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[Vishay Semiconductor/Diodes Division](#)
[NSB8AT-E3/81](#)

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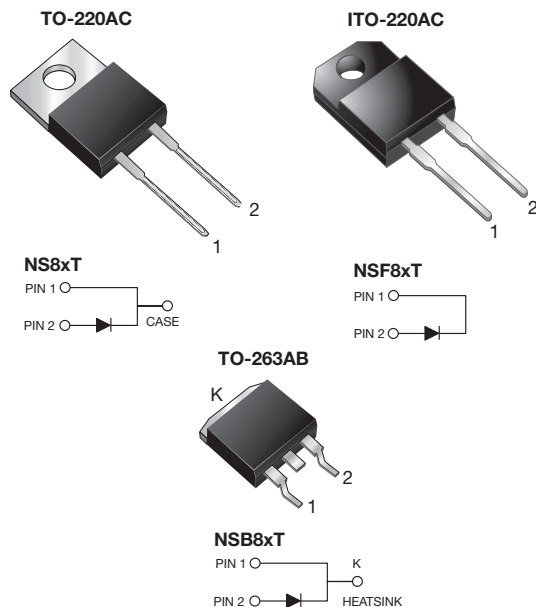


www.vishay.com

NS8xT, NSF8xT, NSB8xT

Vishay General Semiconductor

Glass Passivated General Purpose Plastic Rectifier



FEATURES

- Power pack
- Glass passivated 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 TO-263AB package)
- Solder dip 275 °C max. 10 s, per JESD 22-B106 (for TO-220AC and ITO-220AC package)
- AEC-Q101 qualified available
- Automotive ordering code: base P/NHE3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-220AC, ITO-220AC, TO-263AB
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified
Base P/NHE3_X - RoHS-compliant, AEC-Q101 qualified
("X" denotes revision code e.g. A, B,...)

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs maximum

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	8.0 A
V_{RRM}	50 V to 1000 V
I_{FSM}	125 A
V_F	1.1 V
$T_J \text{ max.}$	150 °C
Package	TO-220AC, ITO-220AC, TO-263AB
Diode variation	Single

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ 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 $T_C = 100 \text{ °C}$	$I_{F(AV)}$	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							°C
Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1 \text{ min}$	V_{AC}	1500							V



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ELECTRICAL CHARACTERISTICS (T _A = 25 °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 °C	V _F ⁽¹⁾	1.1							V
Maximum DC reverse current at rated DC blocking voltage		T _J = 25 °C	I _R	10							μA
		T _J = 100 °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
ITO-220AC	NSF8JT-E3/45	1.95	45	50/tube	Tube
TO-263AB	NSB8JT-E3/45	1.77	45	50/tube	Tube
TO-263AB	NSB8JT-E3/81	1.77	81	800/reel	Tape and reel
TO-220AC	NS8JTHE3/45 ⁽¹⁾	1.80	45	50/tube	Tube
ITO-220AC	NSF8JTHE3/45 ⁽¹⁾	1.95	45	50/tube	Tube
TO-263AB	NSB8JTHE3/45 ⁽¹⁾	1.77	45	50/tube	Tube
TO-263AB	NSB8JTHE3/81 ⁽¹⁾	1.77	81	800/reel	Tape and reel
TO-220AC	NS8JT-E3/P	1.80	P	50/tube	Tube
ITO-220AC	NSF8JT-E3/P	1.95	P	50/tube	Tube
TO-263AB	NSB8JT-E3/P	1.77	P	50/tube	Tube
TO-263AB	NSB8JT-E3/I	1.77	I	800/reel	Tape and reel
TO-220AC	NS8JTHE3_A/P ⁽¹⁾	1.80	P	50/tube	Tube
ITO-220AC	NSF8JTHE3_A/P ⁽¹⁾	1.95	P	50/tube	Tube
TO-263AB	NSB8JTHE3_A/P ⁽¹⁾	1.77	P	50/tube	Tube
TO-263AB	NSB8JTHE3_A/I ⁽¹⁾	1.77	I	800/reel	Tape and reel

