PIN Diode Shunt Switch Element

Rev. V1

Features

- Supports up to 25 W Power @ 5 GHz
- Low Insertion Loss: 0.2 dB to 2.7 GHz 0.4 dB to 10.0 GHz
- High Isolation: 25 dB to 10.0 GHz
- RoHS* Compliant

Description

A broadband, high linearity, medium power shunt switch element in a 2 mm DFN package.

This device is designed for wireless telecommunications infrastructure and test instrument applications. It is also suited for other applications in $0.05 \sim 17$ GHz broad band and 24 GHz narrow band with tuning.

Ordering Information

Part Number	Package
MSWSH-020-24	3000 piece reel

Electrical Specifications: T_A = +25°C

Parameter	Test Conditions	Units	Min.	Тур.	Max.
Breakdown Voltage (V_B)	I _R = 10 μA	V	200	—	—
Insertion Loss (I_L)	V _R = 10 V 2.7 GH 10.0 GHz	dB		0.20 0.60	0.30 0.75
Isolation (I _{SO})	I _F = 100 mA 2.7 GHz 10.0 GHz	dB	27 23	30 25	_
Input Return Loss (I _{RL})	V _R = 10 V 2.7 GHz 10.0 GHz	dB	20 9	25 12	_
I-Region (W)	I-Layer	μm	_	15	—
Minority Carrier Lifetime (T _L)	I _F = 10 mA, I _R = 6 mA, @ 50%	ns	_	600	_

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



Pin Out / Schematic





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Absolute Maximum Ratings

Parameter	Absolute Maximum	
Breakdown Voltage	200 V	
Forward Current	150 mA	
Thermal Resistance	30°C/W	
Junction Temperature	+175°C	
Storage Temperature	-65°C to +150°C	
Assembly Temperature	+260°C, Per JEDEC STD-J-20C	

Typical Performance Curves

Insertion Loss















1. Input return loss can be reduced to less than -15 dB with the use of stub tuner printed on the circuit board. Insertion loss is also improve by 0.25 dB at 15 GHz with this tuner.

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Junction Temperature vs. Power, 1.3 GHz, $T_A = +25^{\circ}$ C, 20 mil PCB Mounted on Heatsink



Printed Circuit Board Layout



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Outline (2020)



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