

DATA SHEET

Silicon PIN Diodes in Hermetic Surface Mount Package

Features

- PIN diodes for switching and attenuator applications
- Hermetic ceramic package, 1.83 x 1.43 x 1.0 mm
- Very low parasitic impedance
- Low thermal impedance
- Usable as high as 10 GHz
- Operating temperature range -55 °C to 150 °C
- ESD Class 1B, human body model
- Low inductance 0.48 nH
- Available lead (Pb)-free, RoHS-compliant, and Green™ MSL-1 @ 260 °C per JEDEC J-STD-020



Description

The family of proven silicon PIN diodes is packaged in a hermetic, ceramic package. This package offers excellent, very low parasitic inductance and capacitance for wide bandwidth, high frequency operation. It has low thermal impedance and meets fine and gross leak requirements for excellent reliability. Its small form factor, 1.83 x 1.43 x 1.0 mm, compares favorably to that of the smallest plastic packages.

This package meets Skyworks definition of Green: it is lead (Pb)-free, fully complies with current RoHS requirements and contains no halogens and no antimony (Sb).

SMP1340-108, SMP1345-108 and SMP1352-108 are optimized for use in switching circuits. The SMP1352-108 can also be used in attenuator circuits.

SMP1302-108 and SMP1304-108 offer thicker I layers, making them ideal for low-distortion attenuator circuits.

The CLA4605-108 and CLA4607-108 are well suited for limiter applications.

The diodes available in this package can operate over the temperature range of -55 °C to 150 °C.

NEW



Skyworks Green™ products are lead (Pb)-free, RoHS (Restriction of Hazardous Substances)-compliant, conform to the EIA/EICTA/JEITA Joint Industry Guide (JIG) Level A guidelines, and are free from antimony trioxide and brominated flame retardants.

Electrical Specifications

T = 25 ° C, unless otherwise noted

Part Number	Minimum Reverse Breakdown Voltage ⁽¹⁾ I _R = 10 μA (V)	Nominal I Layer Thickness (μm)	Typical Total Capacitance V _R = 0 V & f = 1 MHz (pF)	Maximum Total Capacitance V _R = 10 V & f = 1 MHz (pF)	Typical Forward Voltage I _F = 10 mA (mV)	Maximum Series Resistance I _F = 1 mA & f = 100 MHz (Ω)	Maximum Series Resistance I _F = 10 mA & f = 100 MHz (Ω)	Typical Minority Lifetime I _F = 10 mA (ns)
Switching Applications								
SMP1340-108	50	7	0.26	0.325	880	1.7 typ.	1.2	100
SMP1345-108	50	10	–	0.285	850	3.5 typ.	2	100
SMP1352-108	200	50	–	0.425 @ 20 V	825	8 typ.	2.8	1000
Attenuator Applications								
SMP1302-108	200	50	–	0.36 @ 30 V	800	20	3	700
SMP1304-108	200	100	–	0.36 @ 30 V	800	50	7	1000
Limiter Applications								
CLA4605-108	30	2	–	0.28	–	4 typ.	2.7	–
CLA4607-108	120	7	0.27	–	–	–	2.5	50

1. **CAUTION:** It is not recommended to drive a PIN diode into avalanche breakdown. Permanent damage may result.

Absolute Maximum Ratings

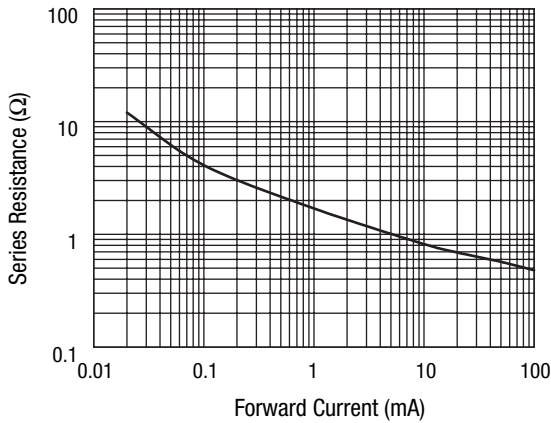
Characteristic	Value
Reverse voltage	Minimum Reverse Breakdown Voltage
Forward current	150 mA
Dissipated power at 25 °C	250 mW
Operating temperature	-55 °C to +150 °C
Storage temperature	-65 °C to +200 °C

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.

