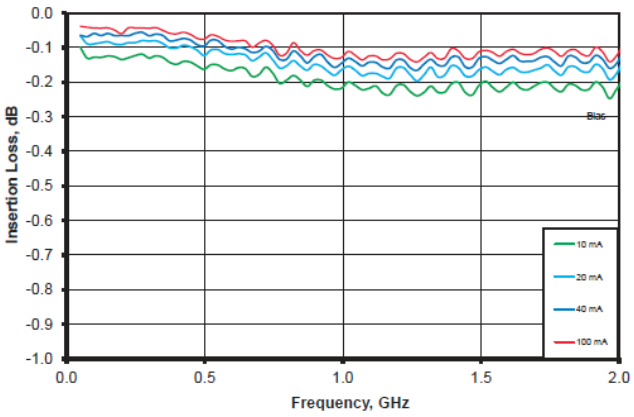
Please observe the following precautions to avoid damage:

Static Sensitivity

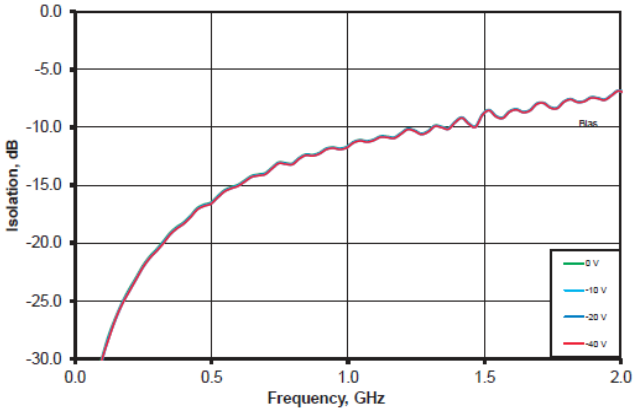
These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these Class 0 (HBM) devices.

