

NSD16F3T5G

Switching Diode

The NSD16F3T5G device is a spin-off of our popular SOT-23 three-leaded device. It is designed for 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 | 75 | 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, $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D (Note 1) | 290 2.3 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ (Note 1) | 432 | $^\circ\text{C}/\text{W}$ |
| Total Device Dissipation, $T_A = 25^\circ\text{C}$ Derate above 25°C | P_D (Note 2) | 347 2.8 | mW mW/ $^\circ\text{C}$ |
| Thermal Resistance, Junction-to-Ambient | $R_{\theta JA}$ (Note 2) | 360 | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance, Junction-to-Lead 3 | $R_{\psi JL}$ (Note 2) | 143 | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature Range | T_J, T_{stg} | -55 to +150 | $^\circ\text{C}$ |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. 100 mm² 1 oz, copper traces.
2. 500 mm² 1 oz, copper traces.

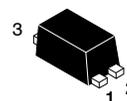


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NSD16F3T5G



SOT-1123
CASE 524AA
STYLE 2

MARKING DIAGRAM



T = Device Code
M = Date Code

ORDERING INFORMATION

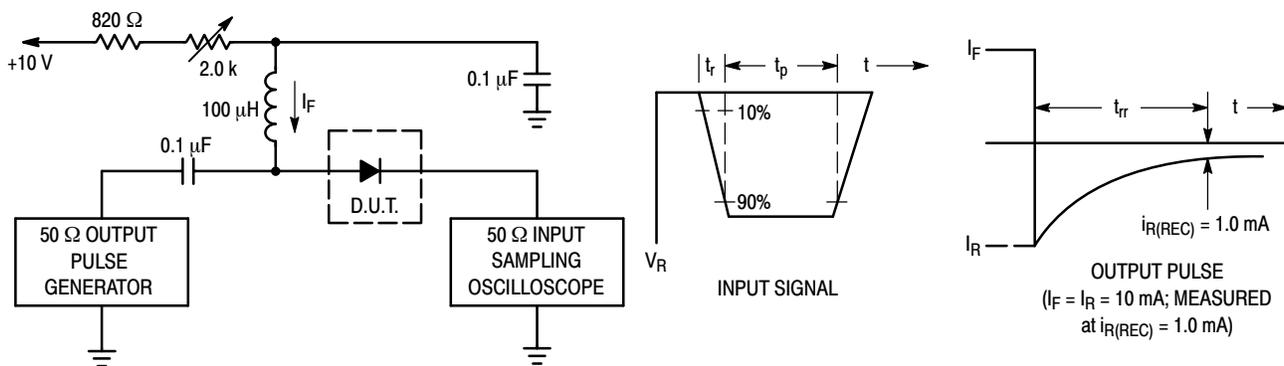
| Device | Package | Shipping† |
|------------|-----------------------|------------------|
| NSD16F3T5G | SOT-1123 (Pb-Free) | 8000/Tape & Reel |

†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.

NSD16F3T5G

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

| Characteristic | Symbol | Min | Max | Unit |
|--|------------|-----|----------------------------|-----------------|
| OFF CHARACTERISTICS | | | | |
| Reverse Voltage Leakage Current ($V_R = 75\text{ Vdc}$) ($V_R = 75\text{ Vdc}, T_J = 150^\circ\text{C}$) ($V_R = 25\text{ Vdc}, T_J = 150^\circ\text{C}$) | I_R | - | 1.0 50 30 | μAdc |
| Reverse Breakdown Voltage ($I_{BR} = 100\ \mu\text{Adc}$) | $V_{(BR)}$ | 75 | - | Vdc |
| Forward Voltage ($I_F = 1.0\ \text{mAdc}$) ($I_F = 10\ \text{mAdc}$) ($I_F = 50\ \text{mAdc}$) ($I_F = 150\ \text{mAdc}$) | V_F | - | 715 855 1000 1250 | mV |
| Diode Capacitance ($V_R = 0, f = 1.0\ \text{MHz}$) | C_D | - | 2.0 | pF |
| Forward Recovery Voltage ($I_F = 10\ \text{mAdc}, t_r = 20\ \text{ns}$) | V_{FR} | - | 1.75 | Vdc |
| Reverse Recovery Time ($I_F = I_R = 10\ \text{mAdc}, R_L = 50\ \Omega$) | t_{rr} | - | 6.0 | ns |
| Stored Charge ($I_F = 10\ \text{mAdc}$ to $V_R = 5.0\ \text{Vdc}, R_L = 500\ \Omega$) | Q_S | - | 45 | pC |