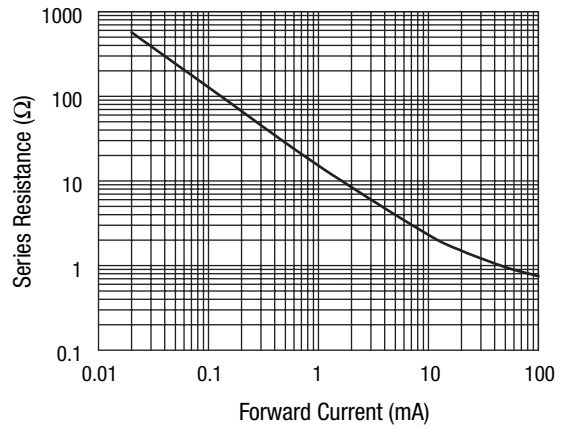
Typical Performance Data

SMP1340



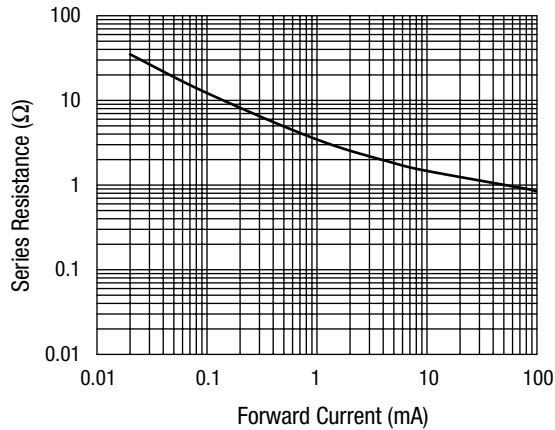
Series Resistance vs. Current @ 100 MHz

SMP1302



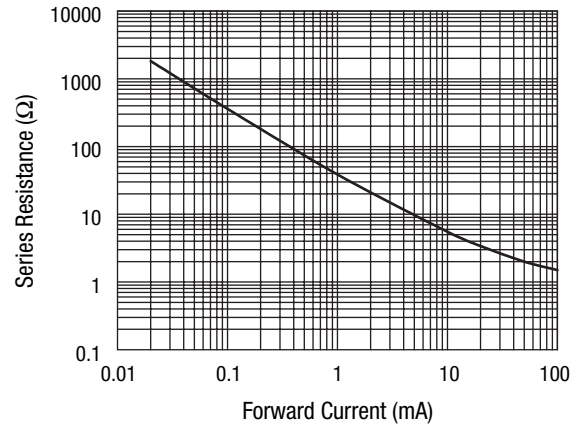
Series Resistance vs. Current @ 100 MHz

SMP1345



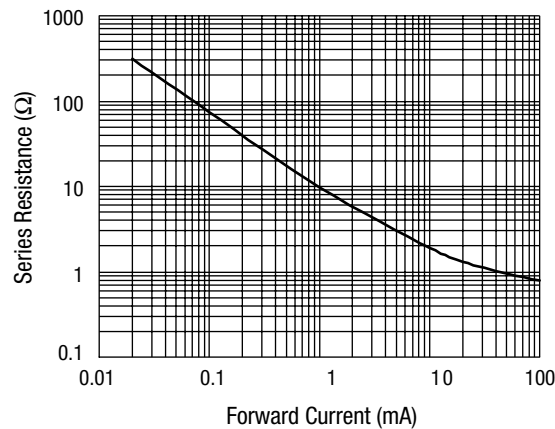
Series Resistance vs. Current @ 100 MHz

SMP1304



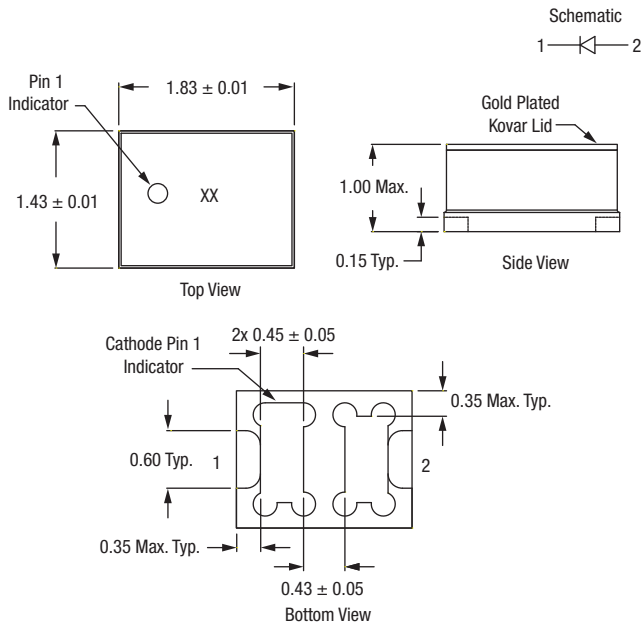
Series Resistance vs. Current @ 100 MHz

SMP1352

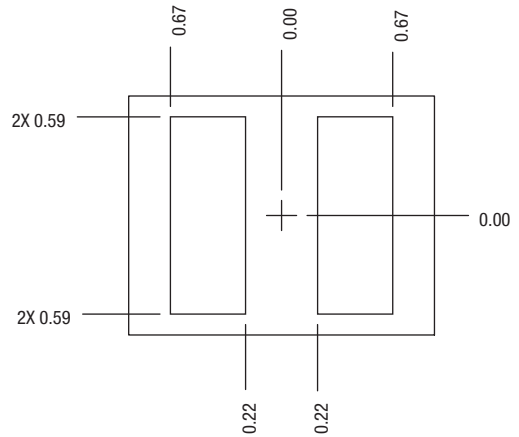


Series Resistance vs. Current @ 100 MHz

-108 Package Outline



-108 Land Pattern



XX marking denotes last 2 digits of part numbers.
 Example: SMP1340 is marked 40.

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