

# NSD914F3T5G

## High-Speed Switching Diode

The NSD914F3T5G device is a spin-off of our popular SOT-23 three-leaded device. It is designed for high speed switching applications and is housed in the SOT-1123 surface mount package. This device is ideal for low-power surface mount applications where board space is at a premium.

### Features

- Reduces Board Space
- This is a Halide-Free Device
- This is a Pb-Free Device

### MAXIMUM RATINGS

| Rating                     | Symbol          | Value | Unit |
|----------------------------|-----------------|-------|------|
| Reverse Voltage            | $V_R$           | 100   | Vdc  |
| Forward Current            | $I_F$           | 200   | mAdc |
| Peak Forward Surge Current | $I_{FM(surge)}$ | 500   | mAdc |

### THERMAL CHARACTERISTICS

| Characteristic                                                                        | Symbol                      | Max            | Unit                       |
|---------------------------------------------------------------------------------------|-----------------------------|----------------|----------------------------|
| Total Device Dissipation, $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$<br>(Note 1)           | 290<br>2.3     | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance,<br>Junction-to-Ambient                                            | $R_{\theta JA}$<br>(Note 1) | 432            | $^\circ\text{C/W}$         |
| Total Device Dissipation, $T_A = 25^\circ\text{C}$<br>Derate above $25^\circ\text{C}$ | $P_D$<br>(Note 2)           | 347<br>2.8     | mW<br>mW/ $^\circ\text{C}$ |
| Thermal Resistance,<br>Junction-to-Ambient                                            | $R_{\theta JA}$<br>(Note 2) | 360            | $^\circ\text{C/W}$         |
| Thermal Resistance,<br>Junction-to-Lead 3                                             | $R_{\psi JL}$<br>(Note 2)   | 143            | $^\circ\text{C/W}$         |
| Junction and Storage Temperature Range                                                | $T_J, T_{stg}$              | -55 to<br>+150 | $^\circ\text{C}$           |

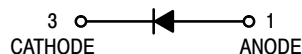
Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. 100 mm<sup>2</sup> 1 oz, copper traces.
2. 500 mm<sup>2</sup> 1 oz, copper traces.

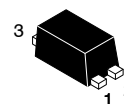


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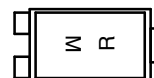


NSD914F3T5G



SOT-1123  
CASE 524AA  
STYLE 2

### MARKING DIAGRAM



R = Device Code  
M = Date Code

### ORDERING INFORMATION

| Device      | Package               | Shipping†        |
|-------------|-----------------------|------------------|
| NSD914F3T5G | SOT-1123<br>(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.

