

Pin Diode Switch Element

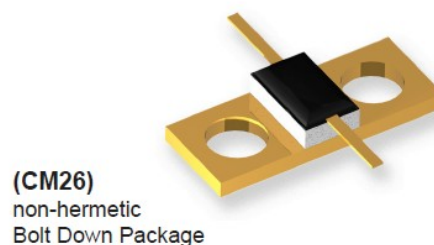
Rev. V1

Features

- High Power Handling 150 W
- Low Insertion Loss:
 - 0.25 dB @ 2 GHz
 - 0.40 dB @ 6 GHz
- Medium Isolation:
 - 21 dB @ 2 GHz
 - 12 dB @ 6 GHz
- RoHS* Compliant

Description

The MEST2G-150-20-CM26 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 10 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	500	—	—
Forward Voltage (V_F)	$I_F = 50 \text{ mA}$	V	—	1850	—
Series Resistance (R_S)	$I_F = 100 \text{ mA}$, 500 MHz, 2 Diodes	Ω	—	1.8	—
Junction Capacitance (C_J)	$V_R = 50 \text{ V}$, 1 MHz, 1 Diodes	pF	—	0.19	—
Lifetime (t)	$I_F = 10 \text{ mA}$, $I_R = 6 \text{ mA}$, 50%	ns	—	1800	—
I-Region (w)	I-Layer	μm	—	80	—
Input / Output Return Loss (I/OR _L)	$I_F = 100 \text{ mA}$, 2 GHz $I_F = 100 \text{ mA}$, 6 GHz	dB	25 13	30 15	—
Insertion Loss (I_L)	$I_F = 100 \text{ mA}$, 2 GHz $I_F = 100 \text{ mA}$, 6 GHz	dB	—	0.25 0.40	0.40 0.60
Isolation (I_{SO})	$V_R = 10 \text{ V}$, 2 GHz $V_R = 10 \text{ V}$, 6 GHz	dB	18 10	21 12	—

* 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})	250 mA
Thermal Resistance (θ_{JC})	8°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

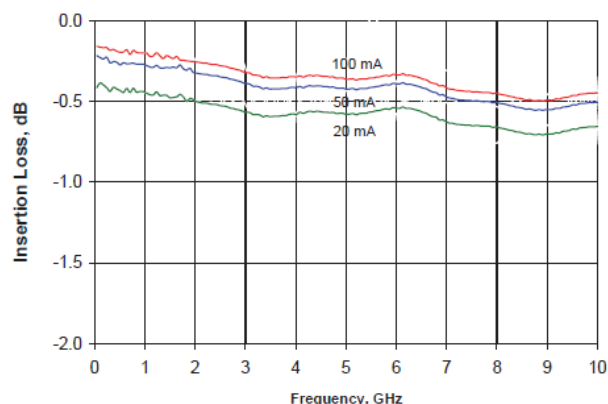
Please observe the following precautions to avoid damage:

Static Sensitivity

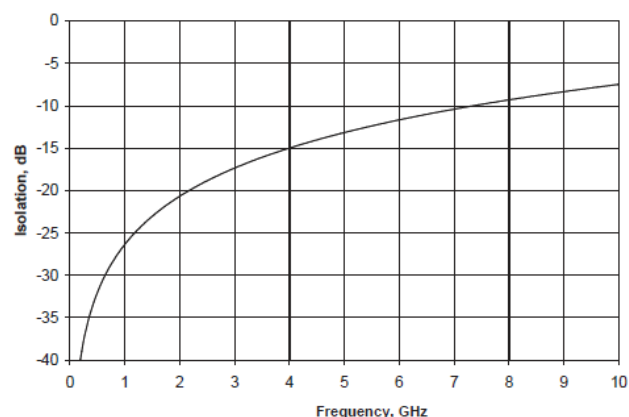
These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these Class 0 (HBM) devices.

