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°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 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 mm^2 1 oz, copper traces.
2. 500 mm^2 1 oz, copper traces.

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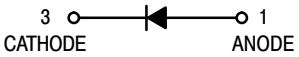
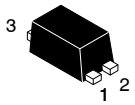


NSD16F3T5G



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.

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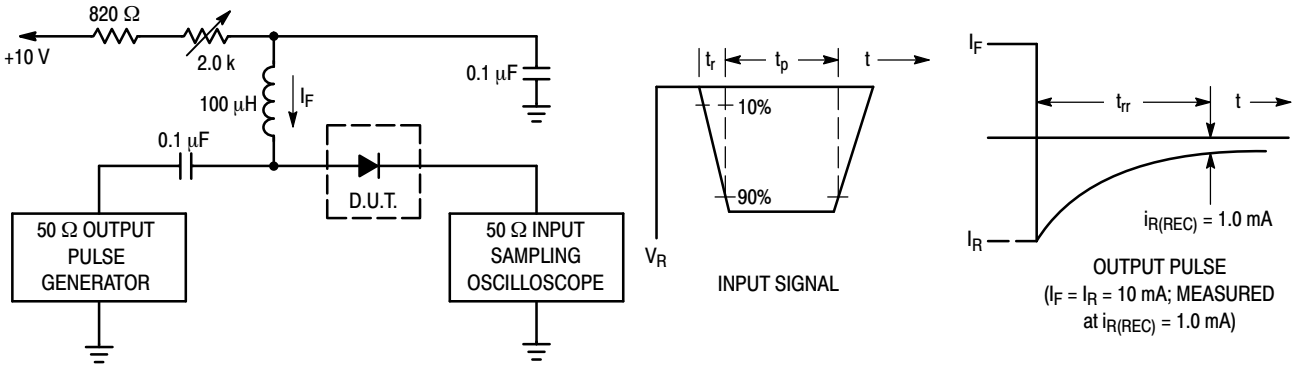
ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Reverse Voltage Leakage Current	I_R			μAdc
(V_R = 75 Vdc)		–	1.0	
(V_R = 75 Vdc, T_J = 150°C)		–	50	
(V_R = 25 Vdc, T_J = 150°C)		–	30	
Reverse Breakdown Voltage (I_{BR} = 100 μAdc)	$V_{(BR)}$	75	–	Vdc
Forward Voltage	V_F			mV
(I_F = 1.0 mAdc)		–	715	
(I_F = 10 mAdc)		–	855	
(I_F = 50 mAdc)		–	1000	
(I_F = 150 mAdc)		–	1250	
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



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 1. Recovery Time Equivalent Test Circuit

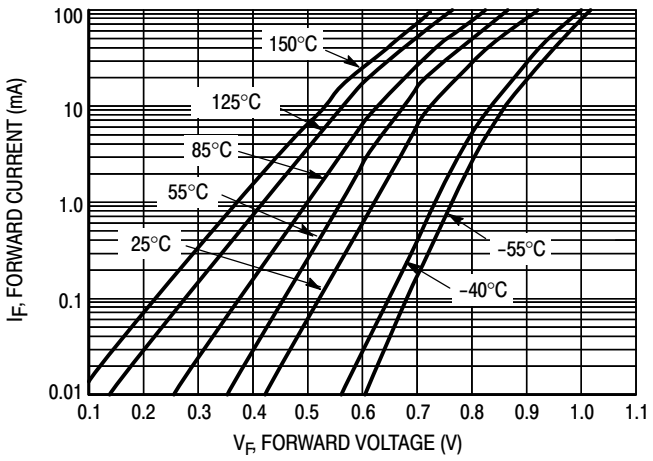


Figure 2. V_F vs. I_F

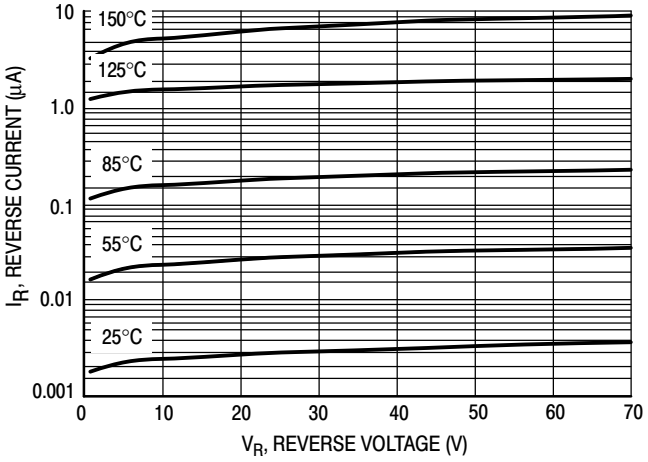


Figure 3. I_R vs. V_R

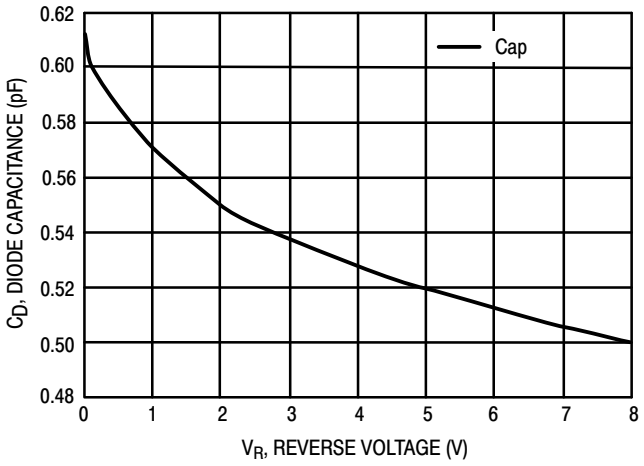
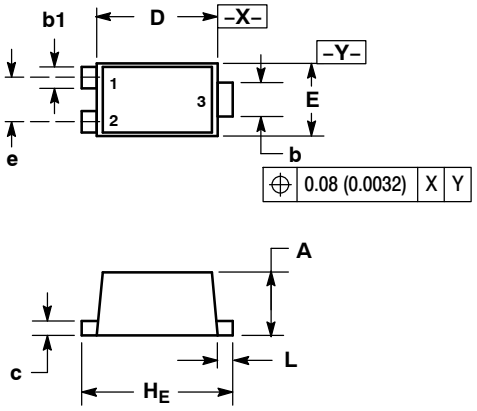


Figure 4. Capacitance

NSD16F3T5G

PACKAGE DIMENSIONS

SOT−1123
CASE 524AA−01
ISSUE A

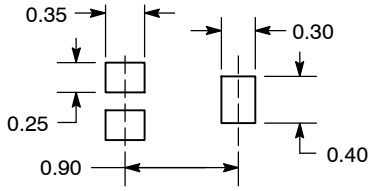


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

	MILLIMETERS			INCHES		
DIM	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	
H_E	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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NSD16F3/D

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