Note

⁽¹⁾ AEC-Q101 qualified



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

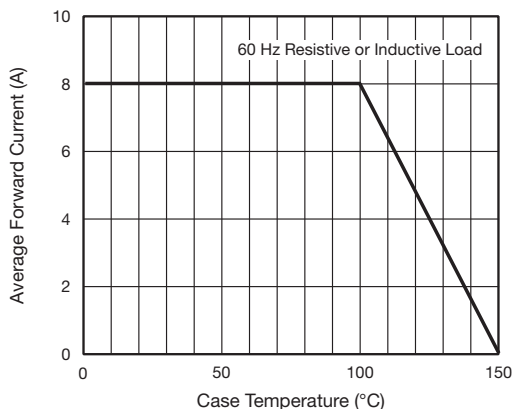


Fig. 1 - Forward Current Derating Curve

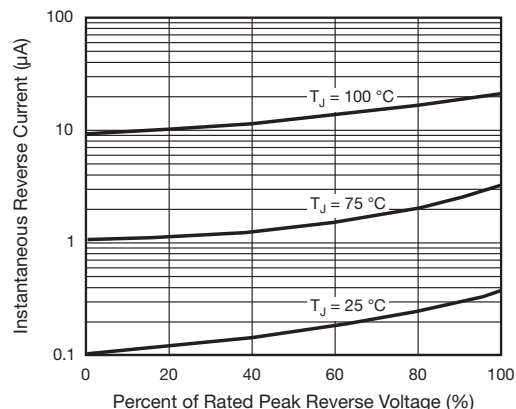


Fig. 4 - Typical Reverse Characteristics

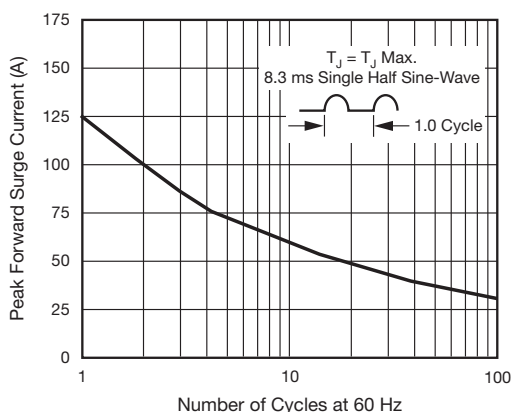


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

