

## Silicon SPST PIN Diode Switch Element

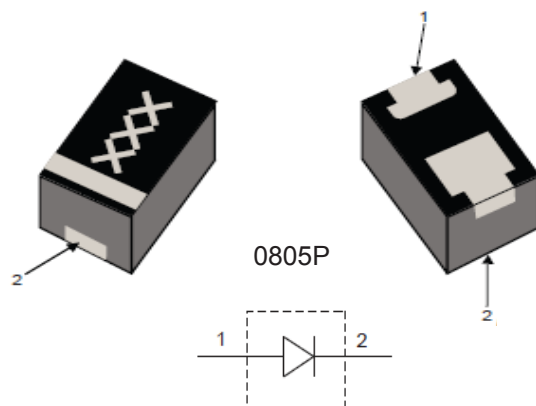
Rev. V2

## 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:  $T_A = +25^\circ\text{C}$ 

Parameter	Test Conditions	Min.	Typ.	Max.	Units
Breakdown Voltage	$I_R = 10\ \mu\text{A}$	500	—	—	V
Forward Voltage	$I_F = 50\ \text{mA}$	—	850	950	mV
Total Capacitance	$V_R = 50\ \text{V}$ , 1 MHz	—	0.20	0.25	pF
Series Resistance	$I_F = 100\ \text{mA}$ , 100 MHz	—	0.7	0.9	$\Omega$
Lifetime	$I_F = 10\ \text{mA}$ , $I_R = 6\ \text{mA}$ , 50%	—	1600	—	ns
I-Region	I-Layer	—	80	—	$\mu\text{m}$
Insertion Loss	$I_F = 50\ \text{mA}$ , <0.5 GHz $I_F = 50\ \text{mA}$ , <2.0 GHz	—	0.1 0.1	0.2 0.2	dB
Return Loss	$I_F = 50\ \text{mA}$ , <0.5 GHz $I_F = 50\ \text{mA}$ , <2.0 GHz	25 20	33 25	—	dB
Isolation	$V_R = 50\ \text{V}$ , <0.5 GHz $V_R = 50\ \text{V}$ , <2.0 GHz	22 10	24 12	—	dB

\* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

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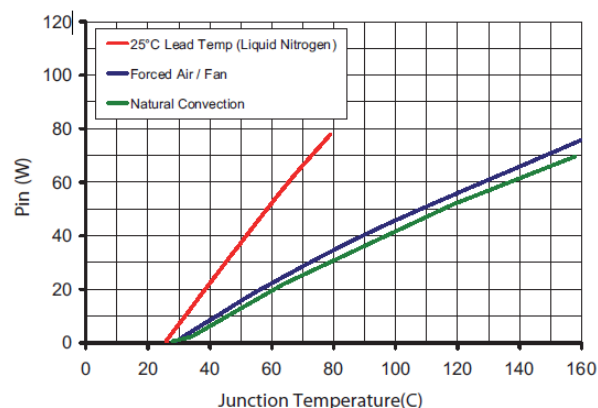
### Absolute Maximum Ratings<sup>1,2</sup>

Parameter	Absolute Maximum
Breakdown Voltage	500 V
Forward Current	500 mA
Thermal Resistance	10°C/W
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.

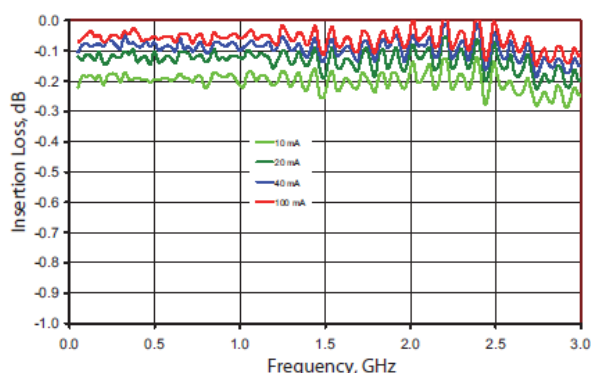
### Junction Temperature vs. Input Power

