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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. NSR0340H in a SOD−323 miniature package enables designers to meet the challenging task of achieving higher efficiency and meeting reduced space requirements.

Features

- Very Low Forward Voltage Drop −415 mV @ 100 mA
- Low Reverse Current − 0.4 μA @ 25 V V_R
- 250 mA of Continuous Forward Current
- Power Dissipation of 160 mW with Minimum Trace
- Very High Switching Speed
- Low Capacitance − C_T = 6 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 and PDAs
- GPS

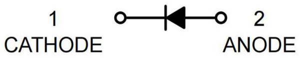
MAXIMUM RATINGS

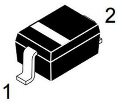
Rating	Symbol	Value	Unit
Reverse Voltage	V_R	40	Vdc
Forward Continuous Current (DC)	I_F	250	mA
Non−Repetitive Peak Forward Surge Current	I_{FSM}	1.0	A
ESD Rating: Human Body Model Machine Model	ESD	Class 2 Class A	

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

NSR0340HT1G

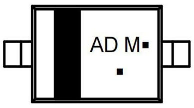
40 VOLT SCHOTTKY BARRIER DIODE





SOD−323
CASE 477
STYLE 1

MARKING DIAGRAM



AD = Specific Device Code
M = Date Code
▪ = Pb−Free Package
(Note: Microdot may be in either location)

ORDERING INFORMATION

Device	Package	Shipping[†]
NSR0340HT1G	SOD−323 (Pb−Free)	3000 / 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

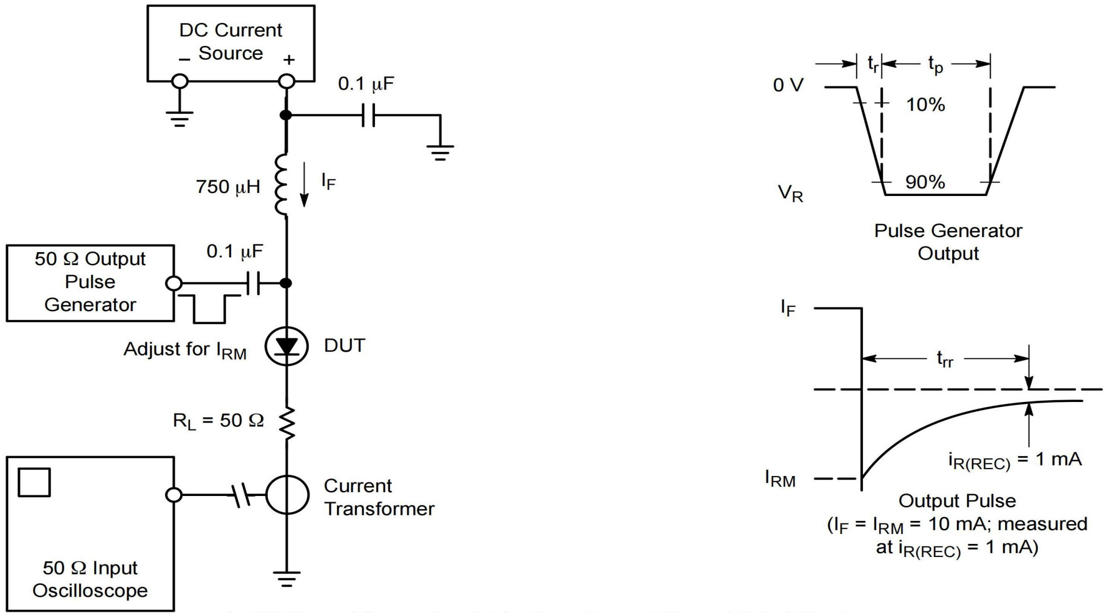
Characteristic	Symbol	Max	Unit
Thermal Resistance Junction−to−Ambient (Note 1) Total Power Dissipation @ T_A = 25°C	$R_{\theta JA}$ P_D	740 160	°C/W mW
Thermal Resistance Junction−to−Ambient (Note 2) Total Power Dissipation @ T_A = 25°C	$R_{\theta JA}$ P_D	460 270	°C/W mW
Junction and Storage Temperature 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	I_R				μA
(V_R = 10 V)			0.2	1.0	
(V_R = 25 V)			0.4	3.0	
(V_R = 40 V)			1.3	6.0	
Forward Voltage	V_F				mV
(I_F = 10 mA)			320	350	
(I_F = 100 mA)			415	490	
(I_F = 200 mA)			470	590	
Total Capacitance (V_R = 10 V, f = 1 MHz)	CT		6.0		pF
Reverse Recovery Time (I_F = I_R = 10 mA, I_R = 1.0 mA)	t_{rr}		5.0		ns