Typical Performance Curves: T_A = 25°C, Z_O = 50 Ω, -10 dBm Small Signal

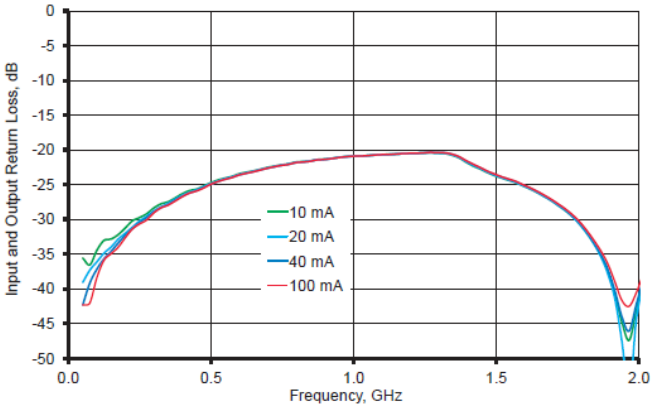
Insertion Loss



Isolation



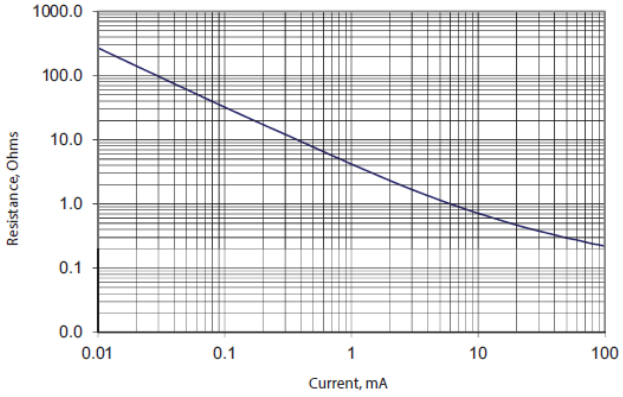
Input Return Loss



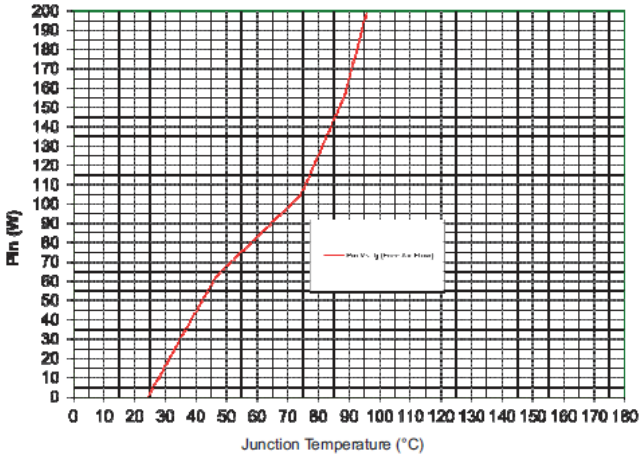
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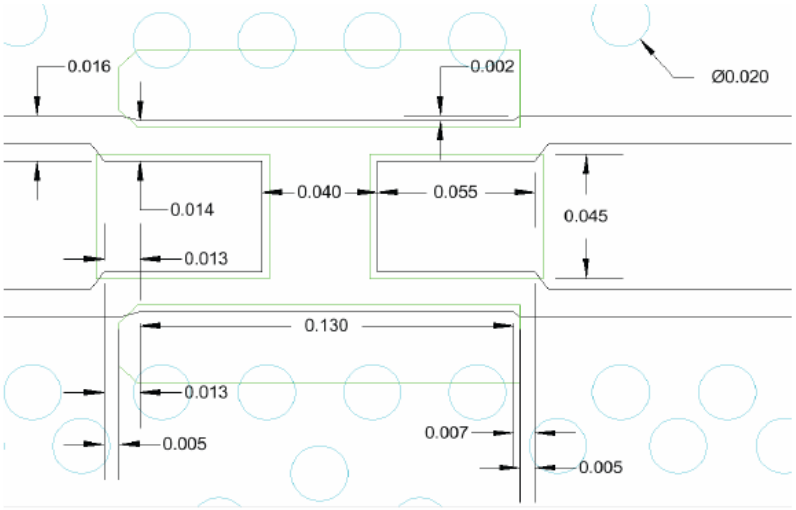
Resistance vs. Bias Current, 100 MHz



Junction Temperature vs. Input Power
Mounted on Heat Sink @ T_A = 25°C, 1.3 GHz



PCB Layout



Plated through, filled and plated over vias

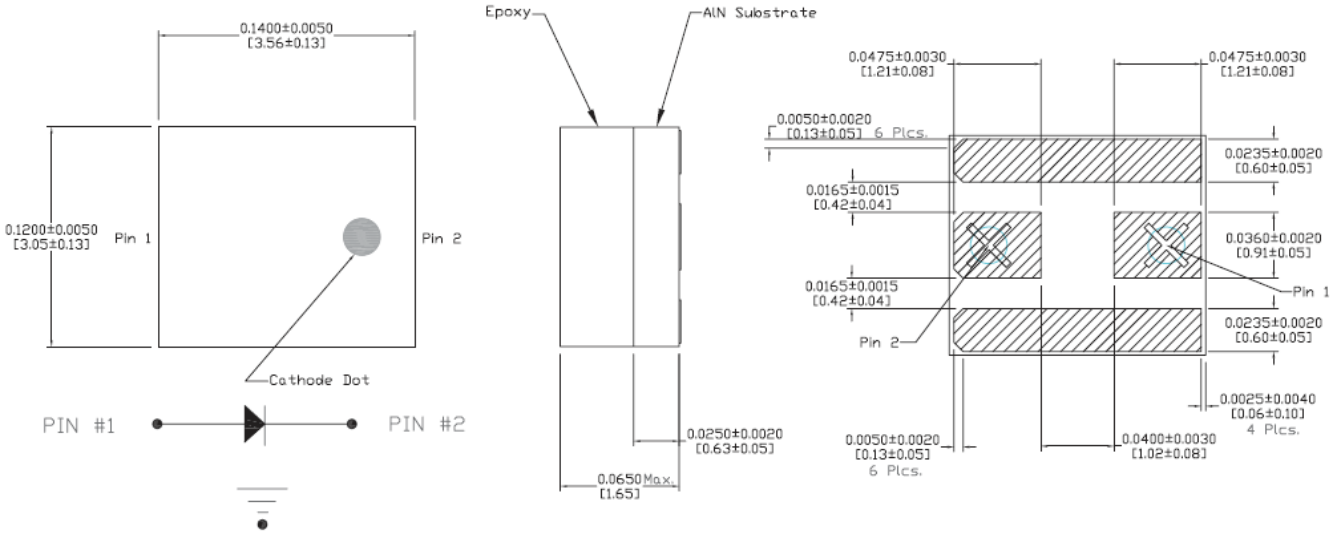
Solder mask should provide 60um clearance between copper pad and solder mask. Rounded pkg pads should have matching rounded solder mask openings.

Use circles or squares for the thermal land stencil design such that only get 60 to 80% solder paste coverage.

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Outline (CM32)



Pin function for Silicon PIN diode.
1. Anode
2. Cathode

Notes:
1. Metallization: 250-350 μ" Cu / 60-100 μ" Ni / 15-45 μ" Au
2. Dimensions in mils [mm]

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