Backside of Board  $T_A = 25^\circ\text{C}$ , Board Thickness 20 mil  
PCB Mounted on Heat Sink @ 1.3 GHz

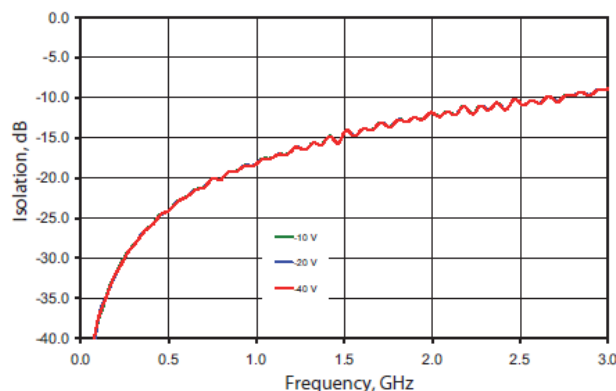


### Typical RF Performance Curves @ +25°C

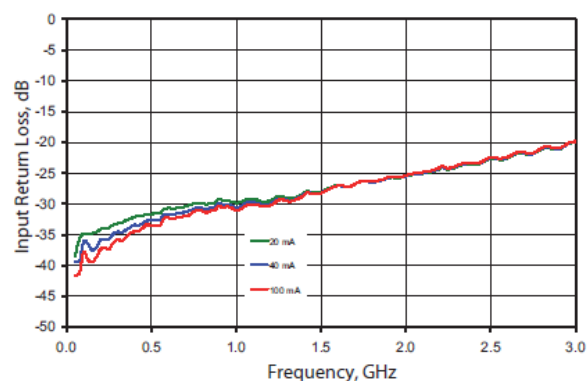
#### Insertion Loss



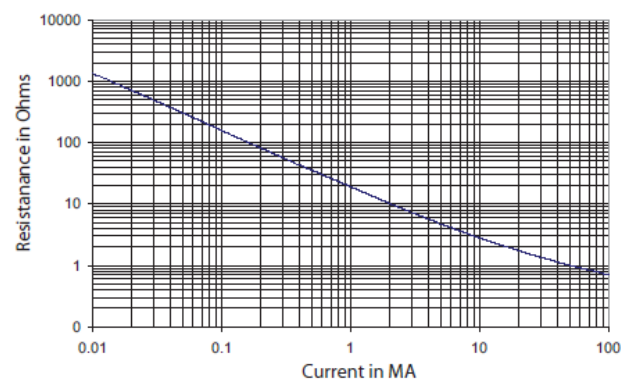
#### Isolation



#### Input Return Loss



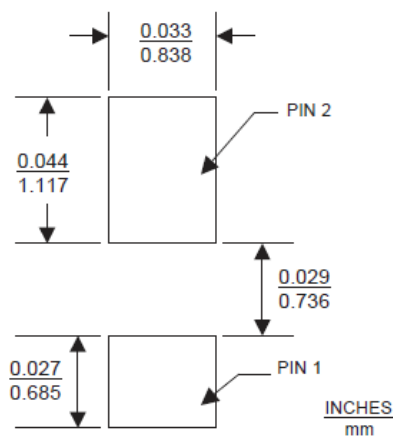
#### Series Resistance vs. Current, 500 MHz



