NSR07540SL

Product Preview

Schottky Barrier Diodes

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

- High Frequency Propoerties and Switching Speed
- Very Low Forward Voltage
- Guard Ring for Overvoltage Protection
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS (T_J = 150°C unless otherwise noted)

Rating	Symbol	Value	Unit
Forward Current	I_F	1.5	A
Non−Repetitive Peak Forward Surge Current (t ≤ 1.0 s)	I_{FSM}	8.0	A
Reverse Voltage	V_R	40	V

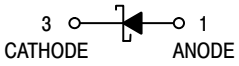
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

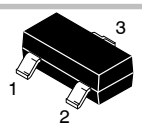
This document contains information on a product under development. ON Semiconductor reserves the right to change or discontinue this product without notice.

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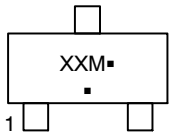
40 VOLTS SCHOTTKY BARRIER DIODES





SOT−23 (TO−236)
CASE 318
STYLE 8

MARKING DIAGRAM



XX Specific Device Code
M = Date Code*
▪ = Pb−Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping†
NSR07540SLT1G	SOT−23 (Pb−Free)	3,000 / 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.

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THERMAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Forward Power Dissipation @ T_A = 25°C Derate above 25°C	P_F			 350 296	 mW mW/°C
Thermal Resistance, Junction–to–Ambient (Note 1)	$R_{\theta JA}$			330	°C/W
Operating Junction Temperature Range	T_J	–55 to +125			°C
Storage Temperature Range	T_{stg}	–65 to +150			°C

1. Mounted onto a 4 in square FR−4 board 50 mm sq. 1 oz. Cu 0.06” thick single sided. Operating to steady state.
2. Mounted onto a 4 in square FR−4 board 650 mm sq. 1 oz. Cu 0.06” thick single sided. Operating to steady state.

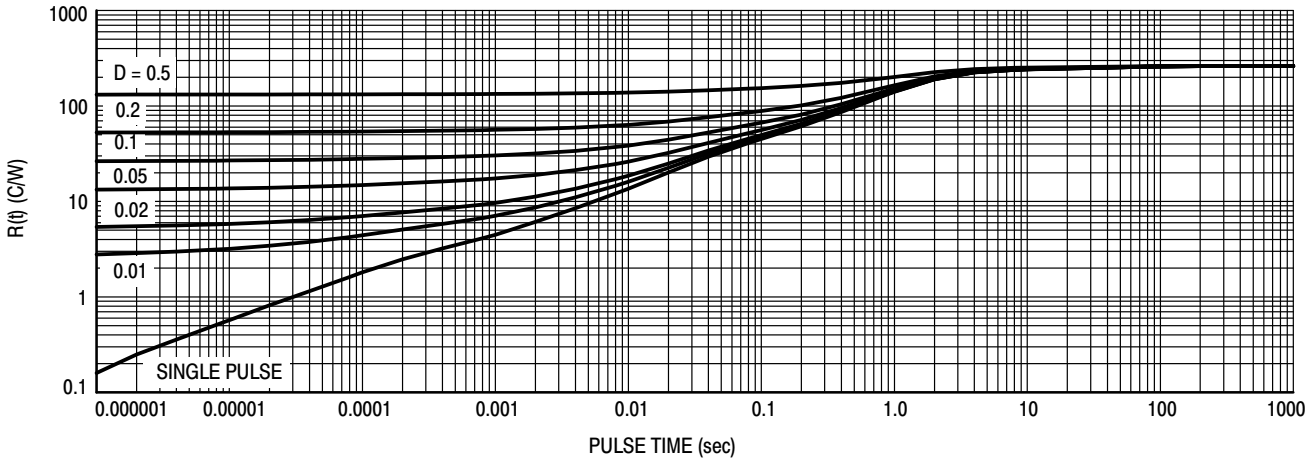


Figure 1. Thermal Response (Note 1)

