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Schottky barrier diodes are optimized for very low forward voltage drop and low leakage current and are used in a wide range of dc−dc converter, clamping and protection applications in portable devices. NSR0170P2 in a SOD−923 miniature package enables designers to meet the challenging task of achieving higher efficiency and meeting reduced space requirements.

NSR0170P2T5G

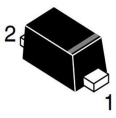
70 V SCHOTTKY BARRIER DIODE

Features

- Very Low Forward Voltage Drop − 560 mV @ 10 mA
- Low Reverse Current − 25 nA @ 50 V VR
- 70 mA of Continuous Forward Current
- Power Dissipation of 240 mW with Minimum Trace
- Very High Switching Speed
- Low Capacitance − CT = 2 pF
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

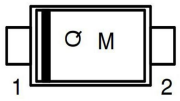
Typical Applications

- LCD and Keypad Backlighting
- Camera Photo Flash
- Buck and Boost dc−dc Converters
- Reverse Voltage and Current Protection
- Clamping & Protection



SOD−923
CASE 514AB

MARKING DIAGRAM



Q = Specific Device Code
M = Month Code

Markets

- Mobile Handsets
- MP3 Players
- Digital Camera and Camcorders
- Notebook PCs & PDAs
- GPS

ORDERING INFORMATION

Device	Package	Shipping†
NSR0170P2T5G	SOD−923 (Pb−Free)	2 mm Pitch 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.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	70	V
Forward Current (DC)	I_F	70	mA
ESD Rating: Human Body Model Machine Model	ESD	Class 2 Class B	

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THERMAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Thermal Resistance Junction–to–Ambient (Note 1) Total Power Dissipation @ T_A = 25°C	 $R_{\theta JA}$ P_D			 520 240	 °C/W mW
Thermal Resistance Junction–to–Ambient (Note 2) Total Power Dissipation @ T_A = 25°C	 $R_{\theta JA}$ P_D			 175 710	 °C/W mW
Junction and Storage Temperature Range	T_J, T_{stg}			–55 to +150	°C

1. Mounted onto a 4 in square FR–4 board 10 mm sq. 1 oz. Cu 0.06" thick single sided. Operating to steady state.
2. Mounted onto a 4 in square FR–4 board 1 in sq. 1 oz. Cu 0.06" thick single sided. Operating to steady state.

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Leakage (V_R = 50 V) (V_R = 70 V)	I_R		 25 –	 90 3.0	 nA μA
Forward Voltage (I_F = 1.0 mA) (I_F = 10 mA) (I_F = 15 mA)	V_F		 0.34 0.56 0.65	 0.39 0.64 0.73	V
Total Capacitance (V_R = 0 V, f = 1 MHz)	CT		2.0		pF

