

### Features

- Power Handling 25 W @ 4 GHz or less @ 100 mA
- Low Insertion Loss: <0.4 dB @ 1 - 4 GHz
- Medium Isolation: >10 dB @ 2.0 GHz
- RoHS\* Compliant



(CM32)  
non-hermetic

### Description

The MEST2G-025-10-CM32 is a thermal to ground series diode switch element (EST2G) in an Aluminum Nitride package. This part is designed to handle up to 25 watts. Usable up to 4.0 GHz.

### Electrical Specifications: $T_C = +25^\circ\text{C}$ (unless otherwise specified)

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Breakdown Voltage ( $V_{BR}$ )	$I_R = 10 \mu\text{A}$	V	200	—	—
Leakage Current ( $I_R$ )	$V_R = 100 \text{ V}$	nA	—	40	100
Forward Voltage ( $V_F$ )	$I_F = 100 \text{ mA}$	V	—	980	—
Series Resistance ( $R_S$ )	$I_F = 100 \text{ mA}, 100 \text{ MHz}$	$\Omega$	—	1.25	—
Total Capacitance ( $C_T$ )	$V_R = -50 \text{ V}, 1 \text{ MHz}$	pF	—	0.22	—
Lifetime (t)	$I_F = 10 \text{ mA}, I_R = 6 \text{ mA}, 50\%$	ns	—	2000	—
I-Region (w)	I-Layer	$\mu\text{m}$	—	140	—
Input / Output Return Loss (I/OR <sub>L</sub> )	$I_F = 100 \text{ mA}, 2 \text{ GHz}$ $I_F = 100 \text{ mA}, 4 \text{ GHz}$	dB	27 20	32 26	—
Insertion Loss ( $I_L$ )	$I_F = 100 \text{ mA}, 2 \text{ GHz}$ $I_F = 100 \text{ mA}, 4 \text{ GHz}$	dB	—	0.06 0.07	0.15 0.15
Isolation ( $I_{SO}$ )	$I_F = 400 \text{ mA}, 2 \text{ GHz}$ $I_F = 400 \text{ mA}, 4 \text{ GHz}$	dB	8 —	10 6	—

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

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

Parameter	Absolute Maximum
Breakdown Voltage ( $V_R$ )	200 V
Forward Current ( $I_{FDC}$ )	200 mA
Thermal Resistance ( $\theta_{JC}$ )	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

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

### Handling Procedures

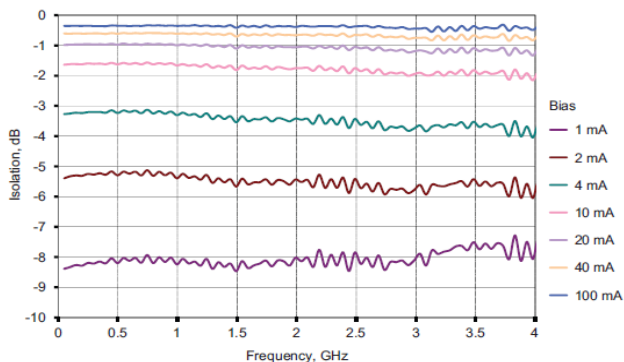
Please observe the following precautions to avoid damage:

### Static Sensitivity

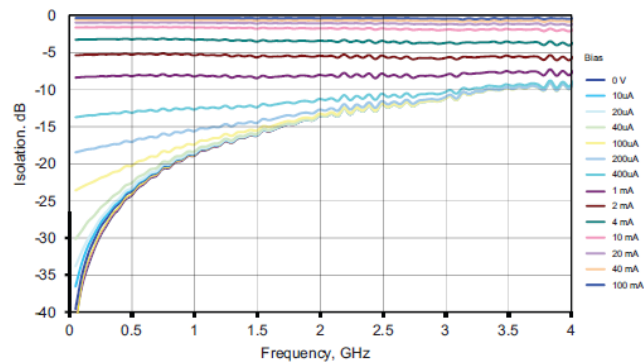
These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these Class 0 (HBM) devices.

