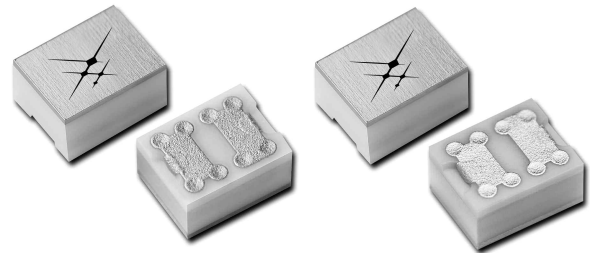


DATA SHEET

Silicon Schottky Diodes in Hermetic Surface Mount Package

Features

- Medium, low and ZBD barrier heights available
- 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 0, 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 Schottky 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).

The SMS3922-108 and SMS3923-108 are silicon medium barrier Schottky diodes suitable for use in mixers and high level detector circuits.

The SMS7621-108 is a silicon low barrier Schottky diode, suitable for use in small signal, sensitive detector circuits.

The SMS7630-109 is a silicon Schottky zero bias detector diode (ZBD) diode, suitable for use in the most sensitive detector circuits.

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	Barrier Height	Minimum Reverse Breakdown Voltage $I_R = 10 \mu A$ (V)	Maximum Reverse Leakage Current $V_R = 15 V$ (nA)	Total Capacitance $V_R = 0 V$ & $f = 1 MHz$ (pF)		Forward Voltage $I_F = 1 mA$ (mV)		Maximum Forward Voltage, $I_F = 35 mA$ (mV)	ESD Rating, Human Body Model
				Min.	Max.	Min.	Max.		
SMS3922-108	Med./Low	8	100 @ 1.0 V		1.5	280	340	450 @ 10 mA	Class 0
SMS3923-108	Medium	20	500	0.875	1.275	310	370	1000	Class 0

Part Number	Barrier Height	Minimum Reverse Breakdown Voltage $I_R = 10 \mu A$ (V)	Maximum Total Capacitance $V_R = 0 V$ & $f = 1 MHz$ (pF)	Forward Voltage $I_F = 1 mA$ (mV)		Maximum Slope Resistance $I_F = 5 mA$ (Ω)	ESD Rating, Human Body Model
				Min.	Max.		
SMS7621-108	Low	2	0.325	260	320	18	Class 0

Part Number	Barrier Height	Minimum Reverse Breakdown Voltage $I_R = 100 \mu A$ (V)	Typical Total Capacitance $V_R = 0.15 V$ & $f = 1 MHz$ (pF)	Forward Voltage $I_F = 100 \mu A$ (mV)		Forward Voltage $I_F = 1 mA$ (mV)		Typical Video Resistance (Ω)	ESD Rating, Human Body Model
				Min.	Max.	Min.	Max.		
SMS7630-109	ZBD	1	0.50	65	100	135	240	5000	Class 0