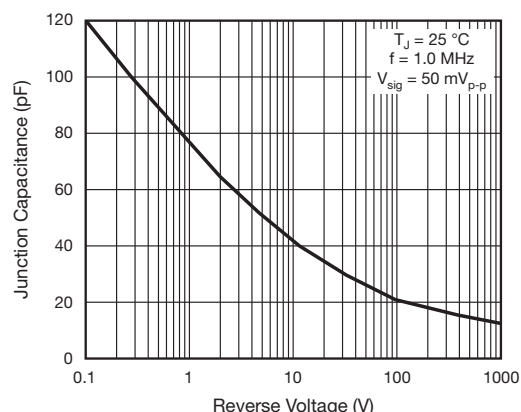


Fig. 5 - Typical Junction Capacitance Per Leg

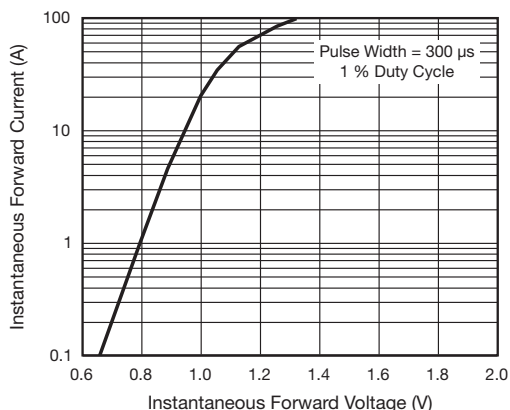


Fig. 3 - Typical Instantaneous Forward Characteristics

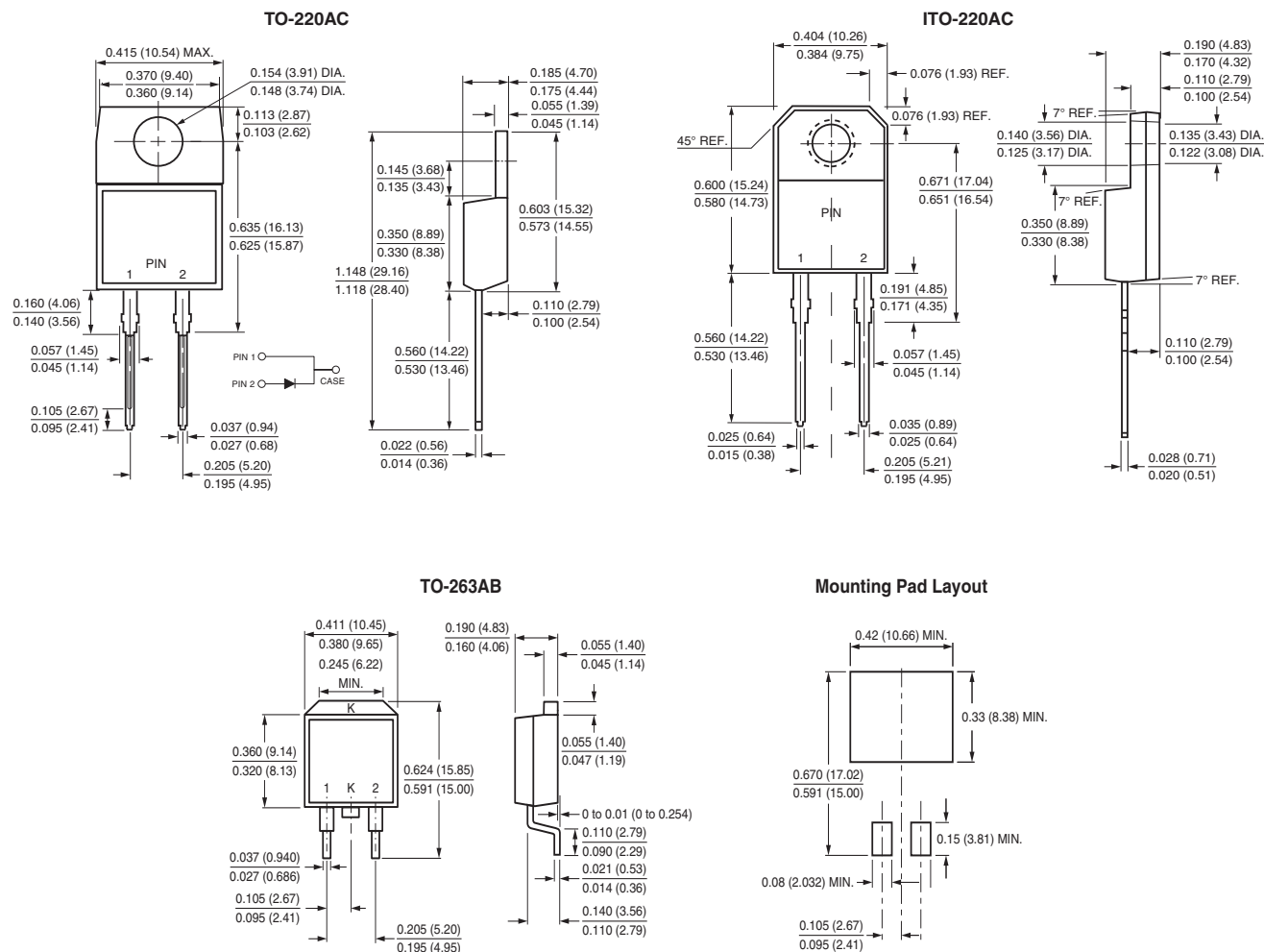


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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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