

DATA SHEET

SMS3925 Series: Low Capacitance, High Voltage Schottky Diodes

Applications

- Wireless handsets and general purpose switching systems

Features

- SC-79 and miniature SOD-882 packages
- Packages rated MSL1, 260 °C per JEDEC J-STD-020

NEW



Skyworks Green™ products are RoHS (Restriction of Hazardous Substances)-compliant, conform to the EIA/EICTA/JEITA Joint Industry Guide (JIG) Level A guidelines, are halogen free according to IEC-61249-2-21, and contain <1,000 ppm antimony trioxide in polymeric materials.





Description

The SMS3925 series are 40 V, 0.6 pF RF Schottky diodes designed for use as level detectors in wireless handsets and for general purpose low-cost, high volume switching applications.

Table 1 describes the various packages and markings of the SMS3925 series.

Table 1. SMS3925 Series Packaging and Marking

	
Single	Single
SC-79 Green™	SOD-882 Green™
SMS3925-079LF Marking: Cathode	SMS3925-040LF Marking: 2
$L_s = 0.7 \text{ nH}$	$L_s = 0.45 \text{ nH}$



The Pb-free symbol or "LF" in the part number denotes a lead-free, RoHS-compliant package unless otherwise noted as Green™. Tin/lead (Sn/Pb) packaging is not recommended for new designs.

Table 2. SMS3925 Series Absolute Maximum Ratings

Parameter	Symbol	Minimum	Maximum	Units
Reverse voltage	V_R		40	V
Forward current	I_F		50	mA
Power dissipation	P_D		250	mW
Storage temperature	T_{STG}	-65	+150	°C
Operating temperature	T_A	-65	+150	°C
Junction temperature	T_J		+150	°C

Note: Exposure to maximum rating conditions for extended periods may reduce device reliability. There is no damage to device with only one parameter set at the limit and all other parameters set at or below their nominal value. Exceeding any of the limits listed here may result in permanent damage to the device.

CAUTION: Although this device is designed to be as robust as possible, Electrostatic Discharge (ESD) 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 should be used at all times. The SMS3925 Series of Schottky diodes are rated Class 0 using Human Body Model (HBM) testing.

Table 3. SMS3925 Series Electrical Specifications (Note 1)
($T_A = +25\text{ °C}$, Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typical	Max	Units
Reverse current	I_R	$V_R = 40\text{ V}$			10	μA
Capacitance (Note 2)	C_T	$F = 1\text{ MHz}, V_R = 0\text{ V}$		0.48	0.60	pF
Forward voltage	V_F	$I_F = 1\text{ mA}$	0.57	0.62	0.67	V

Note 1: Performance is guaranteed only under the conditions listed in this Table.

Note 2: Total capacitance, C_T , includes junction capacitance (C_J) and package capacitance (C_P).

Electrical and Mechanical Specifications

The absolute maximum ratings of the SMS3925 series are provided in Table 2. Electrical specifications are provided in Table 3. The associated SPICE model parameters are provided in Table 4.

The total capacitance and reverse voltage are plotted in Figure 1. Package dimensions are shown in Figures 2 and 4, and tape and reel dimensions are provided in Figures 3 and 5.

Package and Handling Information

Instructions on the shipping container label regarding exposure to moisture after the container seal is broken must be followed.

Otherwise, problems related to moisture absorption may occur when the part is subjected to high temperature during solder assembly.

The SMS3925 series are rated to Moisture Sensitivity Level 1 (MSL1) at 260 °C. They can be used for lead or lead-free soldering. For additional information, refer to the Skyworks Application Note, *Solder Reflow Information*, document number 200164.

Care must be taken when attaching this product, whether it is done manually or in a production solder reflow environment. Production quantities of this product are shipped in a standard tape and reel format.

Table 4. SPICE Model Parameters

Parameter	Units	SMS3925 Series
Is	A	1.8E-09
Rs	Ω	5.4
N	–	1.7
TT	sec	8E-11
CJo	pF	0.36
M	–	0.24
Eg	eV	0.69
XTI	–	2
Fc	–	0.5
Bv	V	58
Ibv	A	1E-05
VJ	V	0.8

