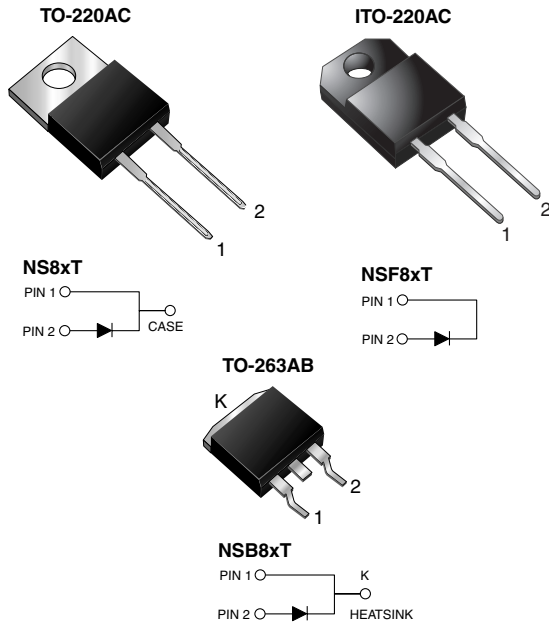


## Glass Passivated General Purpose Plastic Rectifier



### FEATURES

- 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 260 °C, 40 s (for TO-220AC and ITO-220AC package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**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

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), 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

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



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

**Note:**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ 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	$^\circ\text{C/W}$

<b>ORDERING INFORMATION</b> (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 reel
TO-220AC	NS8JT <sup>HE</sup> 3/45 <sup>(1)</sup>	1.80	45	50/tube	Tube
ITO-220AC	NSF8JT <sup>HE</sup> 3/45 <sup>(1)</sup>	1.95	45	50/tube	Tube
TO-263AB	NSB8JT <sup>HE</sup> 3/45 <sup>(1)</sup>	1.77	45	50/tube	Tube
TO-263AB	NSB8JT <sup>HE</sup> 3/81 <sup>(1)</sup>	1.77	81	800/reel	Tape reel

