SKYWORKS®

DATA SHEET

SMP1340 Series: Fast Switching Speed, Low Capacitance, Plastic Packaged PIN Diodes

Features

- Designed for fast-speed wireless switch applications
- 1.0 Ω resistance, 0.3 pF capacitance
- Available lead (Pb)-free and RoHS-compliant MSL-1 @ 260 °C[1] per JEDEC J-STD-020
- Available in tape and reel packaging

Description

The SMP1340 series of plastic packaged, surface mountable PIN diodes is designed for high-volume switch applications from 10 MHz to beyond 2 GHz. The short carrier lifetime of typically 100 ns, combined with its thin I region width of nominally 7 µm, results in a fast-speed RF switching PIN diode. The RF performance of the SMP1340 series is assured by virtue of its low capacitance (0.3 pF) and low resistance (1.0 Ω at 10 mA).

The SMP1340-508 has been specifically designed for WLAN 802.11 a, b, and g applications.

NEW Skyworks offers lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant packaging.



Absolute Maximum Ratings

Characteristic	Value
Reverse voltage (V_R)	50 V
Power dissipation @ 25 °C lead temperature (P_D)	250 mW
Storage temperature (T_{ST})	-65 °C to +150 °C
Operating temperature (T_{OP})	-65 °C to +150 °C
ESD human body model	Class 1B

Performance is guaranteed only under the conditions listed in the specifications table and is not guaranteed under the full range(s) described by the Absolute Maximum specifications. Exceeding any of the absolute maximum/minimum specifications may result in permanent damage to the device and will void the warranty.

CAUTION: *Although this device is designed to be as robust as possible, ESD (Electrostatic Discharge) can damage this device. This device must be protected at all times from ESD. Static charges may easily produce potentials of several kilovolts on the human body or equipment, which can discharge without detection. Industry-standard ESD precautions must be employed at all times.*

1. -508 package MSL-1@ 250 °C

						
Common Anode	Common Cathode	Series Pair	Single	Common Cathode	Single	Anti-Parallel
SOT-23	SOT-23	SOT-23	SOD-323	SC-70	SC-79	LGA
SMP1340-003 Marking: PS9	**♦SMP1340-004** Marking: PS3	**SMP1340-005** Marking: PS2	**SMP1340-011** Marking: PS	**SMP1340-074** Marking: PS3	**♦SMP1340-079**	**SMP1340-508 Lead (Pb)-Free** Marking: X
SMP1340-003LF Marking: RS9	**♦SMP1340-004LF** Marking: RS3	**SMP1340-005LF** Marking: RS2	**SMP1340-011LF** Marking: RS	**SMP1340-074LF** Marking: RS3	**♦SMP1340-079LF**	
L_S = 1.5 nH	L_S = 1.5 nH	L_S = 1.5 nH	L_S = 1.5 nH	L_S = 1.4 nH	L_S = 0.7 nH	L_S = 0.6 nH
		SC-70				
		SMP1340-075LF Marking: RS2				
		L_S = 1.4 nH				

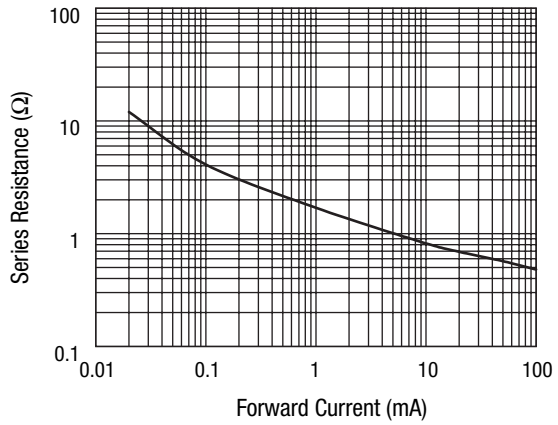
LF denotes lead (Pb)-free, RoHS-compliant packaging option as an alternative to our standard tin/lead (Sn/Pb) packaging.

Innovation to Go™
Select Linear Products (indicated by ♦) now available for purchase online.

