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DATA SHEET

# SMS3925-040LF: Low Capacitance, High Voltage Schottky Diode

## Applications

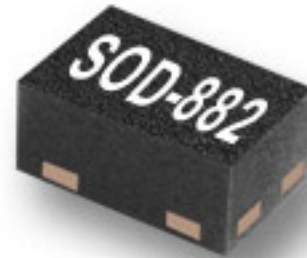
- Wireless handsets and general purpose switching systems

## Features

- Miniature SOD-882 package
- Package is rated MSL1, 260 °C per JEDEC J-STD-020



Skyworks Green™ products are compliant with all applicable legislation and are halogen-free. For additional information, refer to *Skyworks Definition of Green™*, document number SQ04-0074.




## Description

The SMS3925-040LF is a 40 V, 0.6 pF RF Schottky diode designed for use as a level detector in wireless handsets and for general purpose low-cost, high-volume switching applications.

Table 1 describes the package and marking of the SMS3925-040LF.

**Table 1. SMS3925-040LF Packaging and Marking**


Single
SOD-882 Green™
<b>SMS3925-040LF</b> Marking: 2
$L_s = 0.45 \text{ nH}$



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.

### Electrical and Mechanical Specifications

The absolute maximum ratings of the SMS3925-040LF 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 and tape and reel dimensions are shown in Figures 2 and 3, respectively.

### 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 SMS3925-040LF is rated to Moisture Sensitivity Level 1 (MSL1) at 260 °C. It 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 2. SMS3925-040LF Absolute Maximum Ratings (Note 1)**

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
Electrostatic discharge: Human Body Model (HBM), Class 0	ESD		<250	V

**Note 1:** 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.

**Table 3. SMS3925-040LF 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	$\mu\text{A}$
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

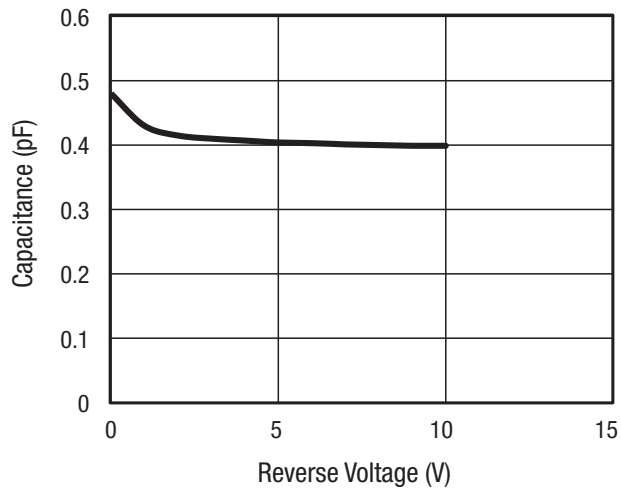
**Note 1:** Performance is guaranteed only under the conditions listed in this table.