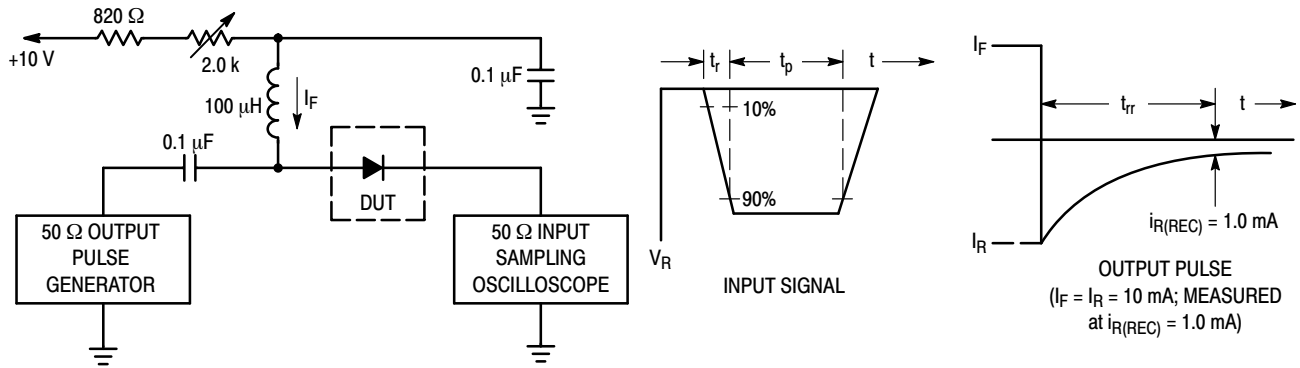
# NSD914F3T5G

## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

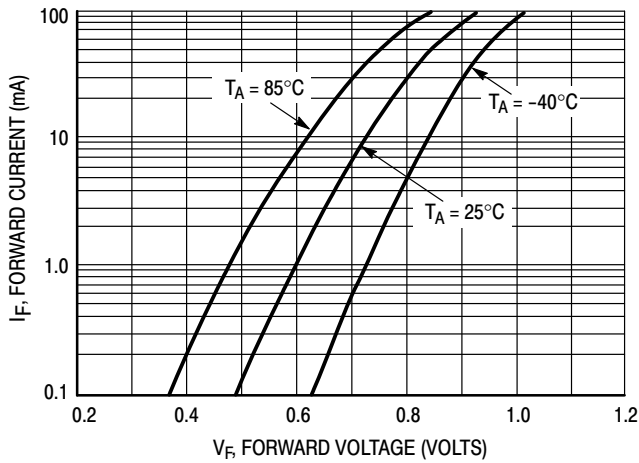
| Characteristic                                                                              | Symbol     | Min    | Typ    | Max       | Unit                |
|---------------------------------------------------------------------------------------------|------------|--------|--------|-----------|---------------------|
| <b>OFF CHARACTERISTICS</b>                                                                  |            |        |        |           |                     |
| Reverse Breakdown Voltage<br>( $I_R = 100\ \mu\text{A}$ )                                   | $V_{(BR)}$ | 100    | –      | –         | Vdc                 |
| Reverse Voltage Leakage Current<br>( $V_R = 20\ \text{Vdc}$ )<br>( $V_R = 75\ \text{Vdc}$ ) | $I_R$      | –<br>– | –<br>– | 25<br>5.0 | nA<br>$\mu\text{A}$ |
| Diode Capacitance<br>( $V_R = 0$ , $f = 1.0\ \text{MHz}$ )                                  | $C_T$      | –      | –      | 4.0       | pF                  |
| Forward Voltage<br>( $I_F = 10\ \text{mA}$ )                                                | $V_F$      | –      | –      | 1.0       | Vdc                 |
| Reverse Recovery Time<br>( $I_F = I_R = 10\ \text{mA}$ ) (Figure 1)                         | $t_{rr}$   | –      | –      | 4.0       | ns                  |

1. FR–5 =  $1.0 \times 0.75 \times 0.062\ \text{in.}$
2. Alumina =  $0.4 \times 0.3 \times 0.024\ \text{in.}$  99.5% alumina.

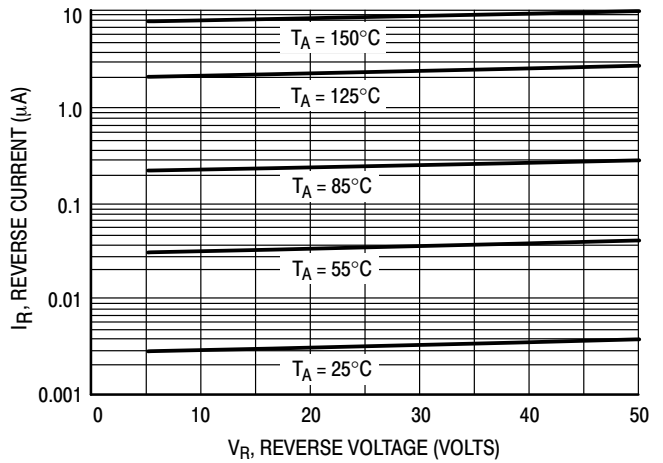
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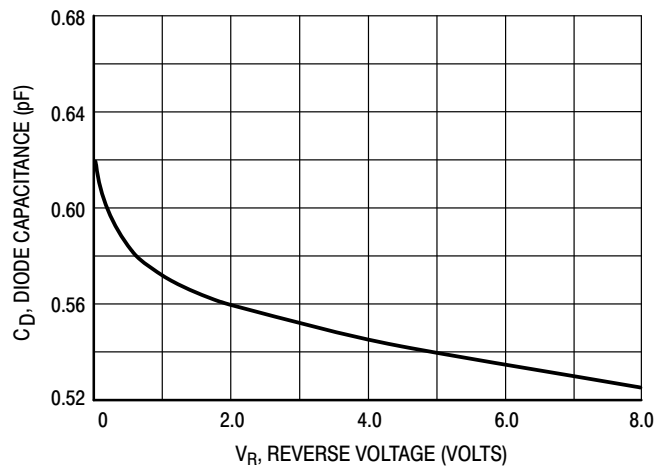
**Figure 1. Recovery Time Equivalent Test Circuit**