Typical Performance Characteristics

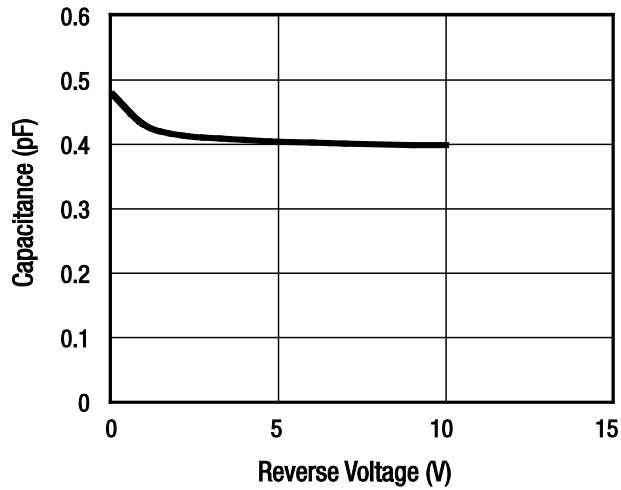


Figure 1. Total Capacitance vs Reverse Voltage

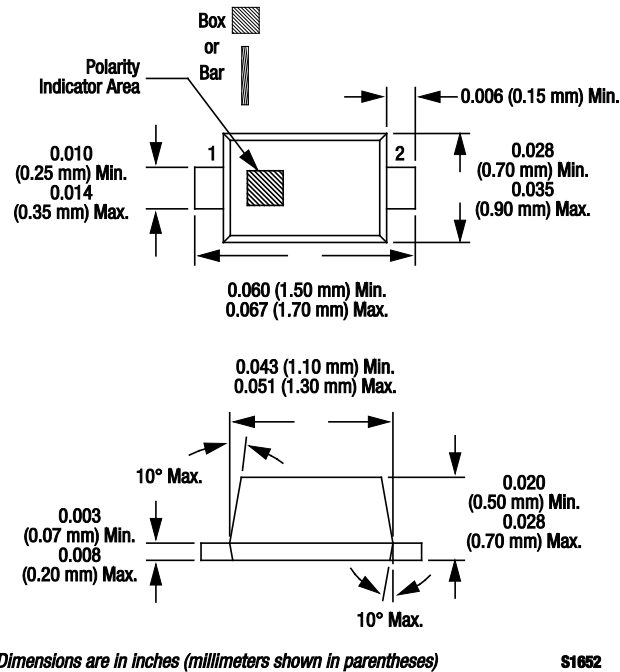
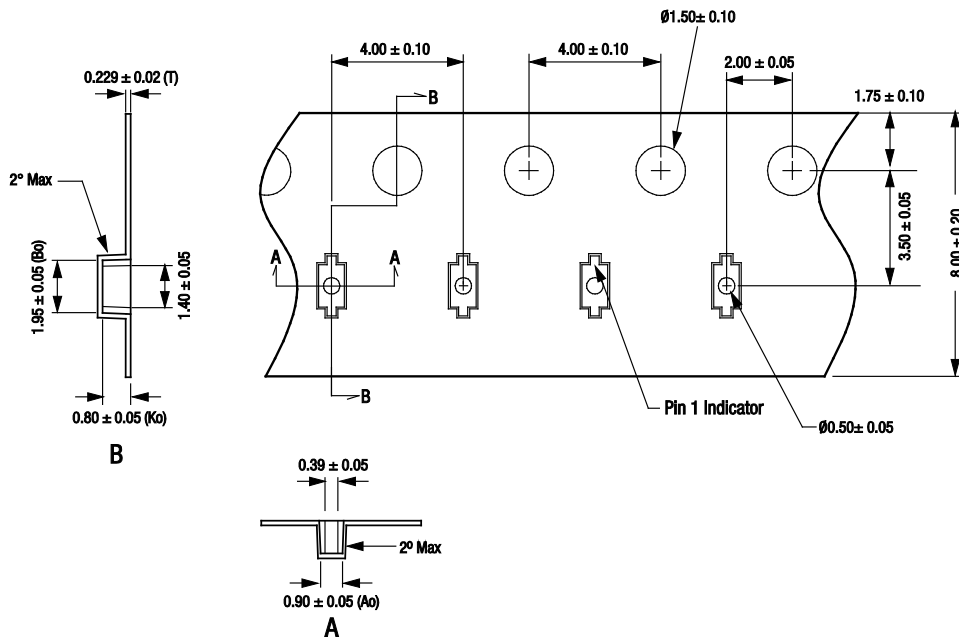
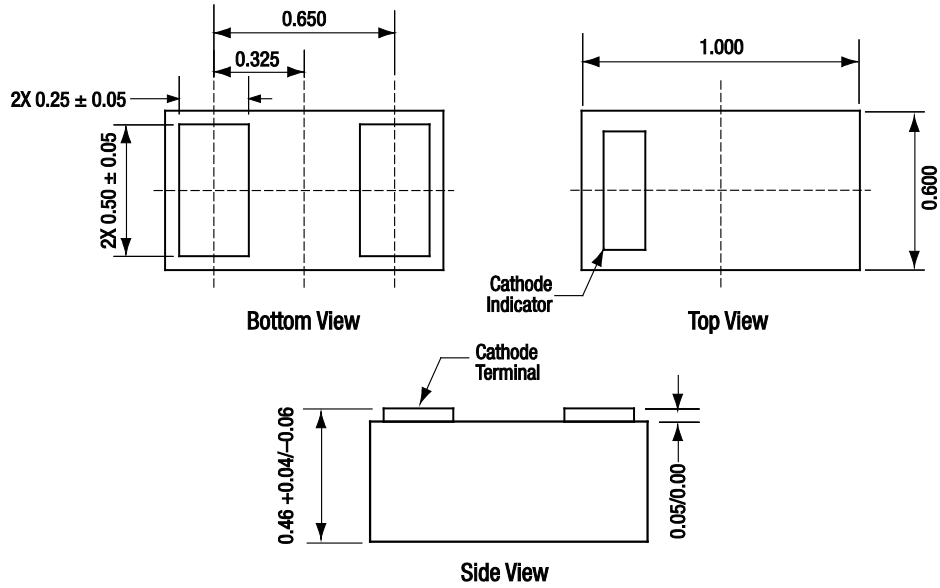


