MSWSE-050-17

Silicon SPST PIN Diode Switch Element

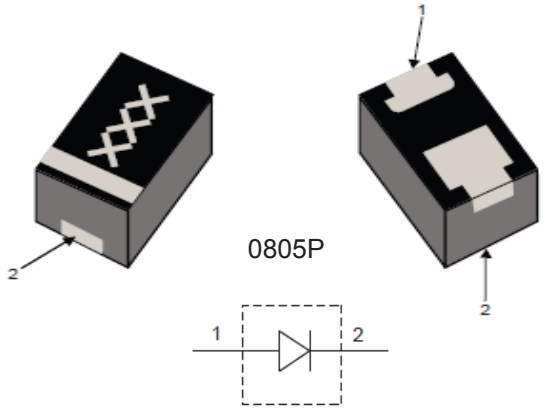
Rev. V1

Features

- Supports up to 60 W Power
- Broadband Performance up to 3 GHz
- Low Insertion Loss
- Medium Isolation
- RoHS* Compliant

Description

A broadband, high linearity, medium power series switch element in a 2.0 x 1.3 mm QFN package. This device is designed for WiMax, Wibro, WLAN, TD-SCDMA and other wireless infrastructure applications. It is also suited for 0.1 ~ 3 GHz applications with up to 60 watts of power.



Electrical Specifications: T_A = +25°C

Parameter	Test Conditions	Min.	Typ.	Max.	Units
Breakdown Voltage	I_R = 10 µA	500	—	—	V
Forward Voltage	I_F = 50 mA	—	850	950	mV
Total Capacitance	V_R = 50 V, 1 MHz	—	0.20	0.25	pF
Series Resistance	I_F = 100 mA, 100 MHz	—	0.25	0.30	Ω
Lifetime	I_F = 10 mA, I_R = 6 mA , 50%	—	1600	—	ns
I-Region	I-Layer	—	80	—	µm
Insertion Loss	I_F = 50 mA, <0.5 GHz I_F = 50 mA, <2.0 GHz	—	0.1 0.1	0.2 0.2	dB
Return Loss	I_F = 50 mA, <0.5 GHz I_F = 50 mA, <2.0 GHz	25 20	33 25	—	dB
Isolation	V_R = 50 V, <0.5 GHz V_R = 50 V, <2.0 GHz	22 10	24 12	—	dB

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

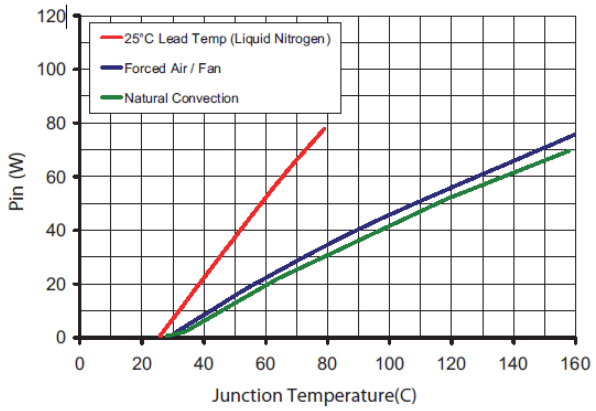
Absolute Maximum Ratings[1,2]

Parameter	Absolute Maximum
Breakdown Voltage	500 V
Forward Current	500 mA
Thermal Resistance	10°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.
2. MACOM does not recommend sustained operation near these survivability limits.

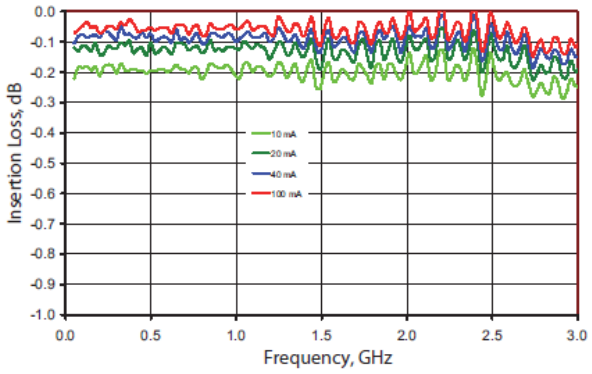
Junction Temperature vs. Input Power

Backside of Board T_A = 25°C, Board Thickness 20 mil
PCB Mounted on Heat Sink @ 1.3 GHz

