NSR05T30XV2

500 mA, 30 V Schottky Barrier Diode

These Schottky barrier diodes are optimized for low forward voltage drop and low leakage current that offers the most optimal power dissipation in applications. They are housed in spacing saving micro−packaging ideal for space constraint applications.

Features

- Low Forward Voltage Drop – 370 mV (Typ.) @ I_F = 500 mA
- Low Reverse Current – 52 µA (Typ.) @ V_R = 30 V
- 500 mA of Continuous Forward Current
- High Switching Speed
- 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

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Reverse Voltage	V_R	30	V
Forward Current (DC)	I_F	500	mA
Forward Surge Current (60 Hz @ 1 cycle)	I_{FSM}	3.0	A
Repetitive Peak Forward Current (Pulse Wave = 1 sec, Duty Cycle = 66%)	I_{FRM}	1.5	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.

ON Semiconductor®

SOD−523
CASE 502

MARKING DIAGRAM

YL ⋛
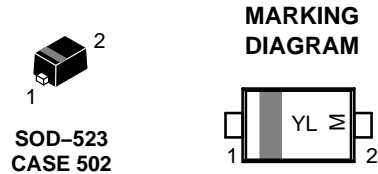
YL = Specific Device Code
M Date Code

1 CATHODE ⟶ ANODE 2

ORDERING INFORMATION

Device	Package	Shipping†
NSR05T30XV2T5G	SOD−523 (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			489 250	°C/W mW
Thermal Resistance Junction–to–Ambient (Note 2) Total Power Dissipation @ T_A = 25°C	$R_{\theta JA}$ P_D			358 350	°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 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.
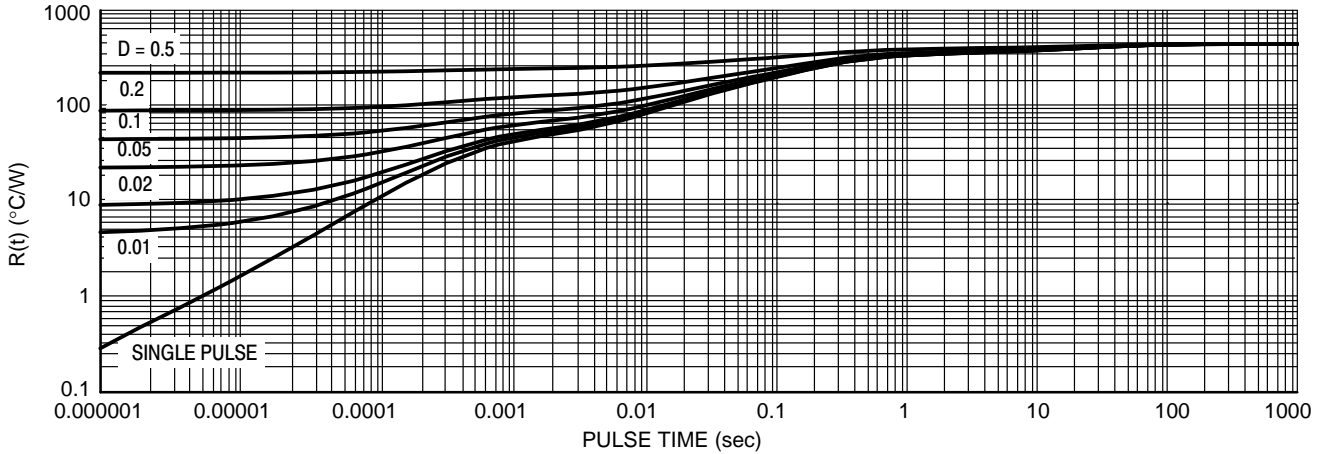
Figure 1. Thermal Response (Note 1)
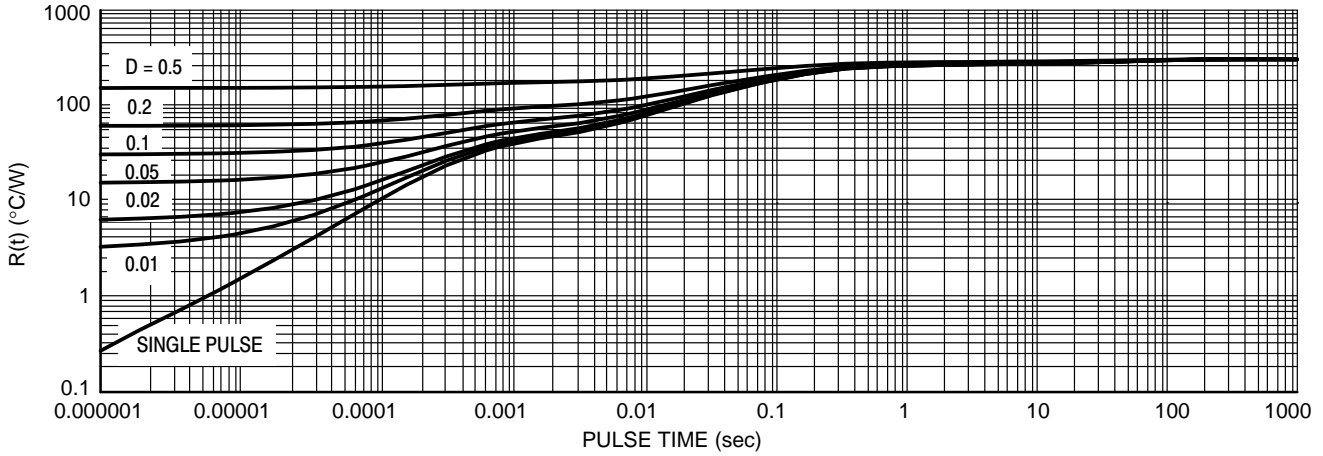
Figure 2. Thermal Response (Note 2)

