

NSD070AL

Switching Diode

Features

- NSV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free, Halogen Free/BFR Free and are RoHS Compliant

MAXIMUM RATINGS

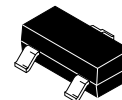
Rating	Symbol	Value	Unit
Reverse Voltage	V_R	70	V
Forward Current (DC)	I_F	200	mA
Non-Repetitive Peak Forward Current $t = 1.0$ s	I_{FSM}	500	mA

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.

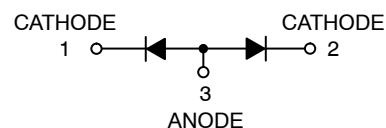


ON Semiconductor[®]

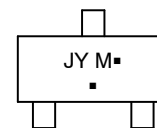
www.onsemi.com



**CASE 318
SOT-23**



MARKING DIAGRAM



JY = Specific Device Code
M = Date Code*
▪ = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

Device	Package	Shipping [†]
NSD070ALT1G	SOT-23 (Pb-Free)	3,000 / Tape & Reel
NSVD070ALT1G	SOT-23 (Pb-Free)	3,000 / 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.

NSD070AL

THERMAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Thermal Resistance Junction-to-Ambient (Note 1)	$R_{\theta JA}$	-	-	556	$^{\circ}\text{C}/\text{W}$
Total Device Dissipation @ $T_A = 25^{\circ}\text{C}$	P_D	-	-	225	mW
Junction and Storage Temperature Range	T_J, T_{stg}	-	-	-65 to +150	$^{\circ}\text{C}$

1. FR-4 = $1.0 \times 0.75 \times 0.062$ in.

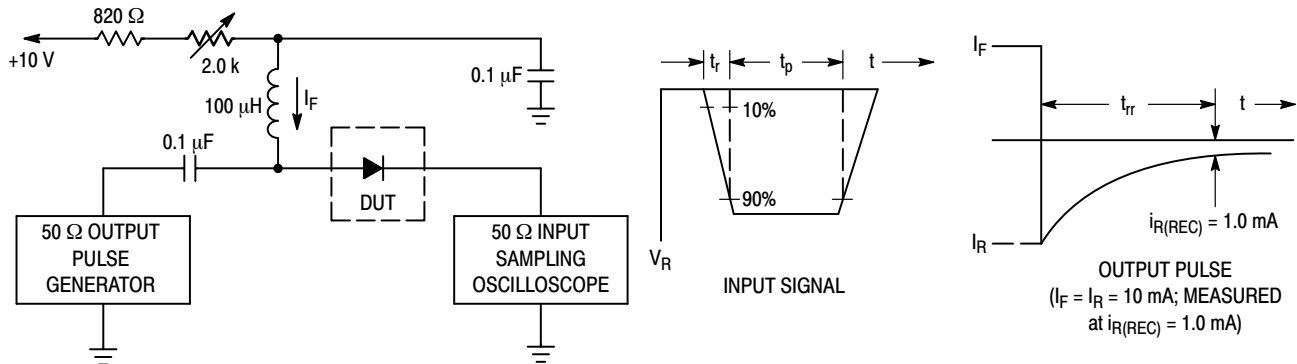
ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Reverse Breakdown Voltage ($V_R = 70$ Vdc)	$V_{(BR)}$	70	-	-	V
Reverse Voltage Leakage Current ($V_R = 70$ Vdc) ($V_R = 70$ Vdc, $T_J = 150^{\circ}\text{C}$)	I_R	-	-	5.0 80	nA
Diode Capacitance ($V_R = 0$ V, $f = 1.0$ MHz)	C_D	-	1.0	2.0	pF
Forward Voltage ($I_F = 1.0$ mA) ($I_F = 10$ mA) ($I_F = 50$ mA) ($I_F = 150$ mA)	V_F	-	-	900 1000 1100 1250	mV
Reverse Recovery Time ($I_F = I_R = 10$ mA) (Figure 1)	t_{rr}	-	-	3.0	μs

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 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

