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Schottky Barrier Diode

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. NSR0530P2 in a SOD−923 miniature package enables designers to meet the challenging task of achieving higher efficiency and meeting reduced space requirements.

Features

- Very Low Forward Voltage Drop − 370 mV @ 100 mA
- Low Reverse Current − 1.4 μA @ 10 V VR
- 500 mA of Continuous Forward Current
- Power Dissipation of 190 mW with Minimum Trace
- Very High Switching Speed
- Low Capacitance − CT = 10 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

Markets

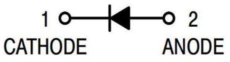
- Mobile Handsets
- MP3 Players
- Digital Camera and Camcorders
- Notebook PCs & PDAs
- GPS

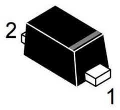
MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	30	V
Forward Current (DC)	I_F	500	mA
ESD Rating: Human Body Model Machine Model	ESD	Class 3B Class C	

NSR0530P2T5G

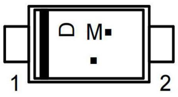
30 V SCHOTTKY BARRIER DIODE





SOD−923
CASE 514AB

MARKING DIAGRAM



D = Specific Device Code
M = Month Code
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping†
NSR0530P2T5G	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.

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			520 190	°C/W mW
Thermal Resistance Junction−to−Ambient (Note 2) Total Power Dissipation @ T_A = 25°C	$R_{\theta JA}$ P_D			175 570	°C/W mW
Junction and Storage Temperature Range	T_J, T_{stg}			−55 to +125	°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	I_R				μA
(V_R = 10 V)			1.4	10	
(V_R = 30 V)			24	200	
Forward Voltage (I_F = 10 mA)	V_F		0.28	0.37	V
(I_F = 100 mA)			0.37	0.46	
(I_F = 500 mA)			0.52	0.62	
Total Capacitance (V_R = 1.0 V, f = 1 MHz)	CT		10		pF

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

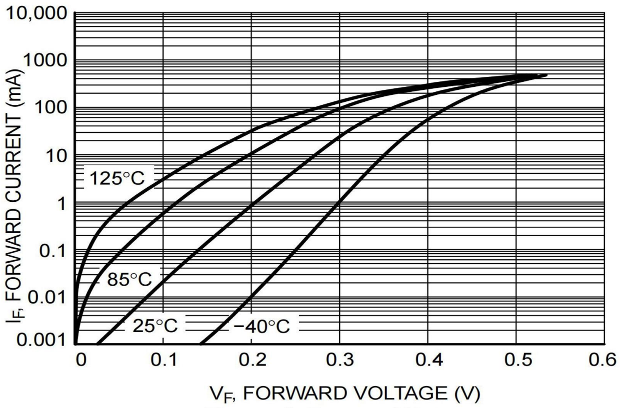


Figure 1. Forward Voltage

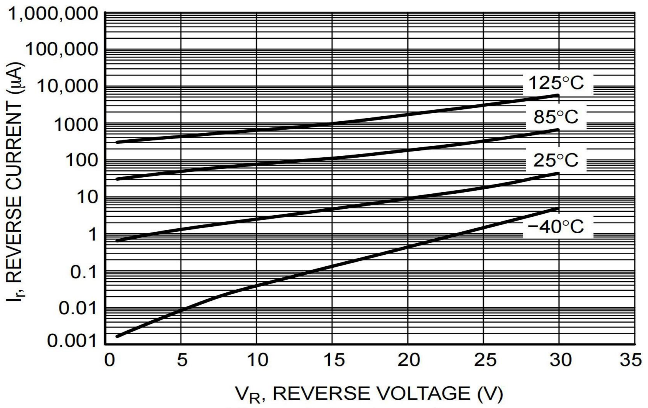


Figure 2. Leakage Current

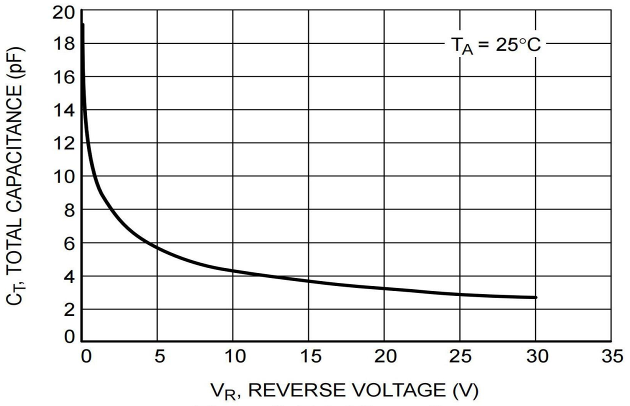


Figure 3. Total Capacitance

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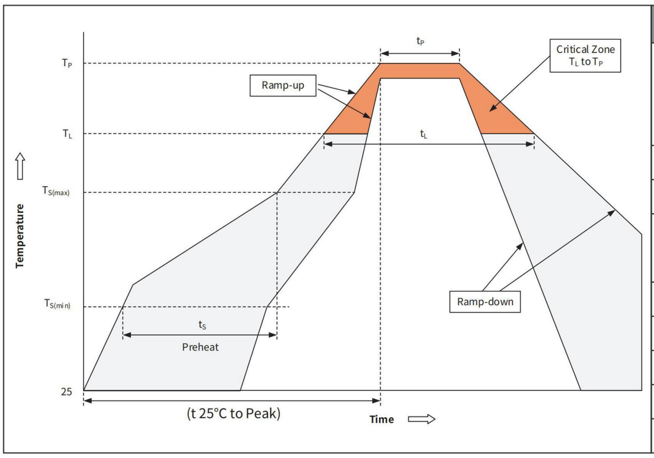
Ordering Information

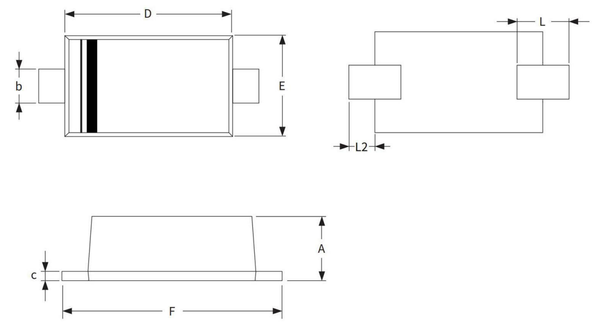
PREFERED P/N	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
	SOD-923	1.00×0.60×0.37	7"	8000

Recommended Soldering Conditions



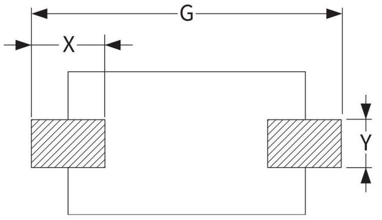
Profile Feature		Pb-Free Assembly
Pre-heat	Temperature Min ($T_{S(min)}$)	+150°C
	Temperature Max($T_{S(max)}$)	+200°C
	Time (Min to Max) (t_S)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C /sec. Max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C /sec. Max
Reflow	Temperature(T_L)(Liquid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