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

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Leakage (V_R = 10 V) (V_R = 30 V)	I_R		30 52	110 170	μA
Forward Voltage (I_F = 10 mA) (I_F = 100 mA) (I_F = 200 mA) (I_F = 500 mA)	V_F		200 275 205 370	340 380 420 450	mV
Total Capacitance (V_R = 1.0 V, f = 1.0 MHz)	C_T		85		pF
Reverse Recovery Time (I_F = I_R = 10 mA, $I_{R(REC)}$ = 1.0 mA, Figure 3)	t_{rr}		23		ns
Peak Forward Recovery Voltage (I_F = 100 mA, t_r = 20 ns, Figure 4)	V_{FRM}		395		mV
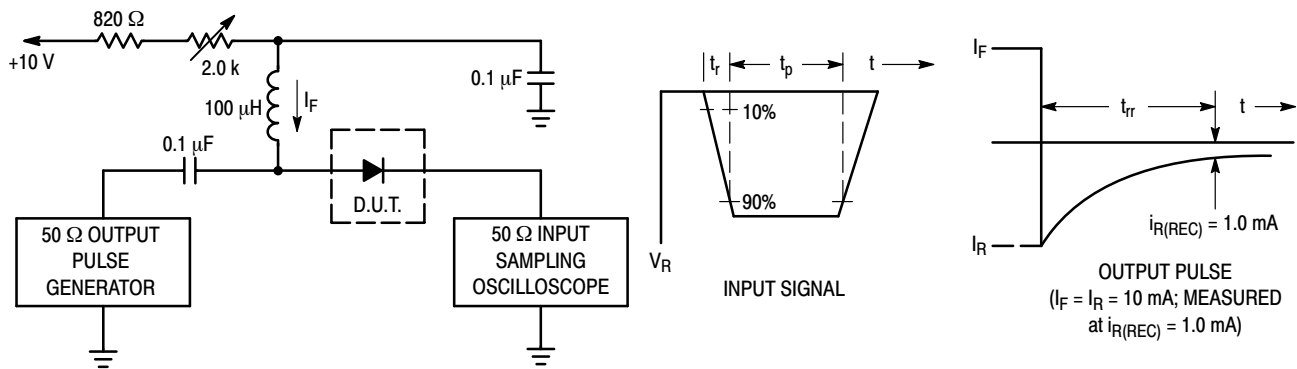
Notes: 1. A 2.0 kΩ variable resistor adjusted for a Forward Current (I_F) of 10 mA.
      2. Input pulse is adjusted so $I_{R(peak)}$ is equal to 10 mA.
      3. t_p » t_{rr}

Figure 3. Recovery Time Equivalent Test Circuit
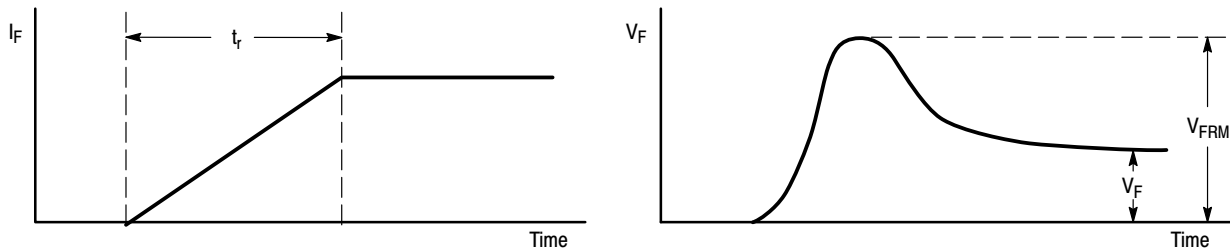
Figure 4. Peak Forward Recovery Voltage Definition