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

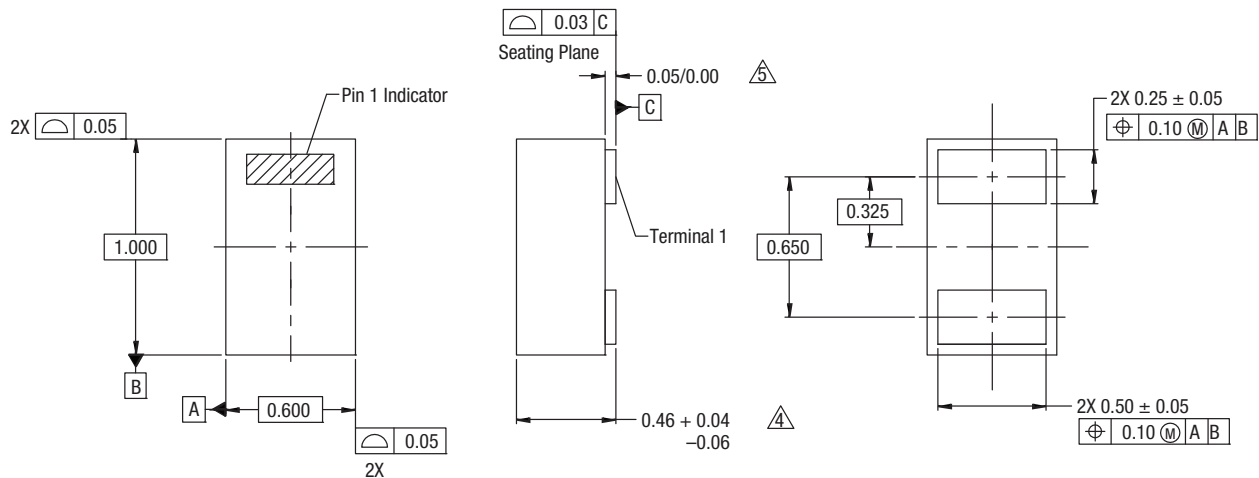
**Table 4. SPICE Model Parameters**

Parameter	Units	SMS3925-040LF
Is	A	1.8E-09
Rs	$\Omega$	5.4
N	–	1.7
TT	sec	8E-11
Cj0	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



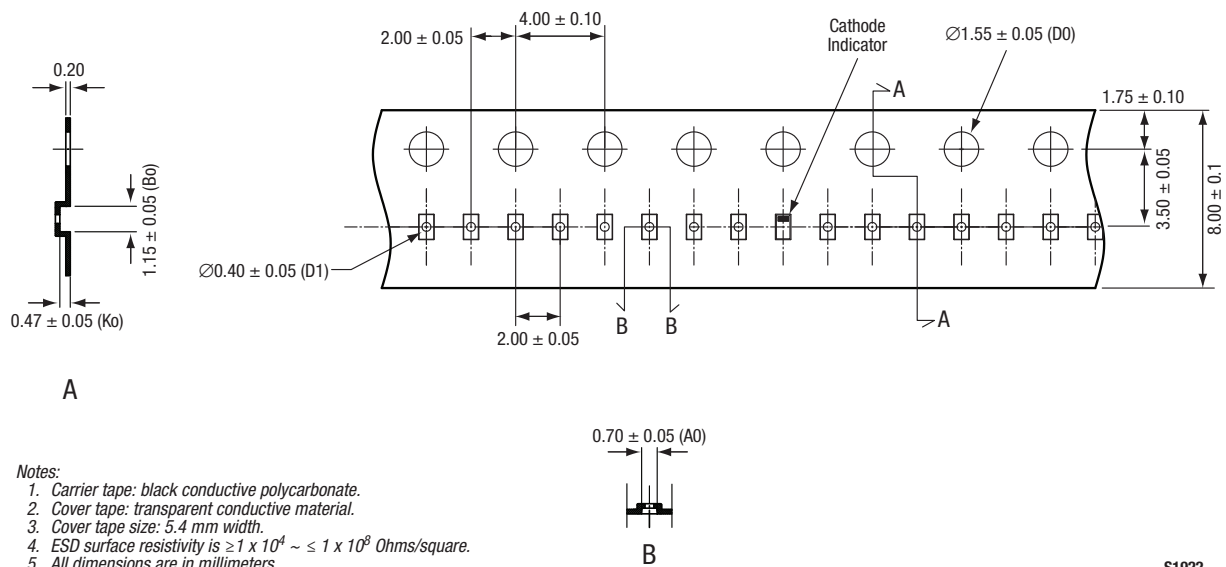
**Figure 1. Total Capacitance vs Reverse Voltage**



- NOTES:
1. All measurements are in millimeters.
  2. Dimensions and tolerances according to ASME Y14.5M-1994.
  3. These packages are used principally for discrete devices.
  4. This dimension includes stand-off height and package body thickness, but does not include attached features, e.g., external heatsink or chip capacitors. An integral heatslug is not considered an attached feature.
  5. This dimension is primarily terminal plating, but does not include small metal protrusion.

Y1410

Figure 2. SOD-882 Package Dimensions



- Notes:
1. Carrier tape: black conductive polycarbonate.
  2. Cover tape: transparent conductive material.
  3. Cover tape size: 5.4 mm width.
  4. ESD surface resistivity is  $\geq 1 \times 10^4 \sim \leq 1 \times 10^8$  Ohms/square.
  5. All dimensions are in millimeters.

S1922

Figure 3. SOD-882 Tape and Reel Dimensions

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