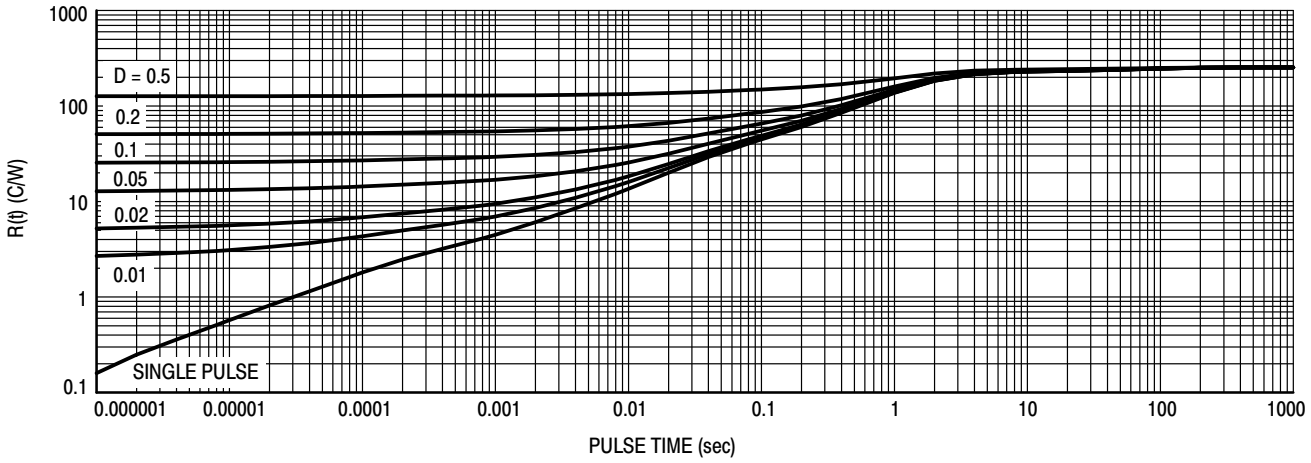
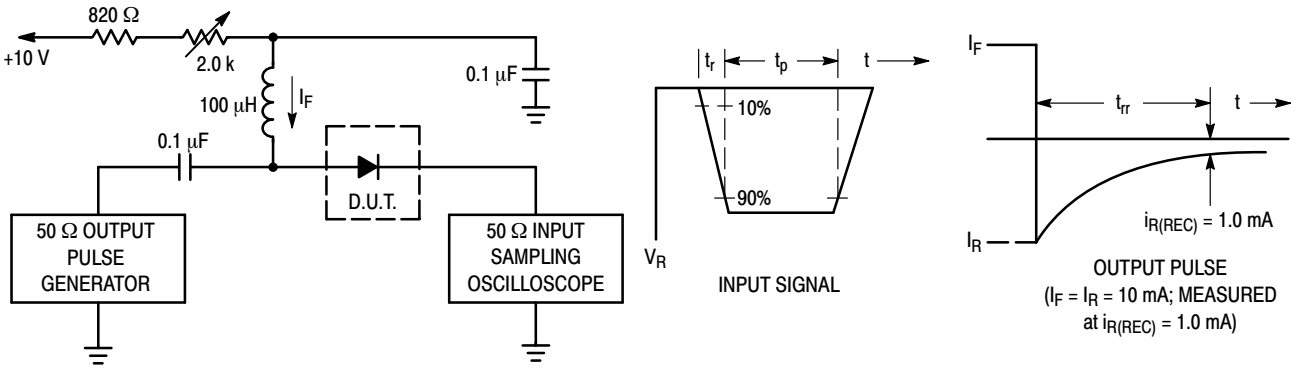


Figure 2. Thermal Response (Note 2)

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 0.25 mA)	$V_{(BR)R}$	40	–	–	V
Total Capacitance (V_R = 0 V, f = 1.0 MHz)	C_T	–	170	–	pF
Reverse Leakage (V_R = 40 V) (V_R = 40 V @ 125°C)	I_R	– –	0.02 10	0.1 –	mA
Forward Voltage (I_F = 50 mA) (I_F = 100 mA) (I_F = 500 mA) (I_F = 750 mA) (I_F = 1.0 A) (I_F = 1.5 A) (I_F = 750 mA @ 125°C)	V_F	 – – – – – – –	 300 330 400 430 460 535 375	 – – – 480 – – –	mV

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.



Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 10 mA.
2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 10 mA.
3. $t_p \gg t_{rr}$

Figure 3. Recovery Time Equivalent Test Circuit

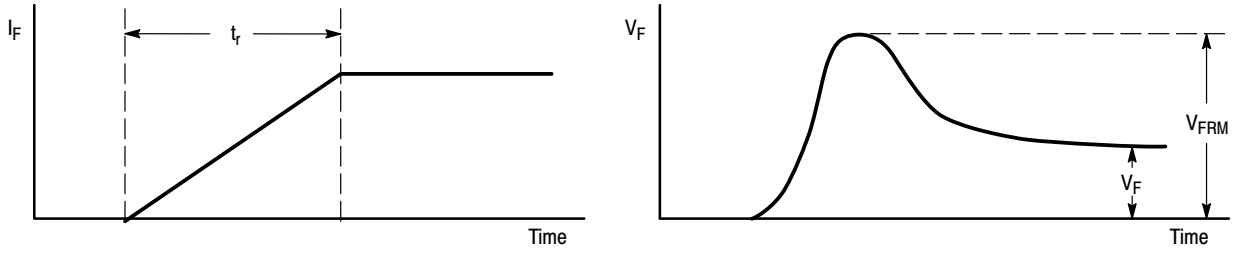


Figure 4. Peak Forward Recovery Voltage Definition

TYPICAL CHARACTERISTICS

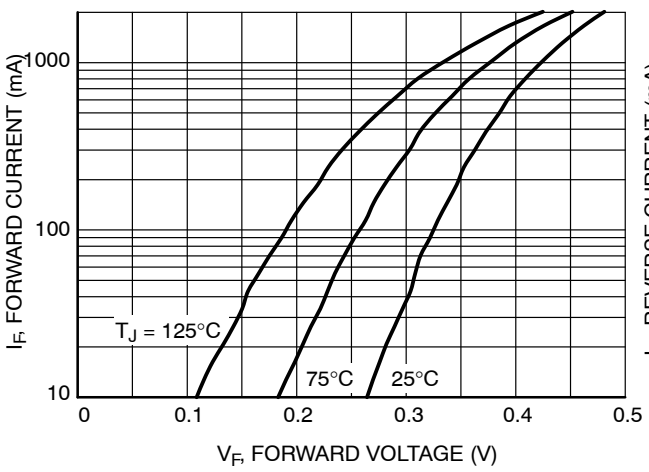


Figure 5. Forward Voltage

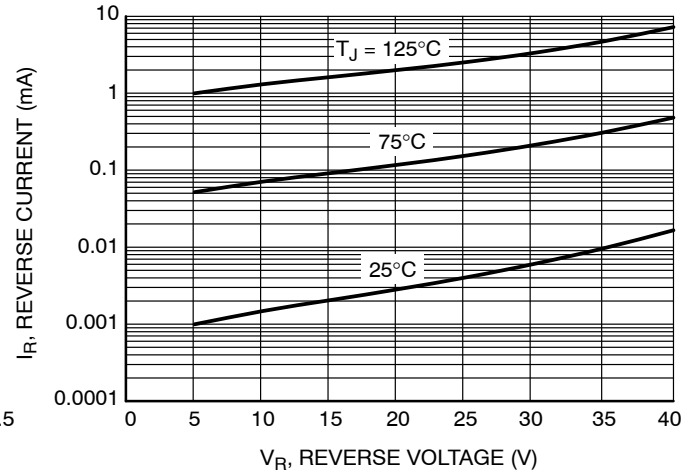


Figure 6. Leakage Current

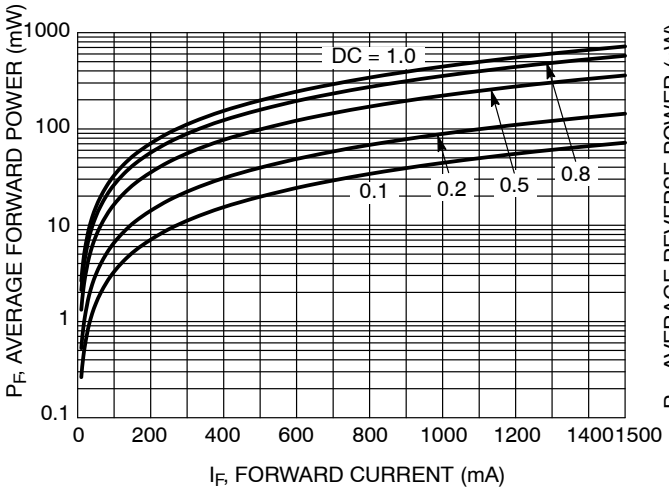


Figure 7. Average Forward Power Dissipation

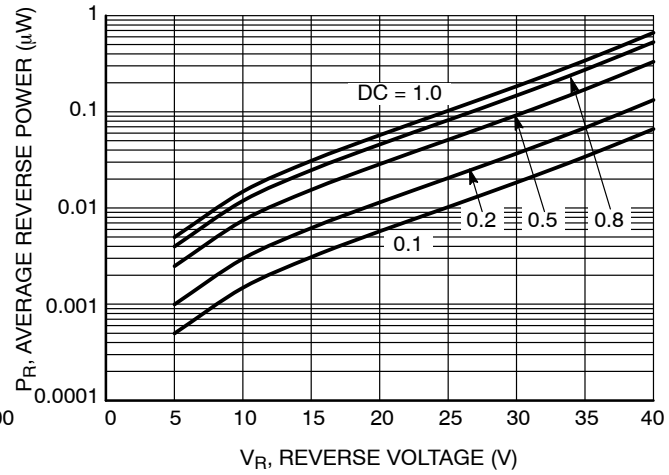


Figure 8. Average Reverse Power Dissipation

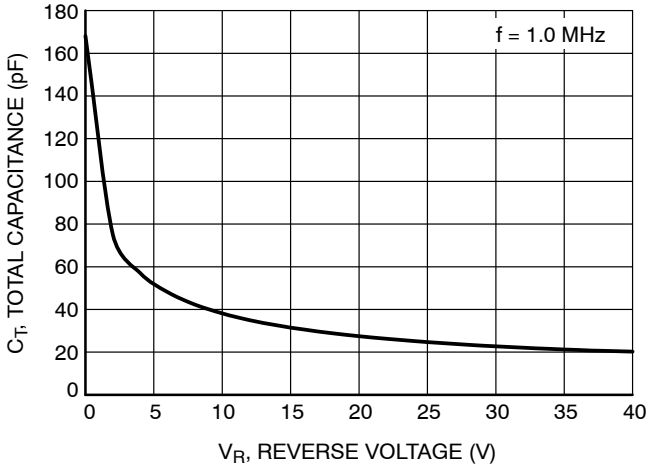