TYPICAL CHARACTERISTICS
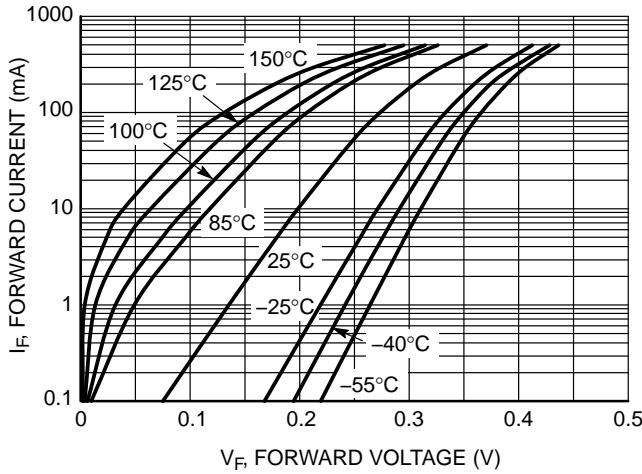
Figure 5. Forward Voltage
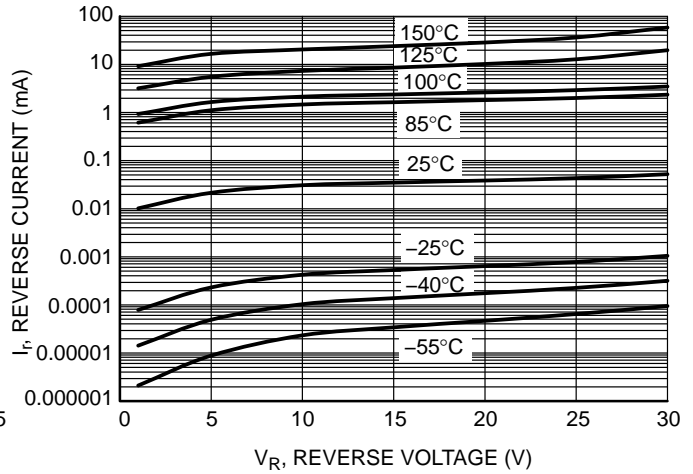
Figure 6. Leakage Current
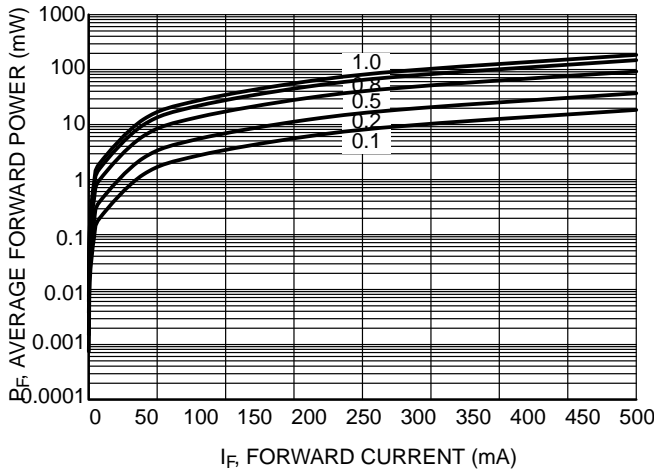
Figure 7. Average Forward Power Dissipation
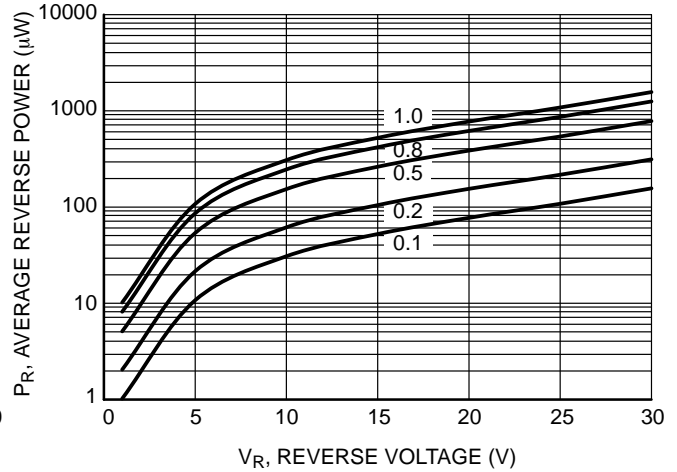
Figure 8. Average Reverse Power Dissipation
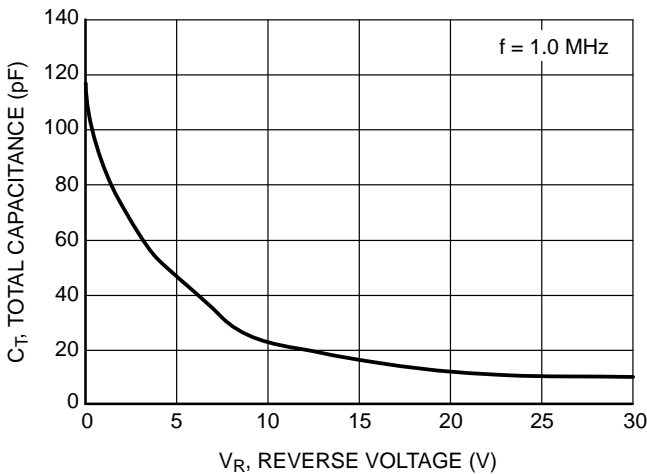
Figure 9. Total Capacitance
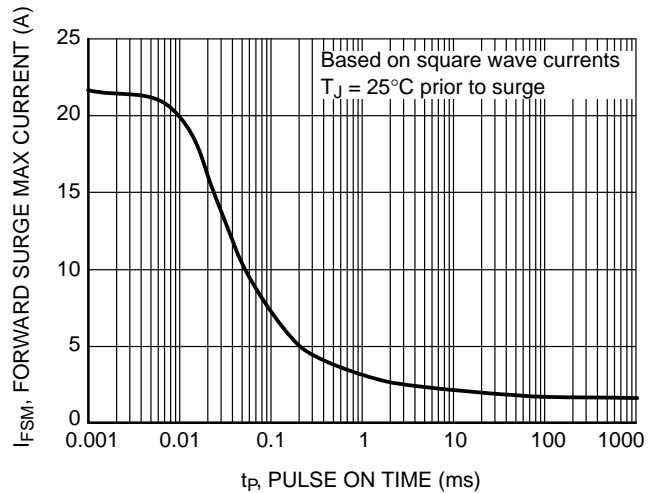
Figure 10. Forward Surge Current
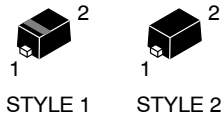
SOD−523
CASE 502−01
ISSUE E