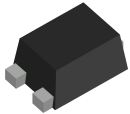
**Figure 2. Forward Voltage**



**Figure 3. Leakage Current**



**Figure 4. Capacitance**

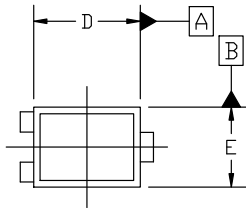


### SOT-1123 0.80x0.60x0.37, 0.35P

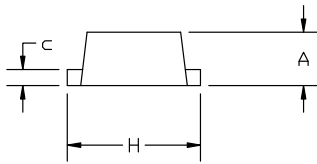
#### CASE 524AA

#### ISSUE D

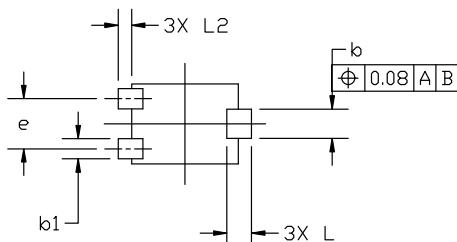
DATE 18 JAN 2024



TOP VIEW

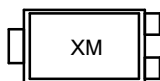


SIDE VIEW



BOTTOM VIEW

#### GENERIC MARKING DIAGRAM\*



X = Specific Device Code  
M = Date Code

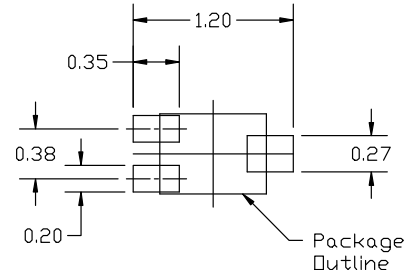
\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
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, PROTRUSIONS, OR GATE BURRS.

#### MILLIMETERS

| DIM | MIN       | NOM   | MAX   |
|-----|-----------|-------|-------|
| A   | 0.34      | 0.37  | 0.40  |
| b   | 0.15      | 0.22  | 0.28  |
| b1  | 0.10      | 0.15  | 0.20  |
| c   | 0.07      | 0.12  | 0.17  |
| D   | 0.75      | 0.80  | 0.85  |
| E   | 0.55      | 0.60  | 0.65  |
| e   | 0.35      | 0.38  | 0.40  |
| H   | 0.950     | 1.000 | 1.050 |
| L   | 0.185 REF |       |       |
| L2  | 0.05      | 0.10  | 0.15  |



#### RECOMMENDED MOUNTING FOOTPRINT

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference manual, SOLDERM/D.

STYLE 1:  
PIN 1. BASE  
2. EMITTER  
3. COLLECTOR

STYLE 2:  
PIN 1. ANODE  
2. N/C  
3. CATHODE

STYLE 3:  
PIN 1. ANODE  
2. ANODE  
3. CATHODE

STYLE 4:  
PIN 1. CATHODE  
2. CATHODE  
3. ANODE

STYLE 5:  
PIN 1. GATE  
2. SOURCE  
3. DRAIN

|                         |                                       |                                                                                                                                                                                  |
|-------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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| <b>DESCRIPTION:</b>     | <b>SOT-1123 0.80x0.60x0.37, 0.35P</b> | <b>PAGE 1 OF 1</b>                                                                                                                                                               |

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