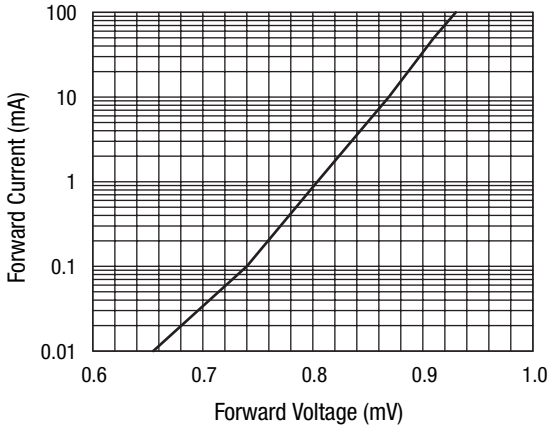
Electrical Specifications at 25 °C

Parameter	Condition	Typ.	Max.	Unit
Reverse current (I_R)	V_R = 50 V		10	µA
Capacitance (C_T)	F = 1 MHz, V = 5 V	0.21	0.3	pF
Resistance (R_S)	F = 100 MHz, I = 1 mA	1.7		Ω
Resistance (R_S)	F = 100 MHz, I = 5 mA	1	2	Ω
Resistance (R_S)	F = 100 MHz, I = 10 mA	0.85	1.2	Ω
Forward voltage (V_F)	I_F = 10 mA	0.85		V
Carrier lifetime (TI)	I_F= 10 mA	100		ns
I region width		7		µm

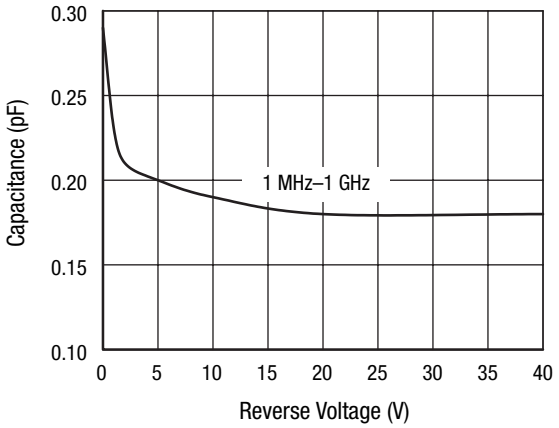
Typical Performance Data



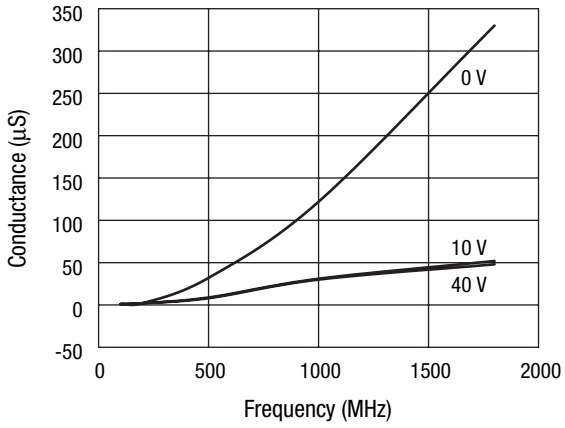
Series Resistance vs. Current @ 100 MHz



DC Characteristic



Capacitance vs. Reverse Voltage



Conductance vs. Frequency and Reverse Voltage

Resistance vs. Temperature @ 500 MHz

I_F (mA)	R -55 °C (Ω)	R -40 °C (Ω)	R -15 °C (Ω)	R 25 °C (Ω)	R 65 °C (Ω)	R 85 °C (Ω)	R 100 °C (Ω)
0.02	9.92	9.68	9.3	8.95	8.95	9.01	9.12
0.1	3.9	3.86	3.79	3.8	3.85	3.94	4.03
0.3	2.32	2.33	2.3	2.33	2.35	2.43	2.49
0.5	1.91	1.93	1.9	1.92	1.92	1.99	2.05
1	1.54	1.55	1.52	1.53	1.5	1.56	1.61
10	0.95	0.96	0.91	0.9	0.82	0.85	0.89
20	0.86	0.87	0.82	0.81	0.73	0.75	0.79
100	0.72	0.73	0.7	0.68	0.59	0.62	0.65

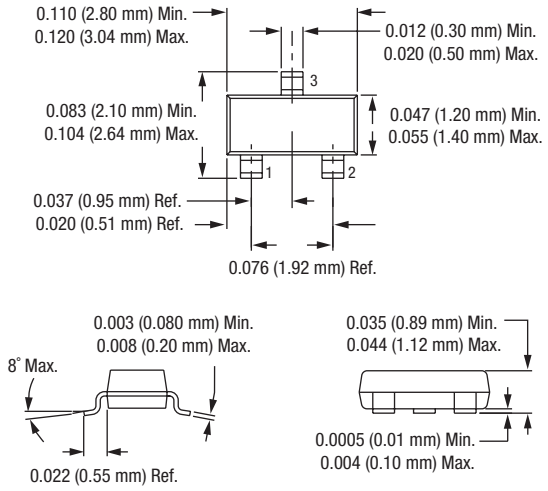
Recommended Solder Reflow Profiles

Refer to the *"Recommended Solder Reflow Profile"* Application Note.