DATE 28 SEP 2010

STYLE 1   STYLE 2

SCALE 4:1

TOP VIEW

SIDE VIEW

BOTTOM VIEW
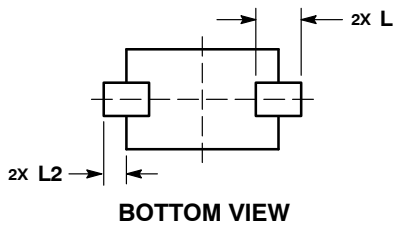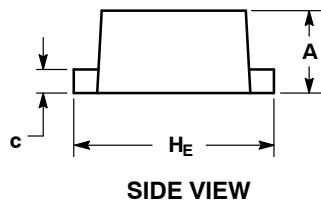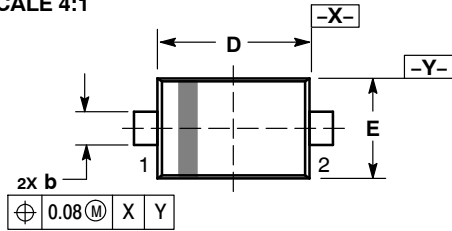
**RECOMMENDED
SOLDERING FOOTPRINT***

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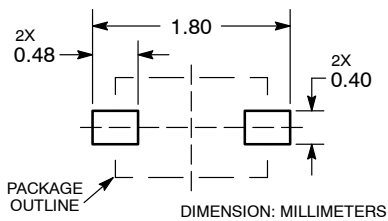
NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PRO-TRUSIONS, OR GATE BURRS.

DIM	MILLIMETERS		
	MIN	NOM	MAX
A	0.50	0.60	0.70
b	0.25	0.30	0.35
c	0.07	0.14	0.20
D	1.10	1.20	1.30
E	0.70	0.80	0.90
H_E	1.50	1.60	1.70
L	0.30 REF		
L2	0.15	0.20	0.25

GENERIC
MARKING DIAGRAM*
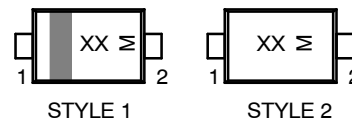
STYLE 1   STYLE 2

XX   = Specific Device Code
M   Date Code

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, "G" or microdot " ▪", may or may not be present.

STYLE 1:
PIN 1. CATHODE (POLARITY BAND)
2. ANODE

STYLE 2:
NO POLARITY

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DESCRIPTION:	SOD−523	PAGE 1 OF 1

PUBLICATION ORDERING INFORMATION

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