Absolute Maximum Ratings

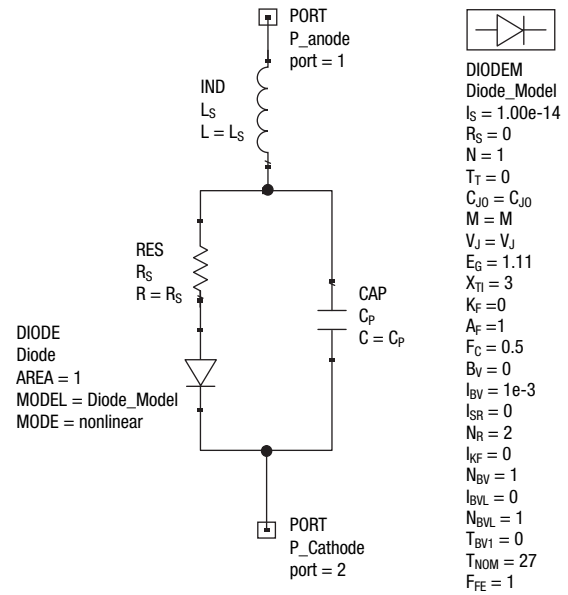
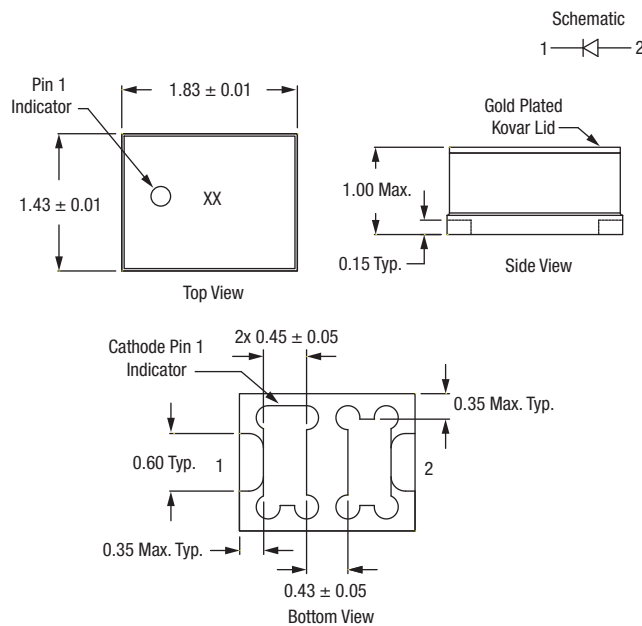
Characteristic	Value
Reverse voltage	Minimum Reverse Breakdown Voltage
Forward current	100 mA
Dissipated power at 25 °C	250 mW
Operating temperature	-55 °C to +150 °C
Storage temperature	-65 °C to +200 °C
Electrostatic Discharge (ESD) Human Body Mode (HBM)	Class 0
Electrostatic Discharge (ESD) Charged Device Model (CDM)	Class C4

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.

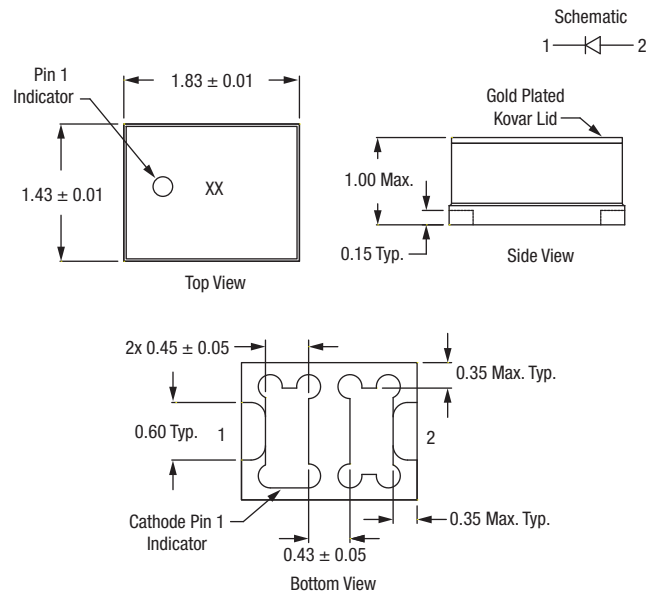
CAUTION: Although this device is designed to be as robust as possible, ESD (Electrostatic Discharge) can damage this device. This device must be protected at all times from ESD. Static charges may easily produce potentials of several kilovolts on the human body or equipment, which can discharge without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

SPICE Model Parameters

Parameter	Unit	SMS3923	SMS7621	SMS7630	SMS3922
IS	A	5e-9	4e-8	5e-6	3e-8
RS	Ω	11	12	20	9
N		1.05	1.05	1.05	1.08
TT	s	8e-11	1e-11	1e-11	8e-11
CJO	pF	0.9	0.10	0.14	0.9
M		0.24	0.35	0.40	0.26
EG	eV	0.69	0.69	0.69	0.69
XTI		2	2	2	2
FC		0.5	0.5	0.5	0.5
BV	V	46	3	2	20
IBV	A	1e-5	1e-5	1e-4	1e-5
VJ	V	0.64	0.51	0.34	0.595
LS	nH	0.7			
CP	pF	0.07			