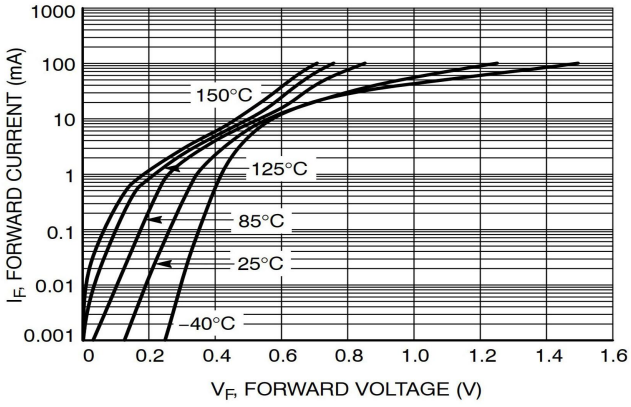

Figure 1. Forward Voltage

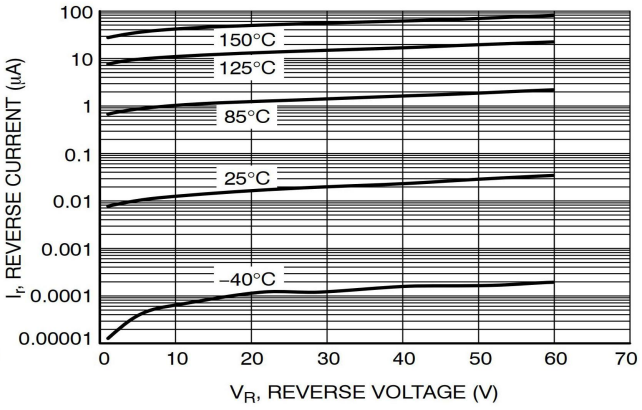

Figure 2. Leakage Current

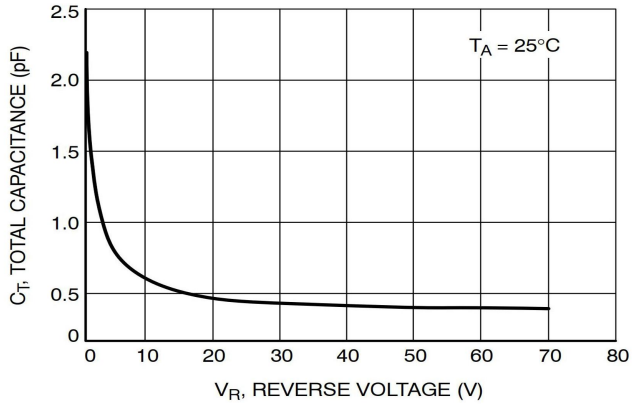

Figure 3. Total Capacitance

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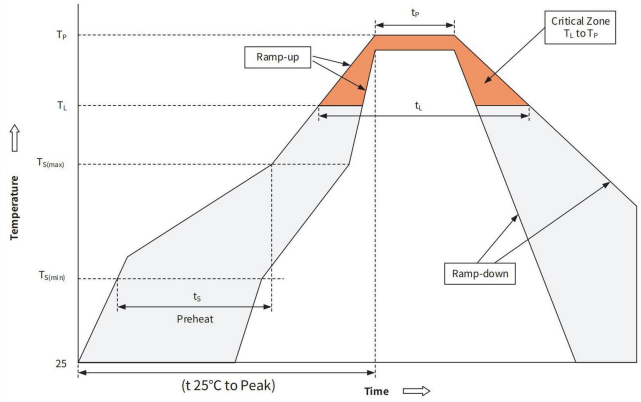
Ordering Information

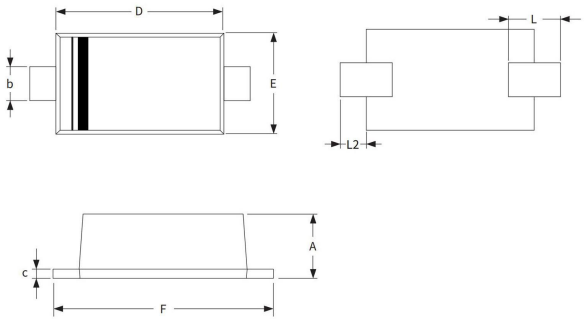
PREFERED P/N	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
	SOD-923	1.00×0.60×0.37	7"	8000

Recommended Soldering Conditions



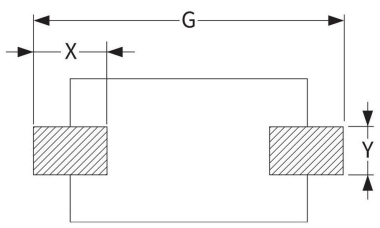
Profile Feature		Pb-Free Assembly
Pre-heat	Temperature Min ($T_{S(min)}$)	+150°C
	Temperature Max($T_{S(max)}$)	+200°C
	Time (Min to Max) (t_S)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C /sec. Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C /sec. Max
Reflow	Temperature(T_L)(Liquid 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	-