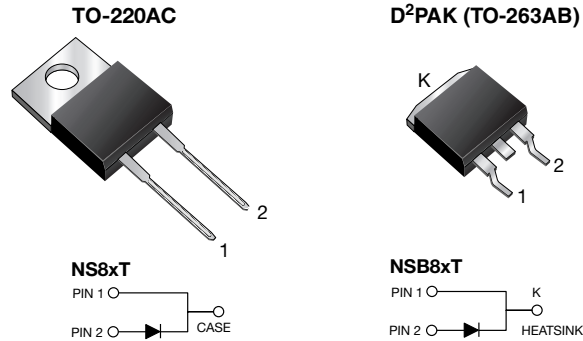




**THE DATASHEET OF
NSB8DT-E3/81**



Glass Passivated General Purpose Plastic Rectifier



RoHS
COMPLIANT
HALOGEN
FREE

FEATURES

- Power pack
- Glass passivated pellet chip junction
- Low forward voltage drop
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C for D²PAK (TO-263AB package)
- Solder dip 275 °C max. 10 s, per JESD 22-B106 for TO-220AC package
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

LINKS TO ADDITIONAL RESOURCES



TYPICAL APPLICATIONS

For use in general purpose rectification of power supplies, inverters, converters and freewheeling diodes application.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8.0 A
V_{RRM}	50 V to 1000 V
I_{FSM}	125 A
V_F	1.1 V
T_J max.	150 °C
Package	TO-220AC, D ² PAK (TO-263AB)
Circuit configuration	Single

MECHANICAL DATA

Case: TO-220AC, D²PAK (TO-263AB)

TO-220AC molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant

D²PAK (TO-263AB) molding compound meets UL 94 V-0 flammability rating

Base P/N-M3 - RoHS-compliant, halogen-free

Base P/NHM3 - RoHS-compliant, halogen-free, AEC-Q101 qualified

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 and M3 suffix meets JESD 201 class 1A whisker test, HM3 suffix meets JESD 201 class 2 whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs maximum



MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)									
PARAMETER	SYMBOL	NS8AT	NS8BT	NS8DT	NS8GT	NS8JT	NS8KT	NS8MT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS voltage	V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	V_{DC}	50	100	200	400	600	800	1000	V
Maximum average forward rectified current at $T_C = 100\text{ }^\circ\text{C}$	$I_{F(AV)}$	8.0							A
Peak forward surge current 8.3 ms single sine-wave superimposed on rated load	I_{FSM}	125							A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150							$^\circ\text{C}$
Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1\text{ min}$	V_{AC}	1500							V

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)											
PARAMETER	TEST CONDITIONS		SYMBOL	NS8AT	NS8BT	NS8DT	NS8GT	NS8JT	NS8KT	NS8MT	UNIT
Maximum instantaneous forward voltage	8.0 A	$T_J = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$				1.1				V
Maximum DC reverse current at rated DC blocking voltage		$T_J = 25\text{ }^\circ\text{C}$	I_R				10				μA
		$T_J = 100\text{ }^\circ\text{C}$					100				
Typical junction capacitance	4.0 V, 1 MHz		C_J				55				pF

Note(1) Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	NSXT	NSFXT	NSBXT	UNIT
Typical thermal resistance from junction to case	$R_{\theta JC}$	3.0	5.0	3.0	$^\circ\text{C/W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AC	NS8JT-E3/45	1.80	45	50/tube	Tube
TO-263AB	NSB8JT-M3/P	1.77	P	50/tube	Tube
TO-263AB	NSB8JT-M3/I	1.77	I	800/reel	Tape and reel
TO-263AB	NSB8JTHM3/P ⁽¹⁾	1.77	P	50/tube	Tube
TO-263AB	NSB8JTHM3/I ⁽¹⁾	1.77	I	800/reel	Tape and reel