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.



1. DC Current Source is adjusted for a Forward Current (I_F) of 10 mA.
2. Pulse Generator Output is adjusted for a Peak Reverse Recovery Current I_{RM} of 10 mA.
3. Pulse Generator transition time << t_{rr}.
4. IR(REC) is measured at 1 mA. Typically 0.1 X I_{RM} or 0.25 X I_{RM}.
5. t_p » t_{rr}

Figure 1. Recovery Time Equivalent Test Circuit

TYPICAL CHARACTERISTICS

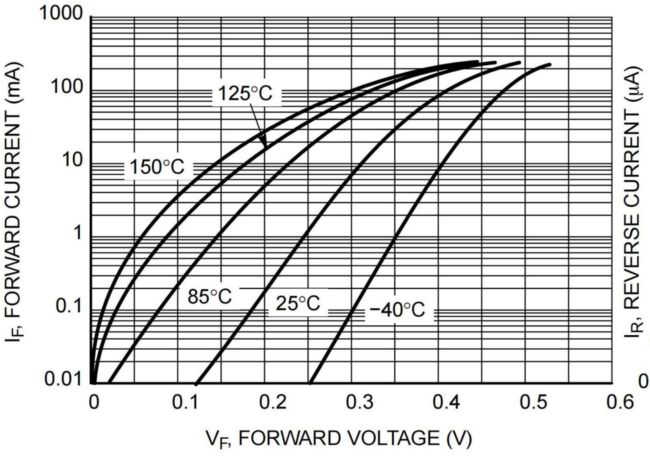


Figure 2. Forward Voltage

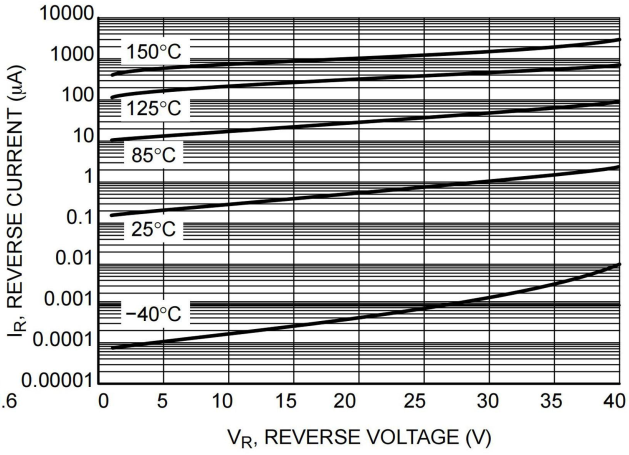


Figure 3. Leakage Current

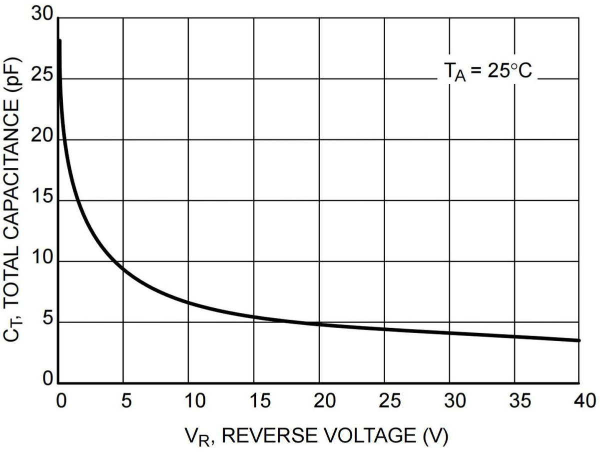


Figure 4. Total Capacitance

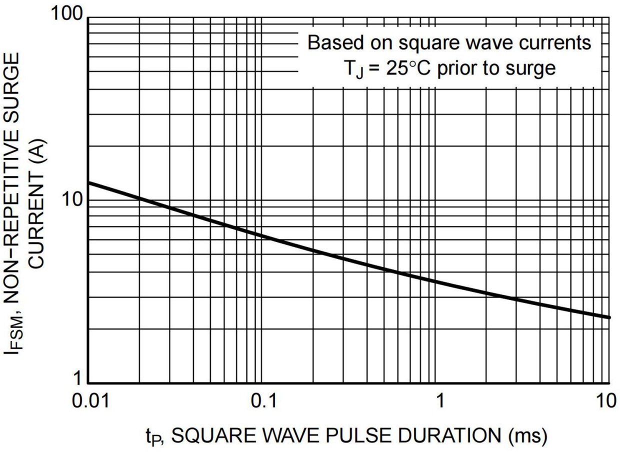


Figure 5. Non−Repetitive Surge Current