**Note:**

(1) Automotive grade AEC Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

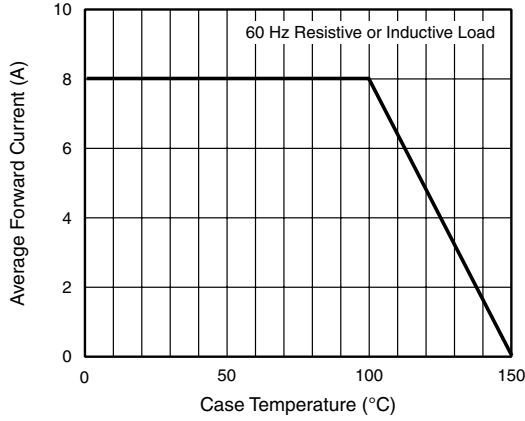


Figure 1. Forward Current Derating Curve

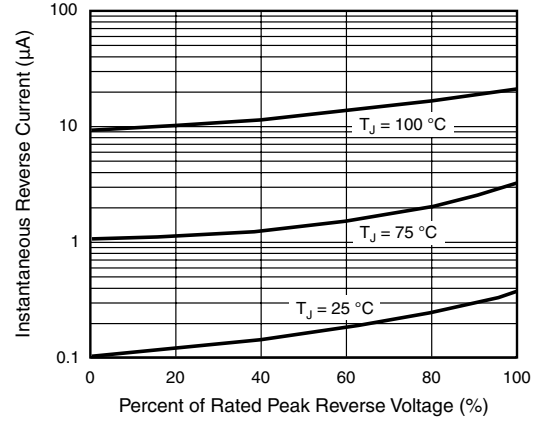


Figure 4. Typical Reverse Characteristics

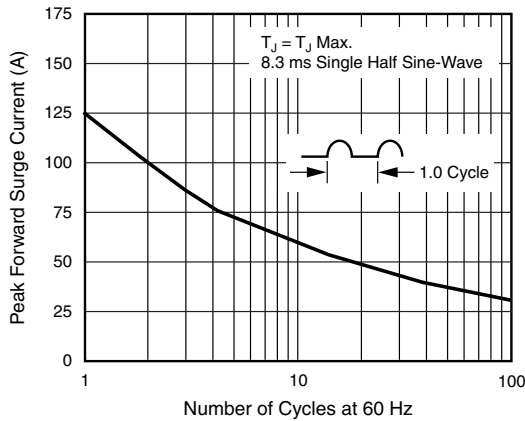


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

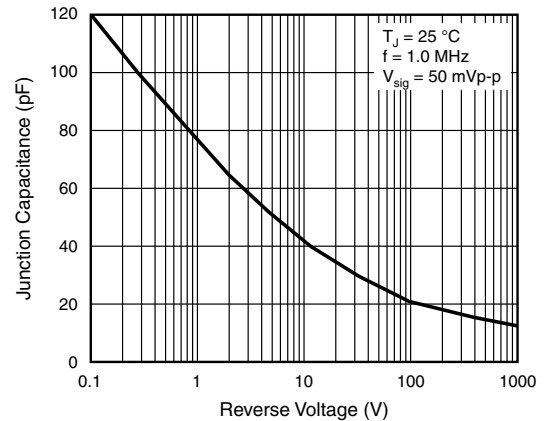


Figure 5. Typical Junction Capacitance Per Leg

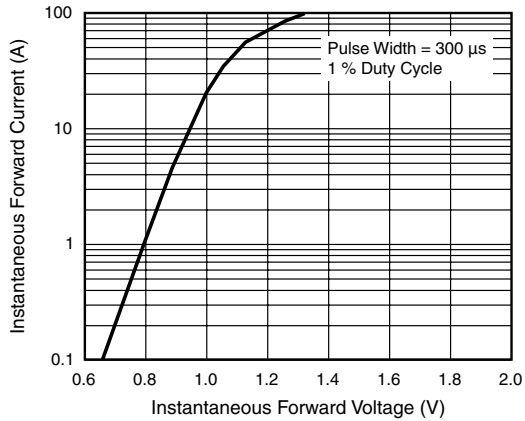


Figure 3. Typical Instantaneous Forward Characteristics

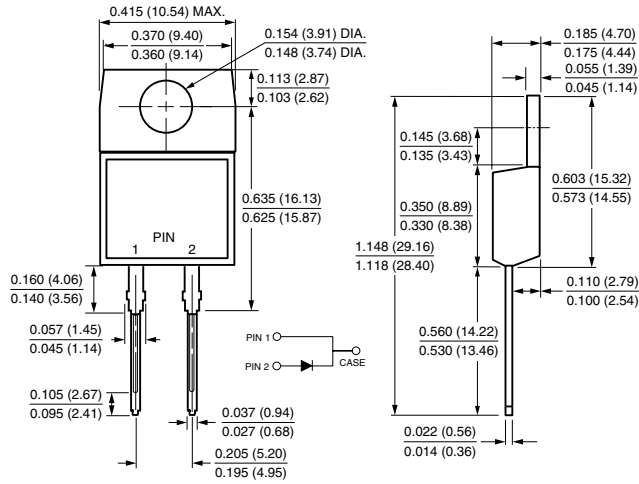
# NS(F,B)8AT thru NS(F,B)8MT

Vishay General Semiconductor

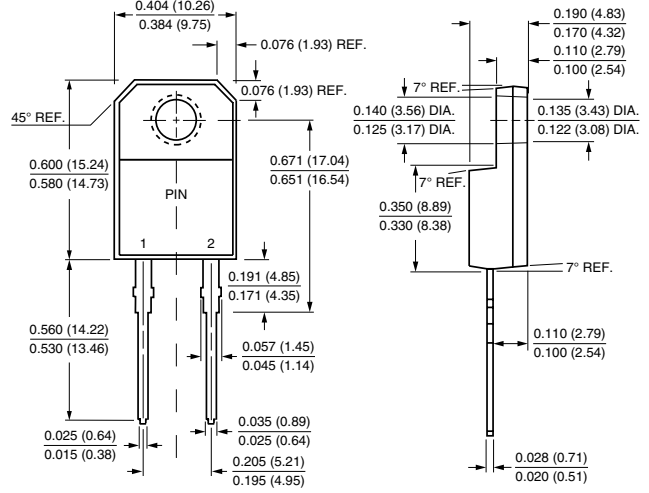


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

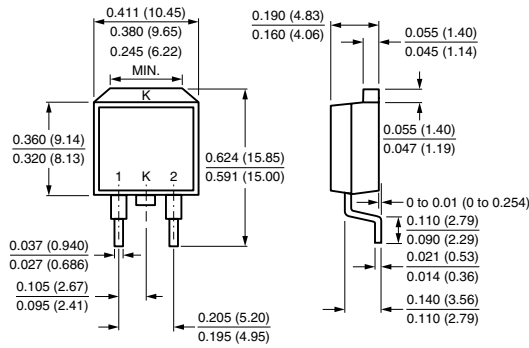
**TO-220AC**



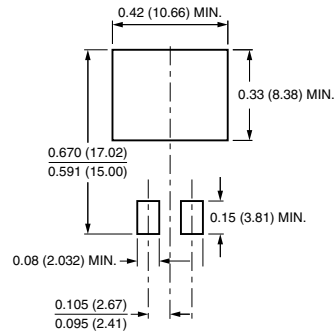
**ITO-220AC**



**TO-263AB**



**Mounting Pad Layout**





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