Note

(1) AEC-Q101 qualified

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

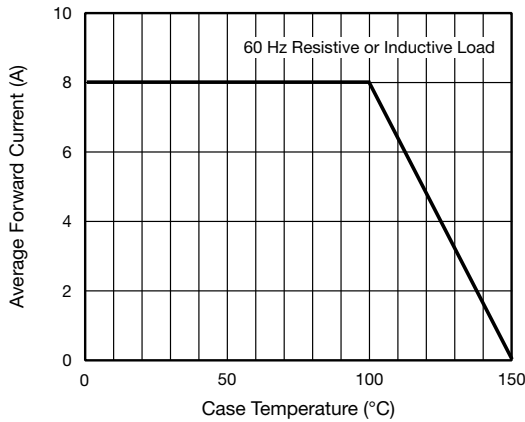


Fig. 1 - Forward Current Derating Curve

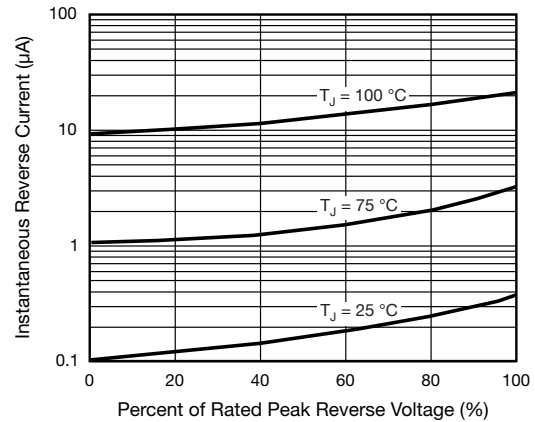


Fig. 4 - Typical Reverse Characteristics

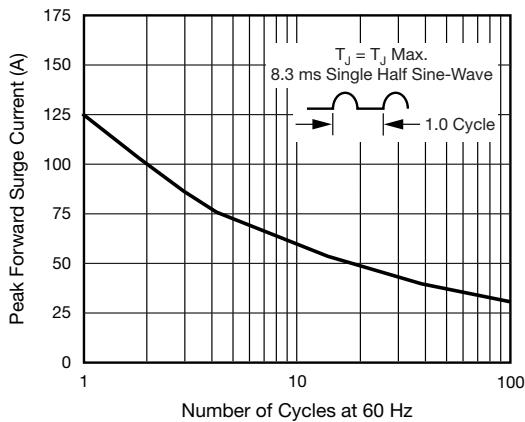


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

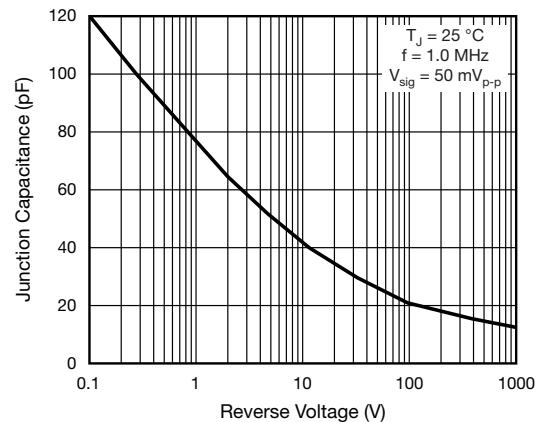