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

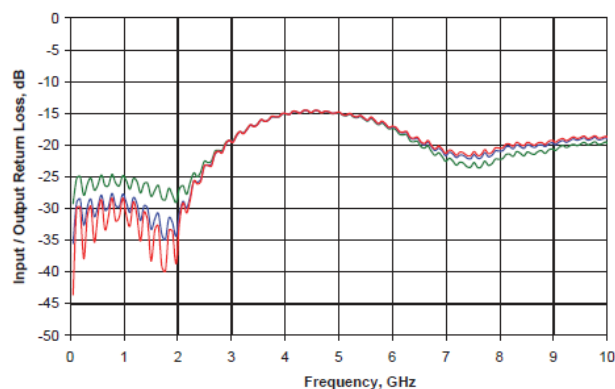
Insertion Loss



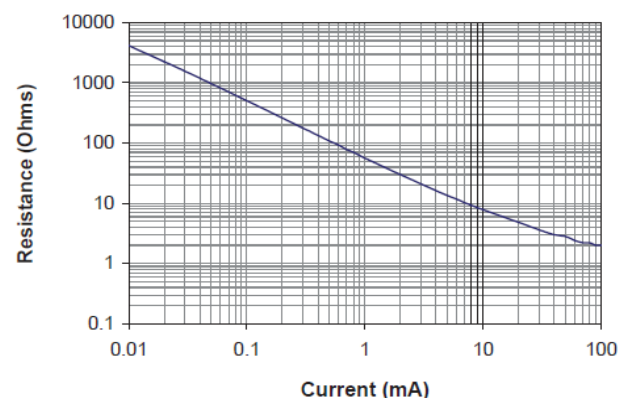
Isolation



Input Return Loss



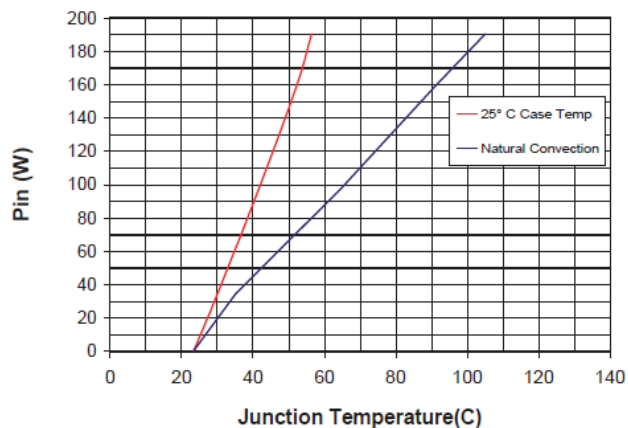
Resistance vs. Bias Current, 500 MHz for 2 diodes in Series



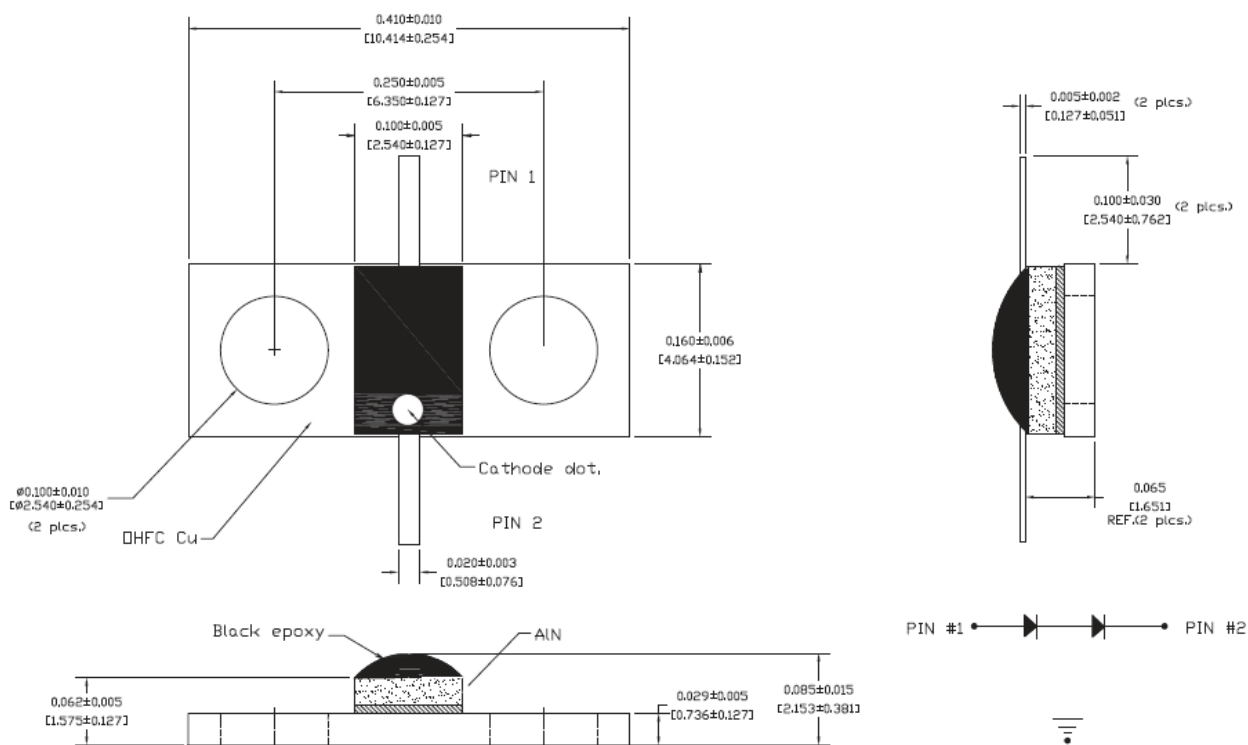
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Junction Temperature vs. Input Power
Mounted on Heat Sink @ $T_A = 25^\circ\text{C}$, 1.3 GHz



Outline (CM26)



NOTES:

Finishes:

1. 50μ Min. of Gold over 50μ Min. of Nickel.

Dimensions in mils [mm]

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