### Typical Performance Curves: $T_A = 25^\circ\text{C}$ , $Z_O = 50 \Omega$ , -10 dBm Small Signal

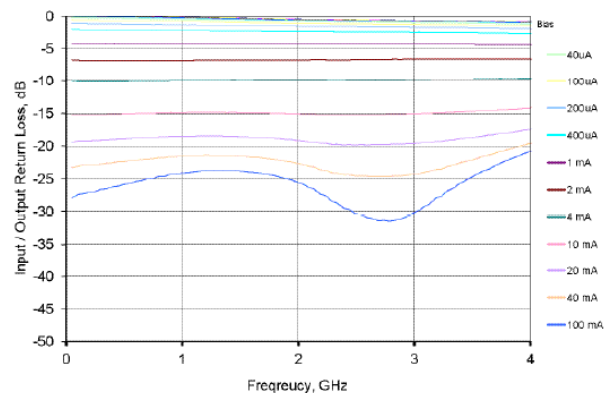
#### Insertion Loss



#### Isolation



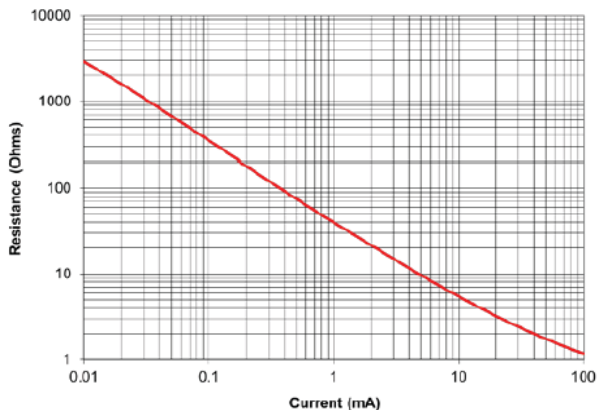
#### Input / Output Return Loss



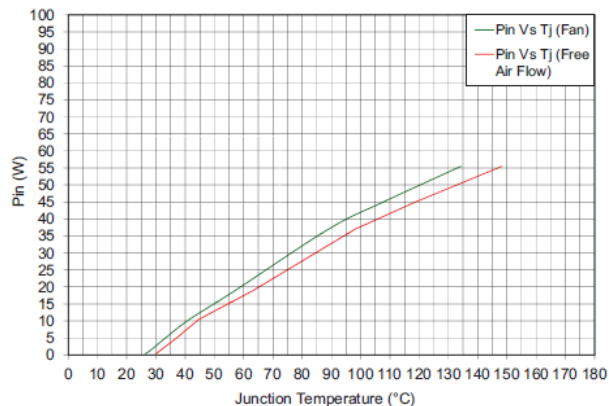
## Pin Diode Switch Element

Rev. V1

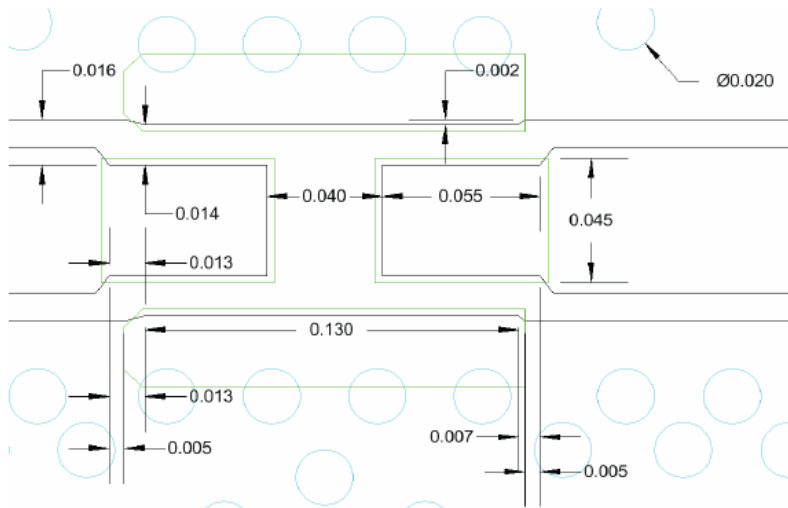
**Resistance vs. Bias Current, 100 MHz**



**Junction Temperature vs. Input Power Mounted on Heat Sink @  $T_A = 25^\circ\text{C}$ , 1.3 GHz**



## PCB Layout

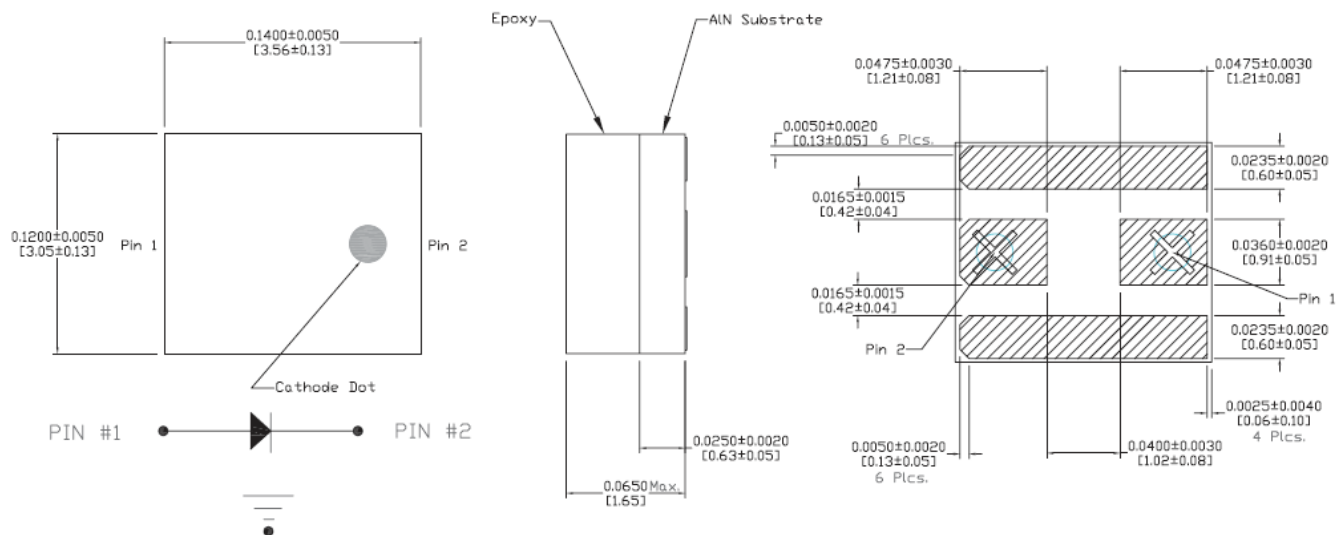


Plated through, filled and plated over vias

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.

### Outline (CM32)



Pin function for Silicon PIN diode.

1. Anode
2. Cathode

#### Notes:

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

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