Fig. 5 - Typical Junction Capacitance Per Leg

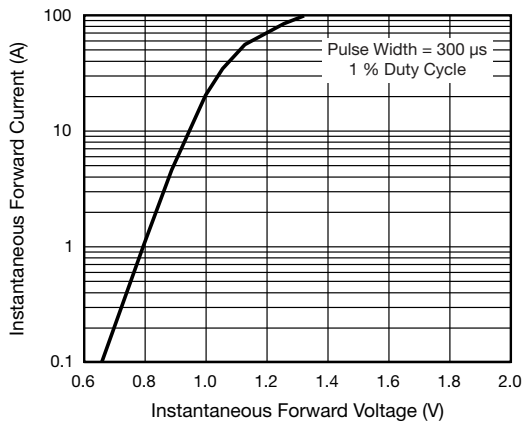
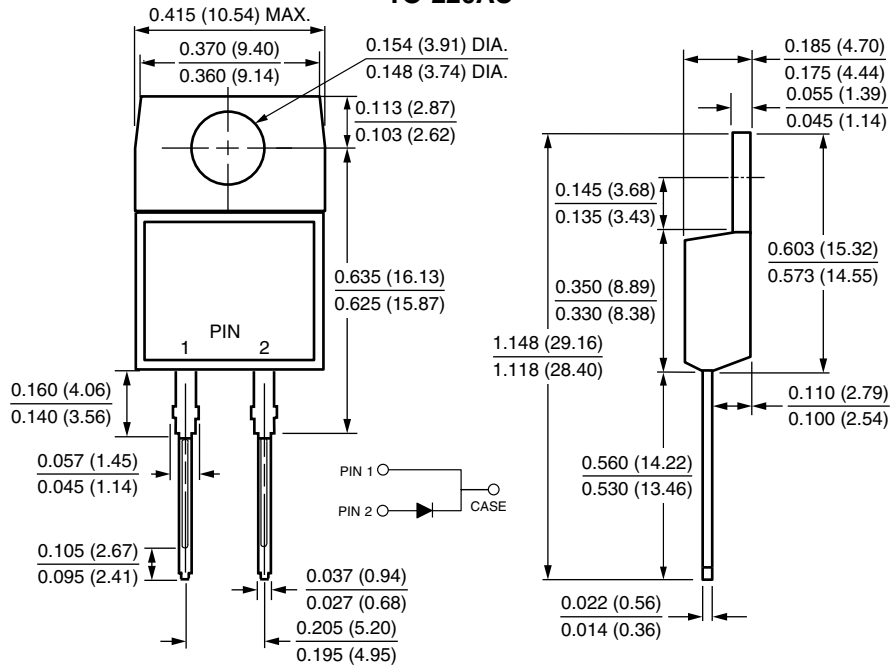


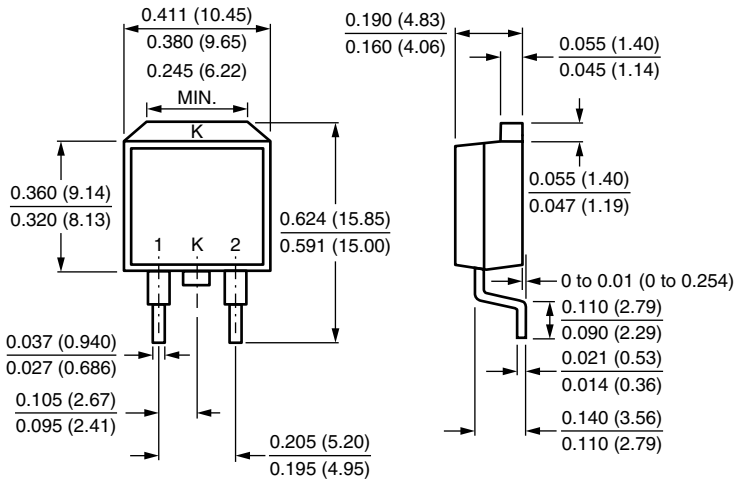
Fig. 3 - Typical Instantaneous Forward Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

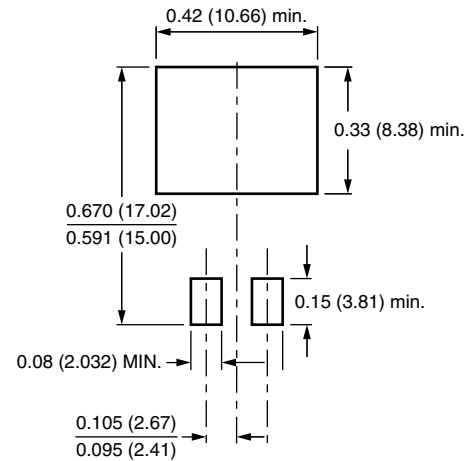
TO-220AC



D²PAK (TO-263AB)



Mounting Pad Layout





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