MSWSE-005-15

Silicon PIN Diode Switch Element

Rev. V1

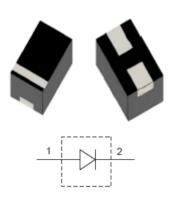
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Features

- Small Size (50 x 30 mils)
- Broadband Performance up to 6 GHz
- Supports up to 4 W Power when Cold Switched
- Low Insertion Loss: 0.5 dB
- RoHS* Compliant

Description

The MSWSE-005-15 is a PIN diode SPST switch element designed for medium incident power applications up to 4 W CW. It has low insertion loss and medium isolation below 6 GHz.



Electrical Specifications:	T _A = +25°C
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Parameter	Test Conditions	Min.	Тур.	Max.	Units
Breakdown Voltage	I _R = 10 μA	200	_	_	V
Forward Voltage	I _F = 50 mA	_	980	1050	mV
Junction Capacitance	V _R = 50 V, 1 MHz	_	0.035	0.05	pF
Total Capacitance	V _R = 50 V, 1 MHz	_	0.11	0.15	pF
Series Resistance	I _F = 30 mA, 500 MHz I _F = 100 mA, 500 MHz	_	2.0 1.4	2.5 1.8	Ω
Lifetime	I _F = 10 mA, I _R = 6 mA , 50%		180	300	ns
Insertion Loss	I _F = 50 mA, <2.7 GHz I _F = 50 mA, <6.0 GHz	_	0.25 0.50	0.4	dB
Isolation	V _R = 50 V, <2.7 GHz V _R = 50 V, <6.0 GHz	13	16 10	_	dB
I-Layer	_	_	15	—	μm

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

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1

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Absolute Maximum Ratings^{1,2}

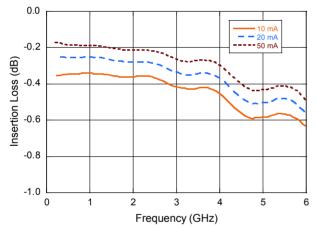
Parameter	Absolute Maximum
Breakdown Voltage	200 V
Forward Current	200 mA
Thermal Resistance	50°CW
Junction Temperature	+175°C
Storage Temperature	-55°C to +150°C
Solder Temperature	+260°C per JEDEC STD-J-20C

1. Exceeding any one or combination of these limits may cause permanent damage to this device.

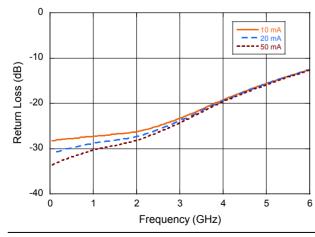
 MACOM does not recommend sustained operation near these survivability limits.

Typical RF Performance Curves @ +25°C

Insertion Loss

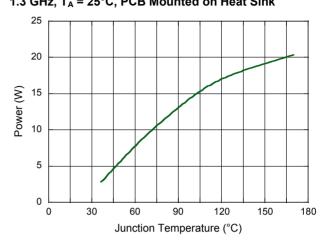


Input Return Loss

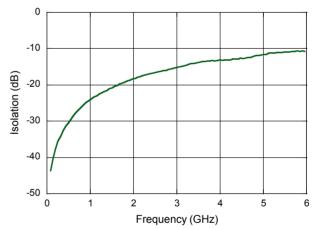


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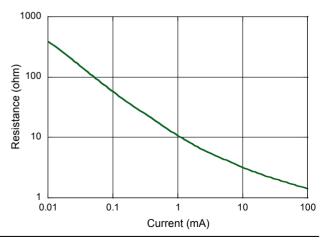
Junction Temperature vs. Input Power 1.3 GHz, T_A = 25°C, PCB Mounted on Heat Sink



Isolation



Series Resistance vs. Current, 500 MHz



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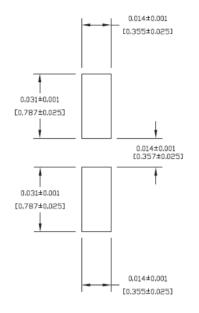
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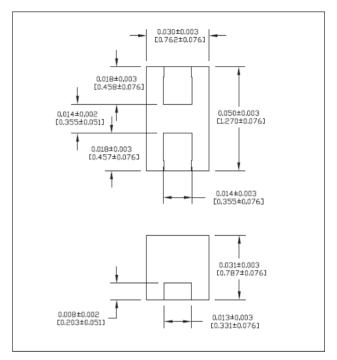
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PCB Layout



Outline



Dimensions: inches [mm] Finish: 300 micro inches matte tin, annealed 1 hour @ 150°C

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3