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
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

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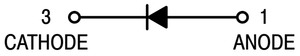
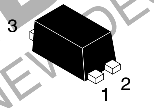


NSD16F3T5G



SOT−1123
CASE 524AA
STYLE 2

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°C Derate above 25°C	P_D (Note 1)	290 2.3	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$ (Note 1)	432	°C/W
Total Device Dissipation, T_A = 25°C Derate above 25°C	P_D (Note 2)	347 2.8	mW mW/°C
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$ (Note 2)	360	°C/W
Thermal Resistance, Junction−to−Lead 3	$R_{\Psi JL}$ (Note 2)	143	°C/W
Junction and Storage Temperature Range	T_J, T_{stg}	−55 to +150	°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^2 1 oz, copper traces.
2. 500 mm^2 1 oz, copper traces.

MARKING DIAGRAM

T = Device Code
M = Date Code

ORDERING INFORMATION

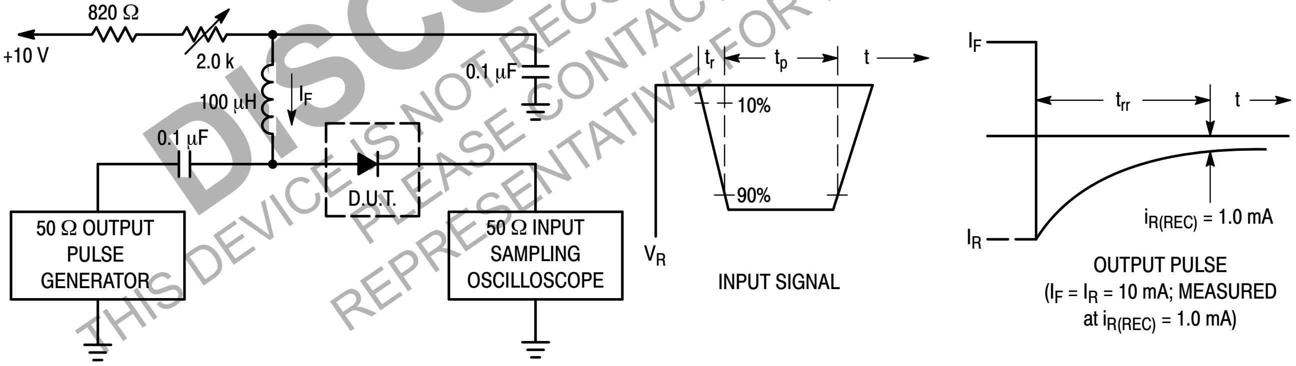
Device	Package	Shipping†
NSD16F3T5G	SOT−1123 (Pb−Free)	8000/Tape & Reel

†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.