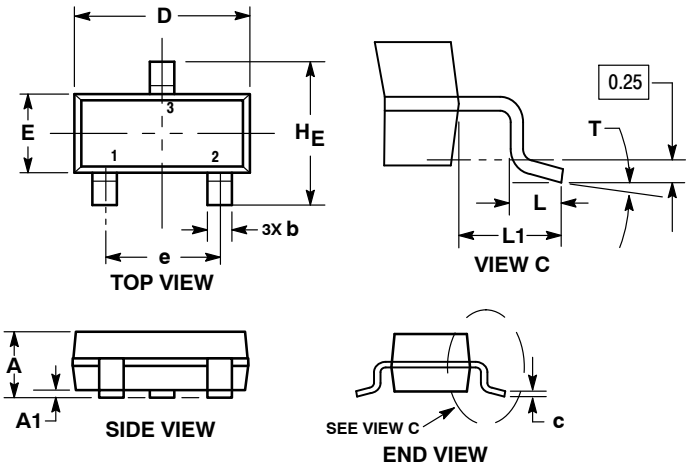


Figure 9. Total Capacitance

NSR07540SL

PACKAGE DIMENSIONS

SOT−23 (TO−236)
CASE 318−08
ISSUE AS

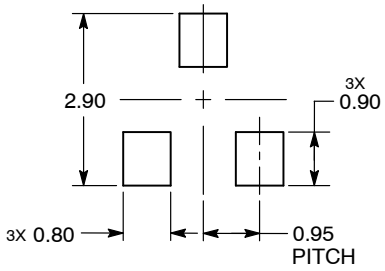


NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.039	0.044
A1	0.01	0.06	0.10	0.000	0.002	0.004
b	0.37	0.44	0.50	0.015	0.017	0.020
c	0.08	0.14	0.20	0.003	0.006	0.008
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.080
L	0.30	0.43	0.55	0.012	0.017	0.022
L1	0.35	0.54	0.69	0.014	0.021	0.027
H_E	2.10	2.40	2.64	0.083	0.094	0.104
T	0°	–––	10°	0°	–––	10°

STYLE 8:
PIN 1. ANODE
2. NO CONNECTION
3. CATHODE

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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