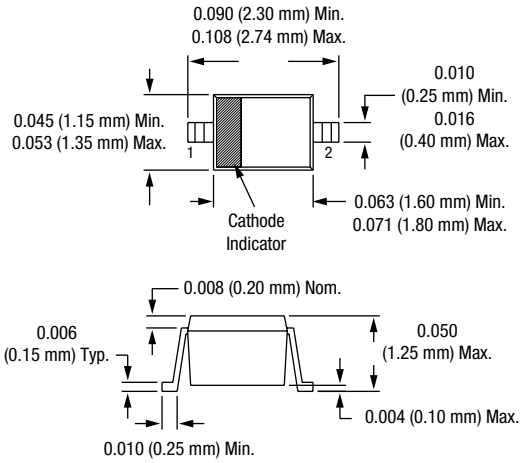
Tape and Reel Information

Refer to the *"Discrete Devices and IC Switch/Attenuators Tape and Reel Package Orientation"* Application Note.

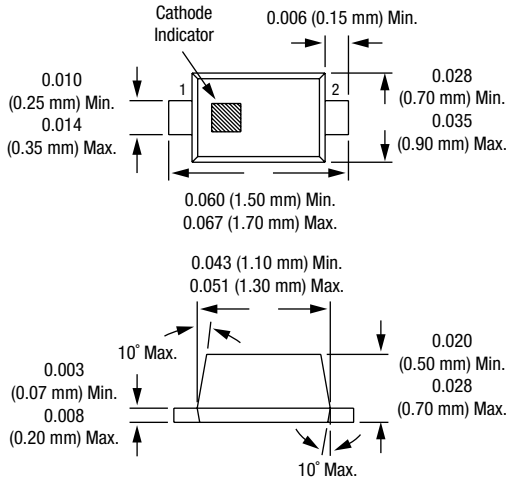
SOT-23



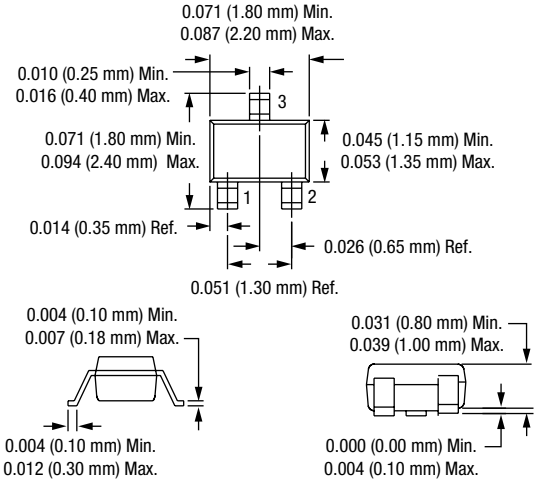
SOD-323



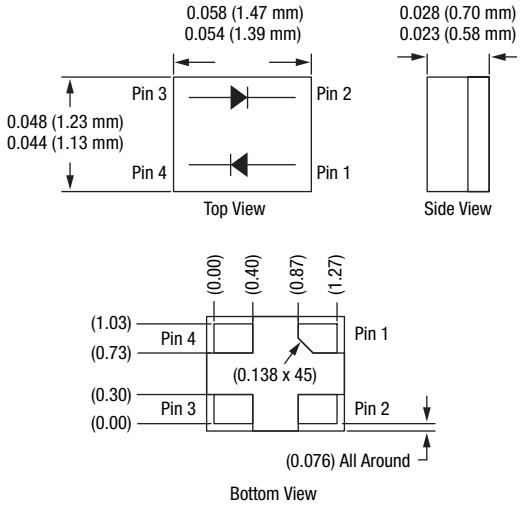
SC-79



SC-70



LGA



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