Schottky Barrier Diode

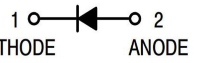
These Schottky barrier diodes are designed for high−speed switching applications, circuit protection, and voltage clamping. Extremely low forward voltage reduces conduction loss. Miniature surface mount package is excellent for hand−held and portable applications where space is limited.

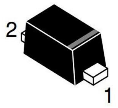
Features

- Extremely Fast Switching Speed
- Extremely Low Forward Voltage − 0.28 V (Typ) @ I_F = 1.0 mA
- Low Reverse Current
- Lead−Free Plating
- This is a Pb−Free Device

NSR0140P2T5G

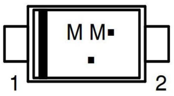
40 V SCHOTTKY BARRIER DIODE





SOD−923
CASE 514AA
PLASTIC

MARKING DIAGRAM



M = Specific Device Code*
(Character is rotated 270° clockwise)
M = Month Code
▪ = Pb−Free Package
(Note: Microdot may be in either location)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RM}	40	V
Continuous Reverse Voltage (DC)	V_R	30	V
Continuous Forward Current (DC)	I_F	70	mA
Non−Repetitive Peak Forward Surge Current	I_{FSM}	500	mA
ESD Rating: Class 1C per Human Body Model Class A per Machine Model			

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR−5 Board, (Note 1) T_A = 25°C Derate above 25°C	P_D	100 1.0	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	1000	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	−55 to +125	°C

1. FR−5 Minimum Pad.

ORDERING INFORMATION

Device	Package	Shipping†
NSR0140P2T5G	SOD−923 (Pb−Free)	8000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μA)	$V_{(BR)R}$	30	–	–	V
Total Capacitance (V_R = 1.0 V, f = 1.0 MHz)	C_T	–	2.0	2.5	pF
Reverse Leakage (V_R = 30 V)	I_R	–	300	500	nA
Forward Voltage (I_F = 1.0 mA)	V_F	–	0.28	0.35	V

