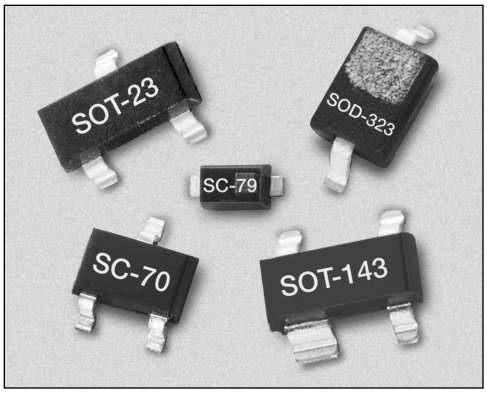
Surface Mount General Purpose Schottky Diodes

Alpha

Features

- Tight Parameter Distribution
- Available as Singles and Pairs
- 100% DC Tested
- Designed for High Volume Commercial Applications
- Available in Tape and Reel Packaging



Description

This series of 8, 20 and 70 V rated low cost plastic packaged Schottky diodes are designed for general purpose use in RF applications as detectors, mixers and switches and in digital pulse forming applications. All diodes are fully characterized including SPICE model parameters and deliver tight parameter distribution, minimizing performance variability. They are available in SC-70, SC-79, SOD-323, SOT-23 and SOT-143 packages. Wiring configurations include singles, common cathode, series pairs and unconnected pairs. Available in tape and reel for pick and place manufacturing.

Absolute Maximum Ratings

Characteristic	Value
Reverse Voltage (V_R)	Rated V_B
Forward Current - Steady State (I_F)	50 mA
Forward Current - 1 mS Pulse (I_F)	1A
Power Dissipation (P_D)	75 mW
Storage Temperature (T_{ST})	-65°C to +150°C
Operating Temperature (T_{OP})	-65°C to +150°C
Junction Temperature (T_J)	150°C
Soldering Temperature	260°C for 5 Seconds
ESD Human Body Model	Class 1B

Single	Single	Single	Common Cathode	Series Pair	Unconnected Pair
SC-79	SOD-323	SOT-23	SOT-23	SOT-23	SOT-143
♦ **SMS3922-079**	♦ **SMS3922-011**	♦ **SMS3922-001**	♦ **SMS3922-004**	♦ **SMS3922-005**	♦ **SMS3922-015**
Cathode Mark	Cathode Mark	Marking: SA1	Marking: SA3	Marking: SA2	Marking: SA7
♦ **SMS3923-079**	♦ **SMS3923-011**	♦ **SMS3923-001**	♦ **SMS3923-004**	♦ **SMS3923-005**	♦ **SMS3923-015**
Cathode Mark	Cathode Mark	Marking: SB1	Marking: SB3	Marking: SB2	Marking: SB7
♦ **SMS3924-079**	♦ **SMS3924-011**	♦ **SMS3924-001**	♦ **SMS3924-004**	♦ **SMS3924-005**	♦ **SMS3924-015**
Cathode Mark	Cathode Mark	Marking: SC1	Marking: SC3	Marking: SC2	Marking: SC7
L_S = 0.7 nH	L_S = 1.5 nH	L_S = 1.5 nH	L_S = 1.5 nH	L_S = 1.5 nH	L_S = 1.5 nH
				SC-70	
				♦ **SMS3922-075**	
				Marking: SA2	
				♦ **SMS3923-075**	
				Marking: SB2	
				♦ **SMS3924-075**	
				Marking: SC2	
				L_S = 1.4 nH	

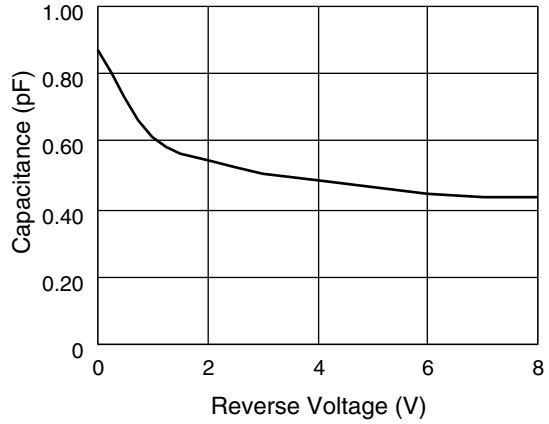
♦ Available through distribution.