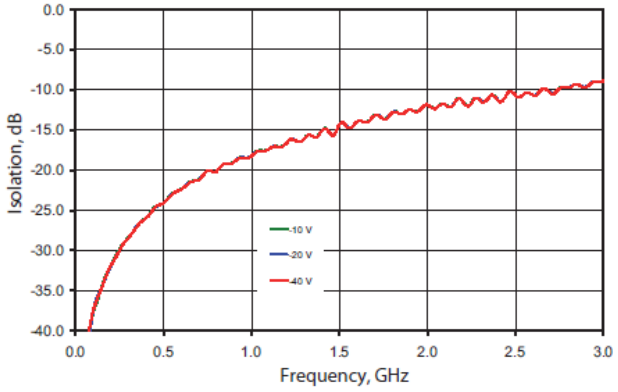


Typical RF Performance Curves @ +25°C

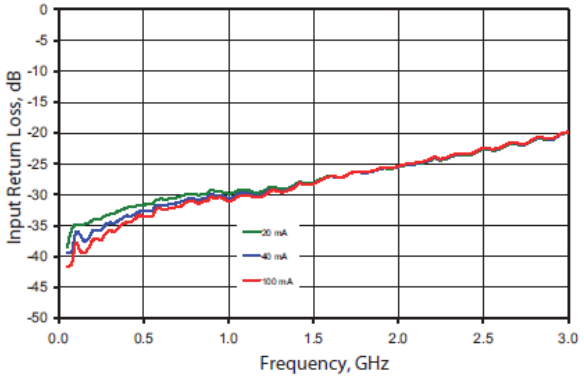
Insertion Loss



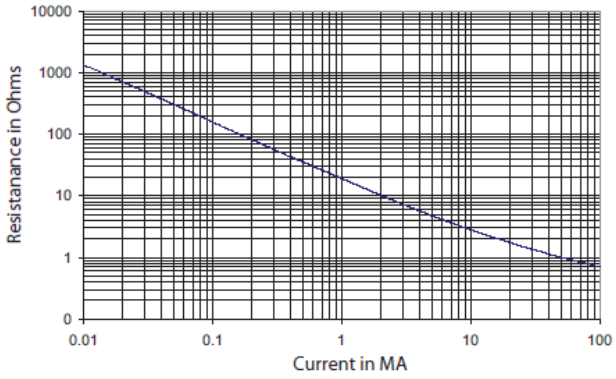
Isolation



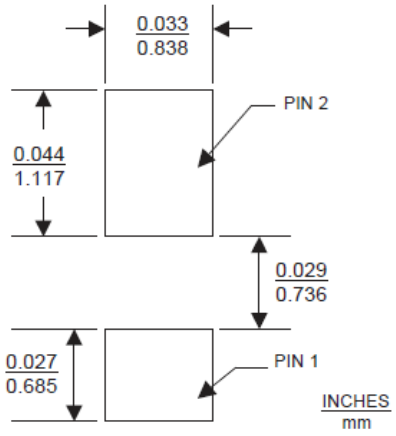
Input Return Loss



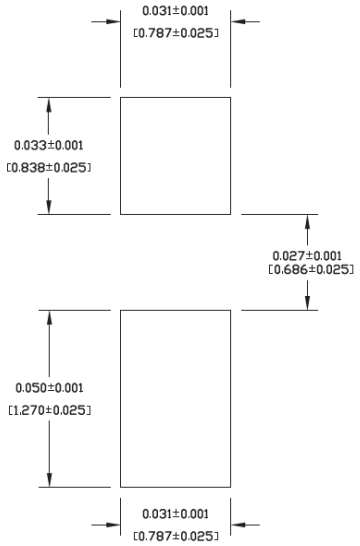
Series Resistance vs. Current, 500 MHz



PCB Layout



Soldering Footprint



Outline (0805P)