NSD070AL

TYPICAL CHARACTERISTICS

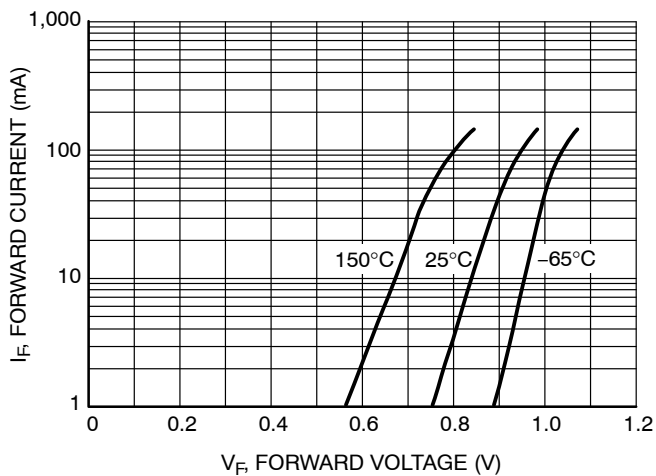


Figure 2. Forward Voltage

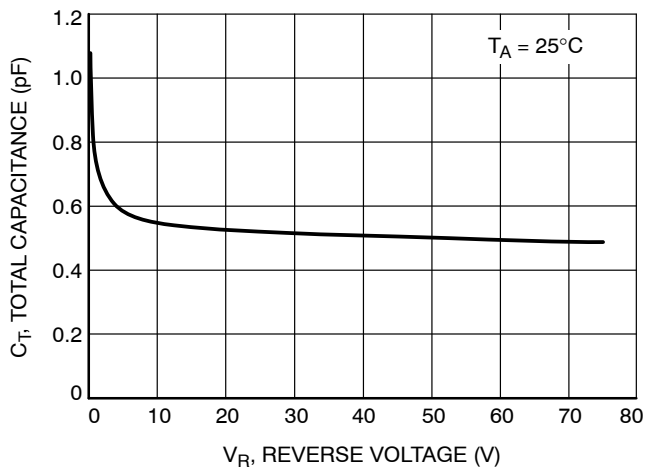


Figure 3. Capacitance

MECHANICAL CASE OUTLINE PACKAGE DIMENSIONS



SOT-23 (TO-236)
CASE 318
ISSUE AT

DATE 01 MAR 2023

SCALE 4:1



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 THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

DIM	MILLIMETERS			INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	0.89	1.00	1.11	0.035	0.039	0.044
A1	0.01	0.06	0.10	0.000	0.002	0.004
b	0.37	0.44	0.50	0.015	0.017	0.020
c	0.08	0.14	0.20	0.003	0.006	0.008
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.080
L	0.30	0.43	0.55	0.012	0.017	0.022
L1	0.35	0.54	0.69	0.014	0.021	0.027
H _E	2.10	2.40	2.64	0.083	0.094	0.104
T	0°	---	10°	0°	---	10°

GENERIC MARKING DIAGRAM*



- XXX = Specific Device Code
- M = Date Code
- = Pb-Free Package

*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.



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.

STYLES ON PAGE 2

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**MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS**



**SOT-23 (TO-236)
CASE 318
ISSUE AT**

DATE 01 MAR 2023

- | | | | | | |
|---|---|---|---|---|---|
| STYLE 1 THRU 5:
CANCELLED | STYLE 6:
PIN 1. BASE
2. EMITTER
3. COLLECTOR | STYLE 7:
PIN 1. EMITTER
2. BASE
3. COLLECTOR | STYLE 8:
PIN 1. ANODE
2. NO CONNECTION
3. CATHODE | | |
| STYLE 9:
PIN 1. ANODE
2. ANODE
3. CATHODE | STYLE 10:
PIN 1. DRAIN
2. SOURCE
3. GATE | STYLE 11:
PIN 1. ANODE
2. CATHODE
3. CATHODE-ANODE | STYLE 12:
PIN 1. CATHODE
2. CATHODE
3. ANODE | STYLE 13:
PIN 1. SOURCE
2. DRAIN
3. GATE | STYLE 14:
PIN 1. CATHODE
2. GATE
3. ANODE |
| STYLE 15:
PIN 1. GATE
2. CATHODE
3. ANODE | STYLE 16:
PIN 1. ANODE
2. CATHODE
3. CATHODE | STYLE 17:
PIN 1. NO CONNECTION
2. ANODE
3. CATHODE | STYLE 18:
PIN 1. NO CONNECTION
2. CATHODE
3. ANODE | STYLE 19:
PIN 1. CATHODE
2. ANODE
3. CATHODE-ANODE | STYLE 20:
PIN 1. CATHODE
2. ANODE
3. GATE |
| STYLE 21:
PIN 1. GATE
2. SOURCE
3. DRAIN | STYLE 22:
PIN 1. RETURN
2. OUTPUT
3. INPUT | STYLE 23:
PIN 1. ANODE
2. ANODE
3. CATHODE | STYLE 24:
PIN 1. GATE
2. DRAIN
3. SOURCE | STYLE 25:
PIN 1. ANODE
2. CATHODE
3. GATE | STYLE 26:
PIN 1. CATHODE
2. ANODE
3. NO CONNECTION |
| STYLE 27:
PIN 1. CATHODE
2. CATHODE
3. CATHODE | STYLE 28:
PIN 1. ANODE
2. ANODE
3. ANODE | | | | |

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