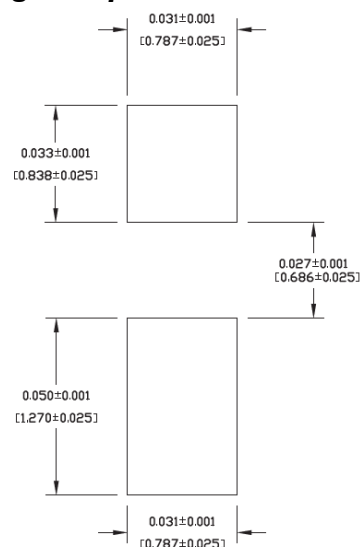
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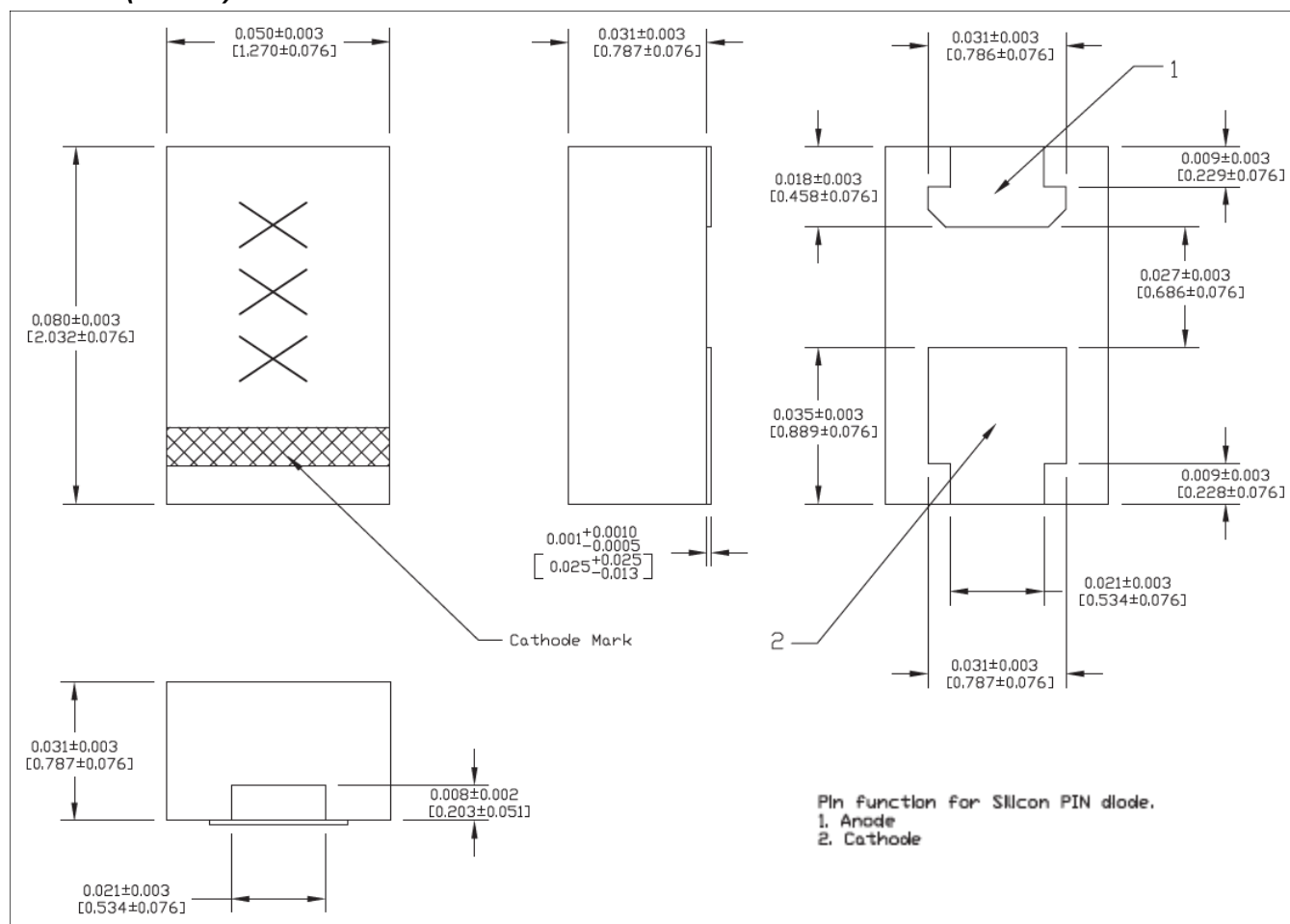
## PCB Layout



## Soldering Footprint



## Outline (0805P)



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