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

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

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 » t_{rr}

Figure 1. Recovery Time Equivalent Test Circuit

TYPICAL CHARACTERISTICS

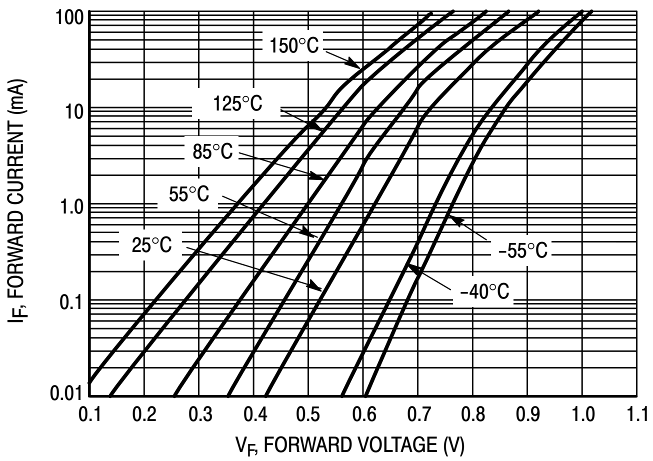


Figure 2. V_F vs. I_F

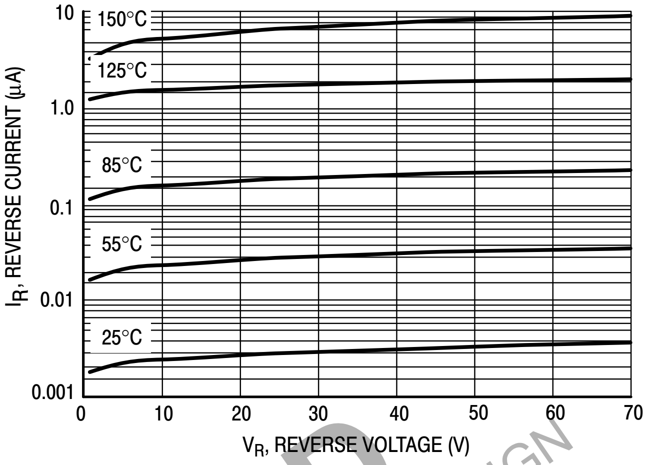


Figure 3. I_R vs. V_R

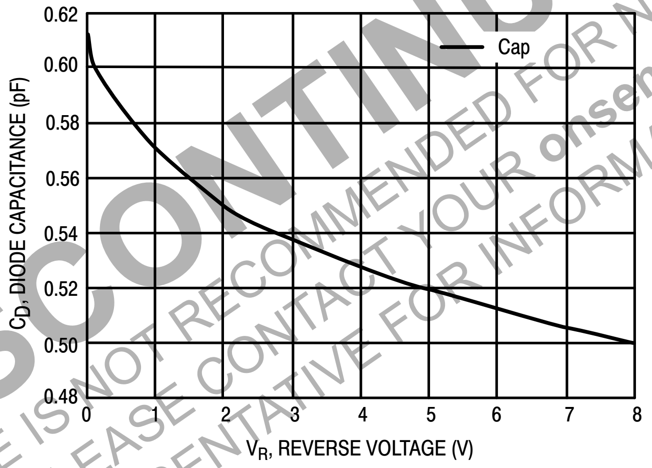
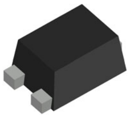
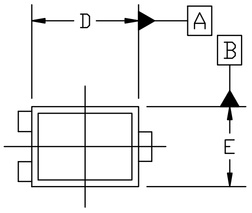


Figure 4. Capacitance



SOT−1123 0.80x0.60x0.37, 0.35P
CASE 524AA
ISSUE D

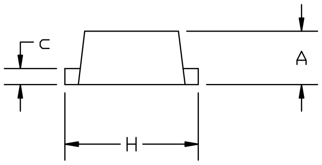
DATE 18 JAN 2024



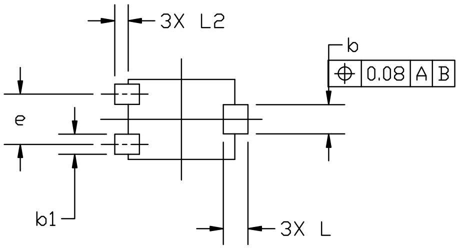
TOP VIEW

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.

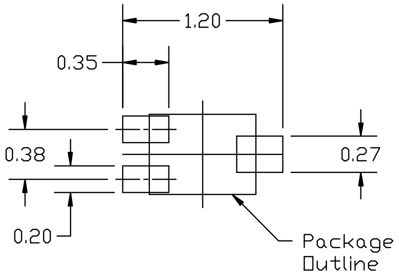
MILLIMETERS			
DIM	MIN	NOM	MAX
A	0.34	0.37	0.40
b	0.15	0.22	0.28
b1	0.10	0.15	0.20
c	0.07	0.12	0.17
D	0.75	0.80	0.85
E	0.55	0.60	0.65
e	0.35	0.38	0.40
H	0.950	1.000	1.050
L	0.185 REF		
L2	0.05	0.10	0.15



SIDE VIEW



BOTTOM VIEW



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, SOLDERRM/D.

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.

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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DESCRIPTION:	**SOT−1123 0.80x0.60x0.37, 0.35P**	**PAGE 1 OF 1**

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