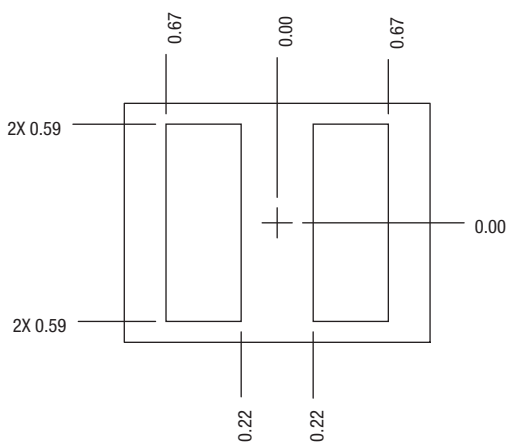
SPICE Model**-108 Package Outline**

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

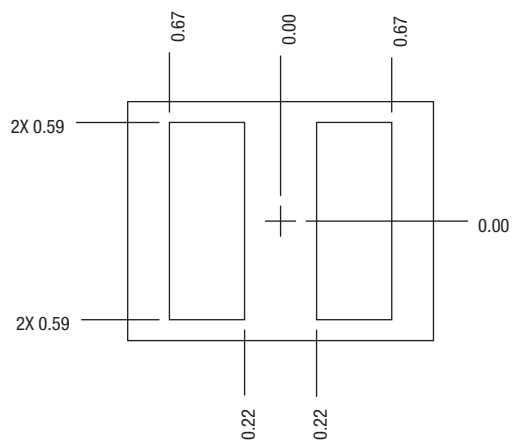
-109 Package Outline

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

-108 Land Pattern



-109 Land Pattern



Copyright © 2008, Skyworks Solutions, Inc. All Rights Reserved.

Information in this document is provided in connection with Skyworks Solutions, Inc. ("Skyworks") products or services. These materials, including the information contained herein, are provided by Skyworks as a service to its customers and may be used for informational purposes only by the customer. Skyworks assumes no responsibility for errors or omissions in these materials or the information contained herein. Skyworks may change its documentation, products, services, specifications or product descriptions at any time, without notice. Skyworks makes no commitment to update the materials or information and shall have no responsibility whatsoever for conflicts, incompatibilities, or other difficulties arising from any future changes.

No license, whether express, implied, by estoppel or otherwise, is granted to any intellectual property rights by this document. Skyworks assumes no liability for any materials, products or information provided hereunder, including the sale, distribution, reproduction or use of Skyworks products, information or materials, except as may be provided in Skyworks Terms and Conditions of Sale.

THE MATERIALS, PRODUCTS AND INFORMATION ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, INCLUDING FITNESS FOR A PARTICULAR PURPOSE OR USE, MERCHANTABILITY, PERFORMANCE, QUALITY OR NON-INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHT; ALL SUCH WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED. SKYWORKS DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. SKYWORKS SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING BUT NOT LIMITED TO ANY SPECIAL, INDIRECT, INCIDENTAL, STATUTORY, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS THAT MAY RESULT FROM THE USE OF THE MATERIALS OR INFORMATION, WHETHER OR NOT THE RECIPIENT OF MATERIALS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Skyworks products are not intended for use in medical, lifesaving or life-sustaining applications, or other equipment in which the failure of the Skyworks products could lead to personal injury, death, physical or environmental damage. Skyworks customers using or selling Skyworks products for use in such applications do so at their own risk and agree to fully indemnify Skyworks for any damages resulting from such improper use or sale.

Customers are responsible for their products and applications using Skyworks products, which may deviate from published specifications as a result of design defects, errors, or operation of products outside of published parameters or design specifications. Customers should include design and operating safeguards to minimize these and other risks. Skyworks assumes no liability for applications assistance, customer product design, or damage to any equipment resulting from the use of Skyworks products outside of stated published specifications or parameters.

Skyworks, the Skyworks symbol, and "Breakthrough Simplicity" are trademarks or registered trademarks of Skyworks Solutions, Inc., in the United States and other countries. Third-party brands and names are for identification purposes only, and are the property of their respective owners. Additional information, including relevant terms and conditions, posted at www.skyworksinc.com, are incorporated by reference.