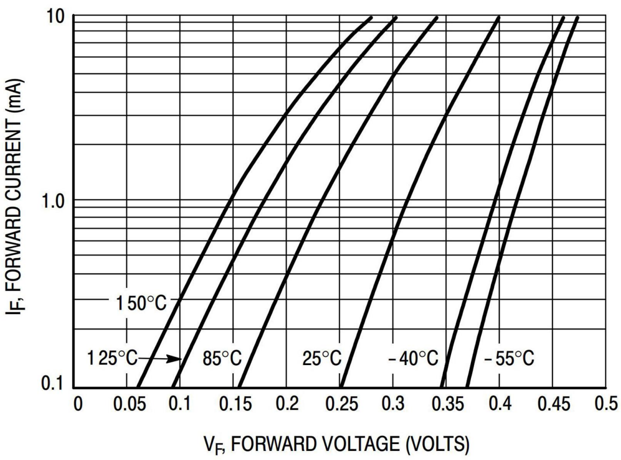


Figure 1. Typical Forward Voltage

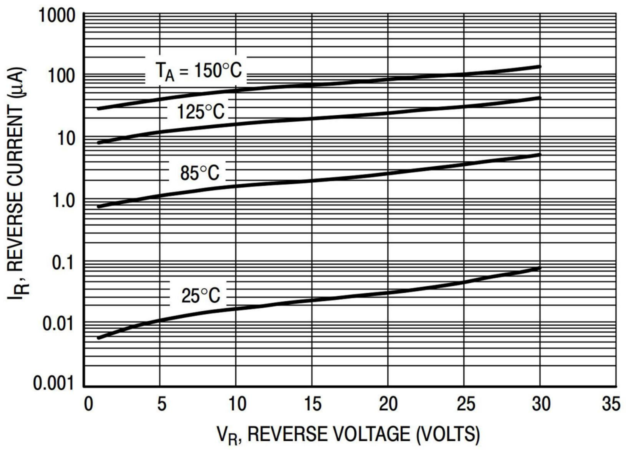


Figure 2. Reverse Current versus Reverse Voltage

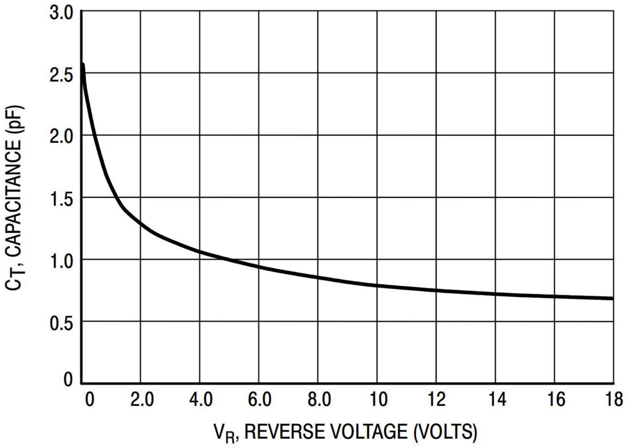
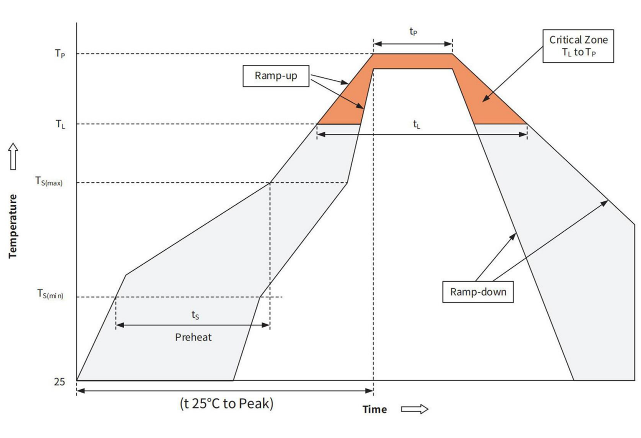


Figure 3. Typical Capacitance

Ordering Information

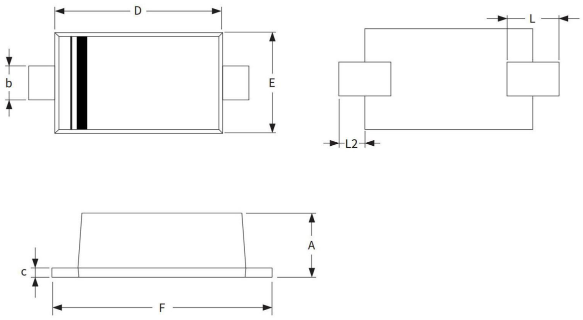
PREFERED P/N	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
	SOD-923	1.00×0.60×0.37	7"	8000

Recommended Soldering Conditions



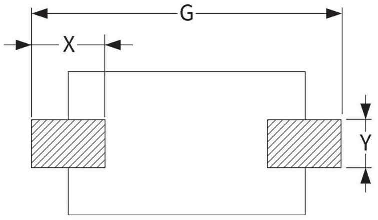
Profile Feature		Pb-Free Assembly
Pre-heat	Temperature Min ($T_{S(min)}$)	+150°C
	Temperature Max($T_{S(max)}$)	+200°C
	Time (Min to Max) (t_S)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C /sec. Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C /sec. Max
Reflow	Temperature(T_L)(Liquid us)	+217°C
	Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		20-40secs
Ramp-down Rate		6°C /sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

Package Outline Dimensions (SOD-923)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.34	0.40	0.013	0.016
b	0.15	0.25	0.006	0.010
c	0.07	0.17	0.003	0.007
D	0.75	0.85	0.030	0.033
E	0.55	0.65	0.022	0.026
F	0.95	1.05	0.037	0.041
L	0.19REF		0.007REF	
L2	0.05	0.15	0.002	0.006

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
G	-	1.20		0.047
X	0.36	-	0.014	-
Y	0.25	-	0.010	-