Specifications subject to change without notice. 1/00A

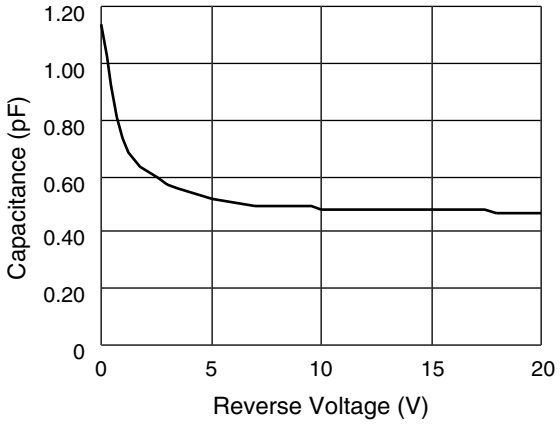
Electrical Specifications at 25°C

Part Number	V_B @ 10 µA (V)	I_R	C_T @ 0 V (pF)	V_F @ 1 mA (mV)	Pair Configuration (b) V_F @ 1 mA (mV)	V_F
	Min.				Max.	Max.
SMS3922 Series	8	@ 1 V < 100 nA	0.63–1.03	280–340	10	@ 10 mA < 450 mV
SMS3923 Series	20	@ 15 V < 500 nA	0.83–1.23	310–370	10	@ 35 mA < 1000 mV
SMS3924 Series	70	@ 50 V < 200 nA	1.43–1.83	490–550	10	@ 15 mA < 1000 mV

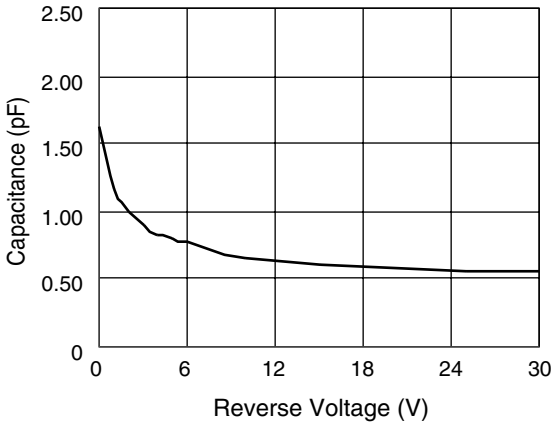
Typical Performance Data



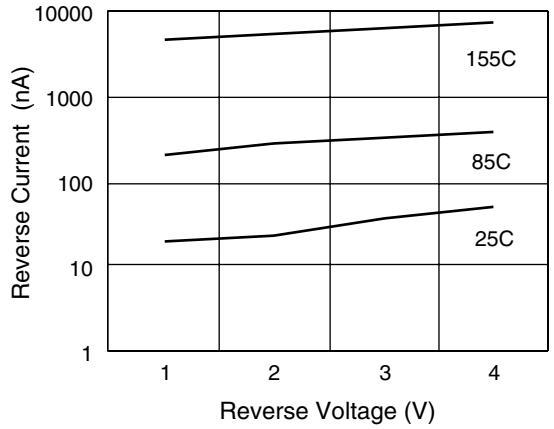
SMS3922 Total Capacitance vs. Reverse Voltage