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

Figure 1. Recovery Time Equivalent Test Circuit

NSD16F3T5G

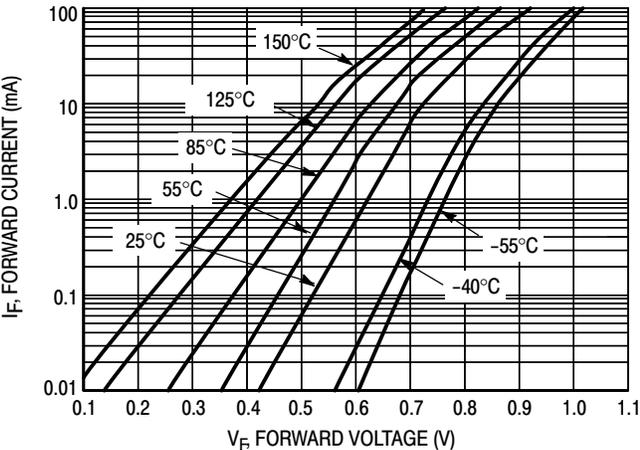


Figure 2. V_F vs. I_F

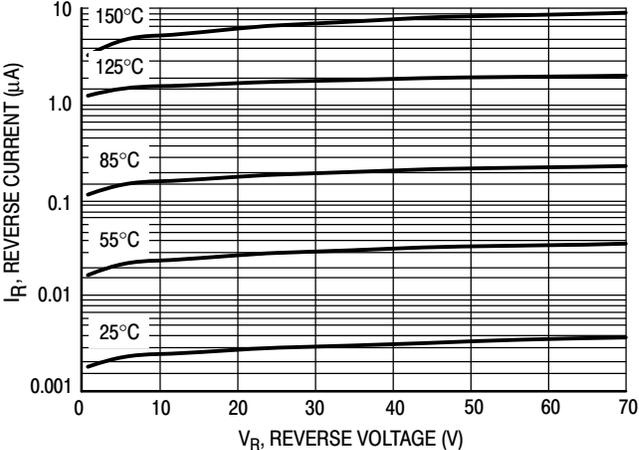


Figure 3. I_R vs. V_R

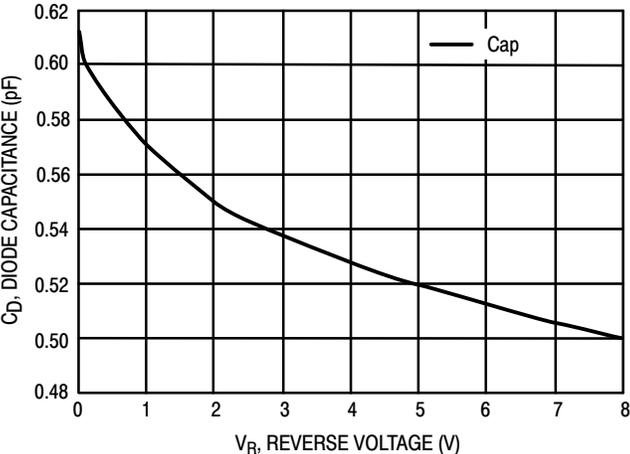
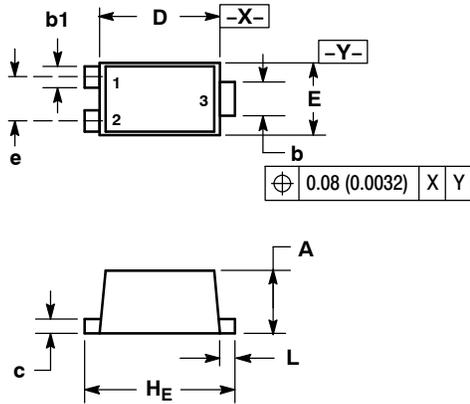


Figure 4. Capacitance

NSD16F3T5G

PACKAGE DIMENSIONS

SOT-1123
CASE 524AA-01
ISSUE A

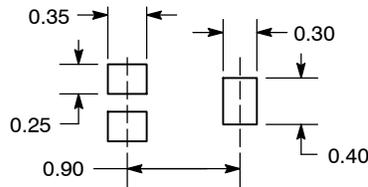


- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETERS.
 3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

| DIM | MILLIMETERS | | | INCHES | | |
|-----|-------------|------|------|--------|-------|-------|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.34 | 0.37 | 0.40 | 0.013 | 0.015 | 0.016 |
| b | 0.15 | 0.20 | 0.25 | 0.006 | 0.008 | 0.010 |
| b1 | 0.10 | 0.15 | 0.20 | 0.004 | 0.006 | 0.008 |
| c | 0.07 | 0.12 | 0.17 | 0.003 | 0.005 | 0.007 |
| D | 0.75 | 0.80 | 0.85 | 0.030 | 0.031 | 0.033 |
| E | 0.55 | 0.60 | 0.65 | 0.022 | 0.024 | 0.026 |
| e | 0.35 | | | 0.014 | | |
| HE | 0.95 | 1.00 | 1.05 | 0.037 | 0.039 | 0.041 |
| L | 0.05 | 0.10 | 0.15 | 0.002 | 0.004 | 0.006 |

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

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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