Figure 2. SC-79 Package Dimensions



- Notes:
1. Carrier tape: black conductive polycarbonate or polystyrene.
 2. Cover tape material: transparent conductive PSA.
 3. Cover tape size: 5.4 mm width.
 4. ESD-surface resistivity is $\leq 1 \times 10^8$ Ohms/square per EIA, JEDEC TNR Specification.
 4. All measurements are in millimeters.

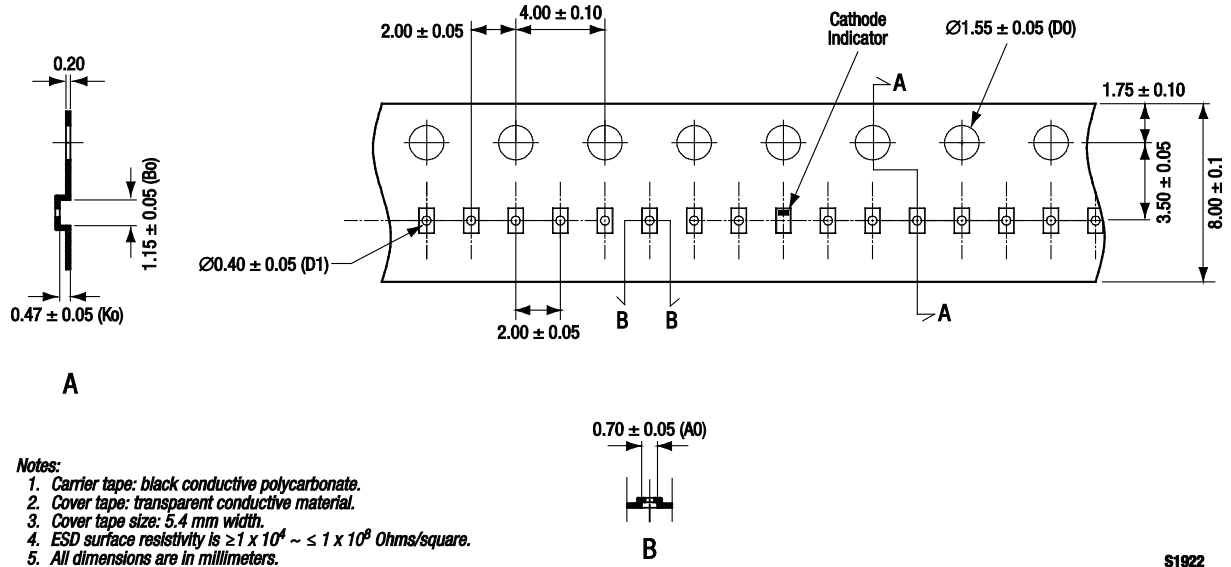
Figure 3. SC-79 Tape and Reel Dimensions



All dimensions in millimeters

S1892

Figure 4. SOD-882 Package Dimensions



S1922

Figure 5. SOD-882 Tape and Reel Dimensions

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