SMS3923 Total Capacitance vs. Reverse Voltage



SMS3924 Total Capacitance vs. Reverse Voltage

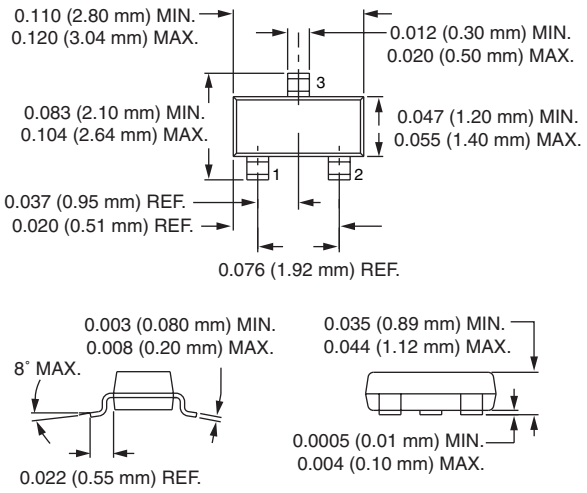


SMS3922 Reverse Current vs. Reverse Voltage

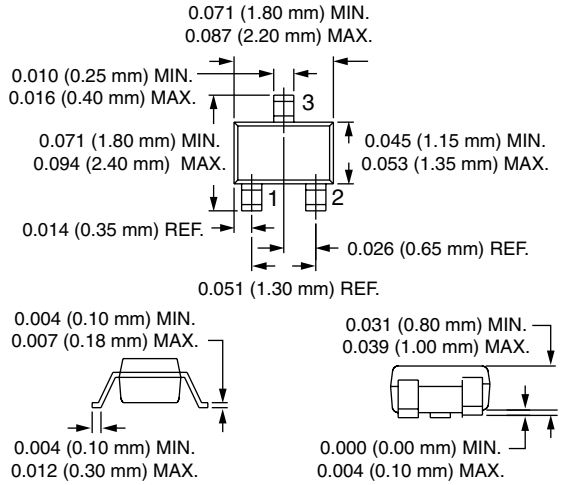
SPICE Model Parameters

Parameter	Unit	SMS3922	SMS3923	SMS3924
IS	A	3E-8	5E-9	2E-11
R_S	Ω	9	11	11
N		1.08	1.05	1.08
TT	S	8E-11	8E-11	8E-11
C_{J0}	pF	0.7	0.9	1.5
M		0.26	0.24	0.4
E_G	eV	0.69	0.69	0.69
XTI		2	2	2
F_C		0.5	0.5	0.5
B_V	V	20	46	100
I_{BV}	A	1E-5	1E-5	1E-5
V_J	V	0.595	0.64	0.84

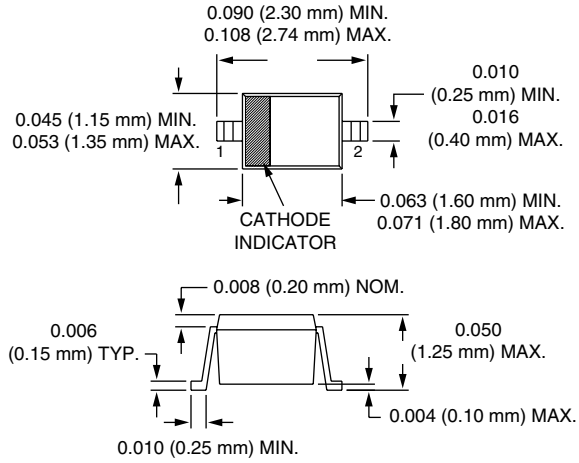
SOT-23



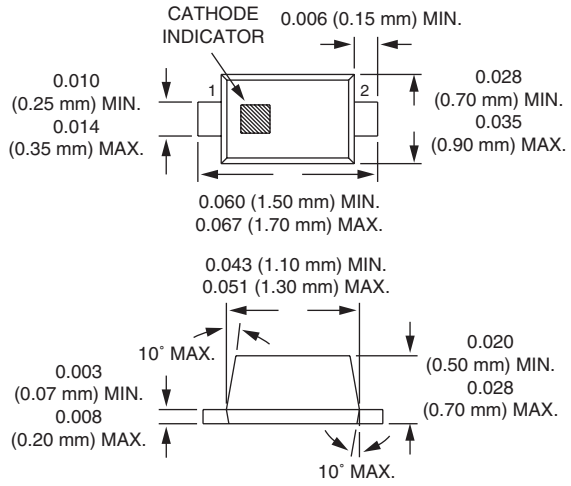
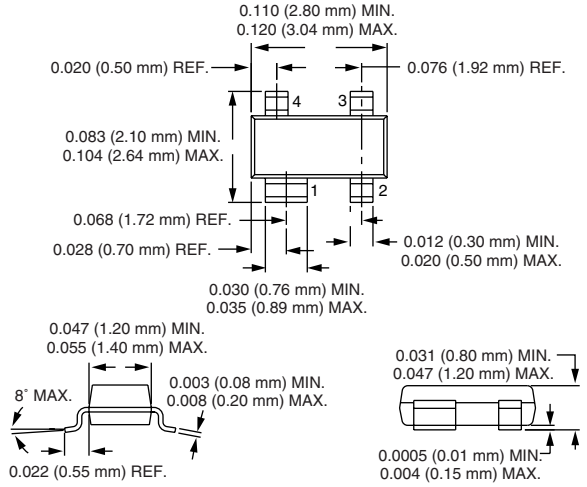
SC-70



SOD-323



SC-79



SOT-143