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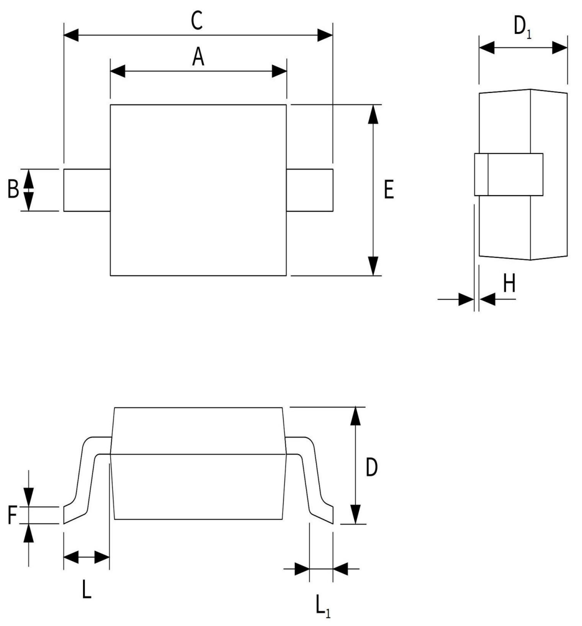
Ordering Information

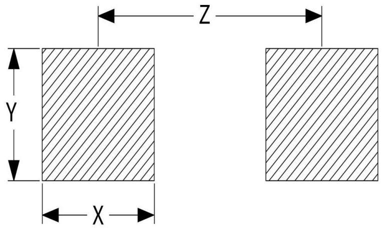
PACKAGE	PACKAGE CODE	UNIT WEIGHT(g)	REEL(pcs)	BOX(pcs)	CARTON(pcs)	DELIVERY MODE
SOD-323	R1	0.0048	3000	30000	240000	7''

Package Outline Dimensions (SOD-323)



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.60	1.80	0.063	0.071
B	0.25	0.40	0.010	0.016
C	2.30	2.80	0.091	0.110
D	0.80	1.10	0.031	0.043
D_1	0.80	0.90	0.031	0.035
E	1.20	1.40	0.047	0.055
F	0.08	0.18	0.003	0.007
L	0.475REF		0.019REF	
L_1	0.25	0.40	0.010	0.016
H	-	0.14	-	0.006

Suggested Pad Layout



Symbol	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
X	0.65	0.75	0.026	0.030
Y	0.65	0.75	0.026	0.030
Z	2.10	2.20	0.084	0.088