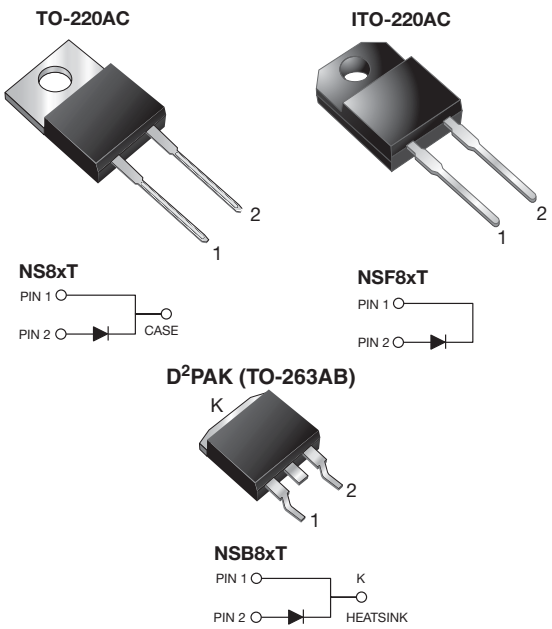
Glass Passivated General Purpose Plastic Rectifier



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 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 (for ITO-220AC and TO-263AB package)
- 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.

DESIGN SUPPORT TOOLS

click logo to get started

3D Models Available

MECHANICAL DATA

Case: TO-220AC, ITO-220AC, D²PAK (TO-263AB)
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant
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 max.	150 °C
Package	TO-220AC, ITO-220AC, D²PAK (TO-263AB)
Circuit configuration	Single

MAXIMUM RATINGS (T_A = 25 °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 °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 min	V_{AC}	1500							V

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 °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	°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	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
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, available in ITO-220AC and TO-263AB package

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

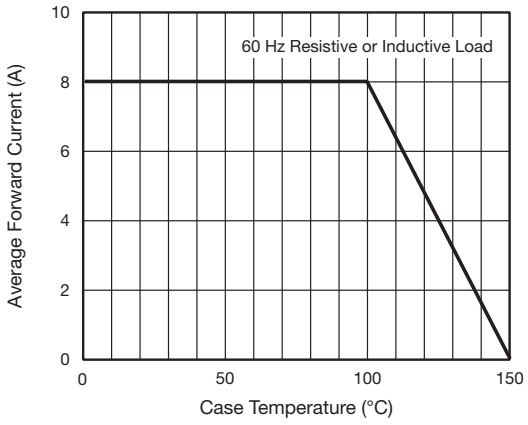


Fig. 1 - Forward Current Derating Curve

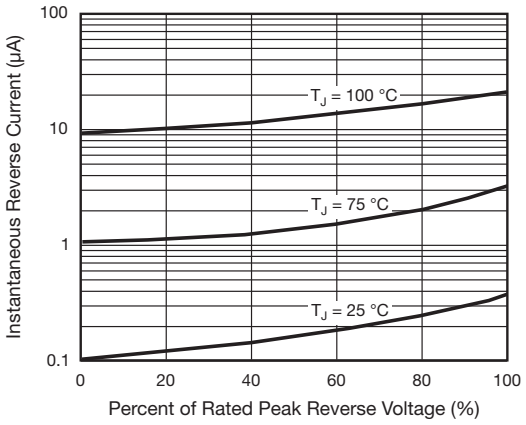


Fig. 4 - Typical Reverse Characteristics

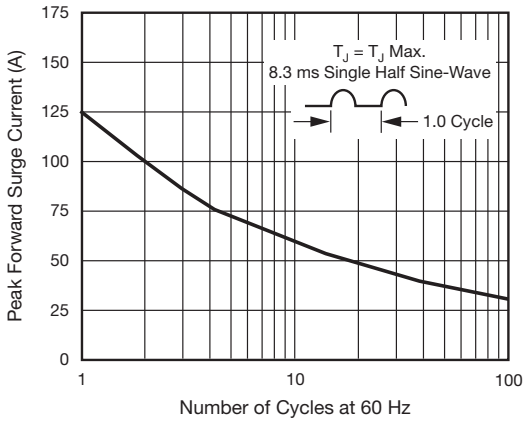


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

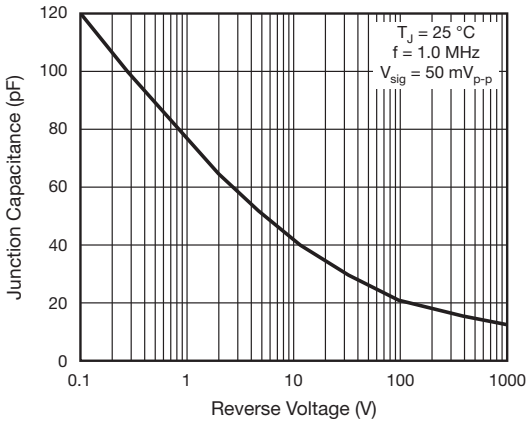


Fig. 5 - Typical Junction Capacitance Per Leg

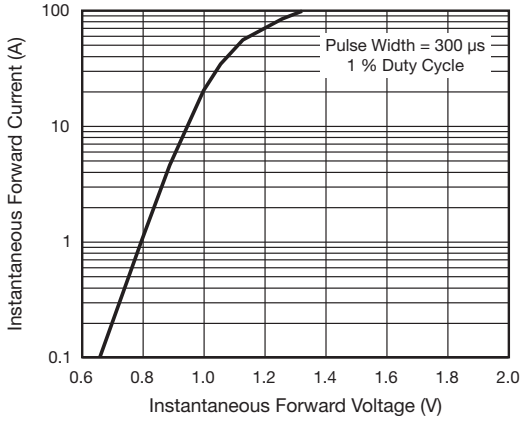
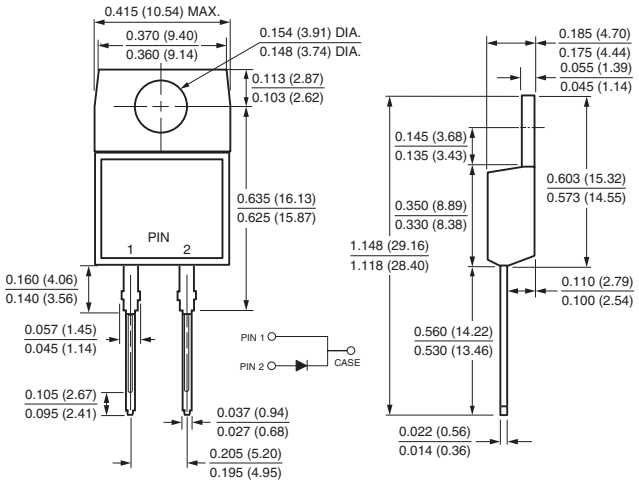


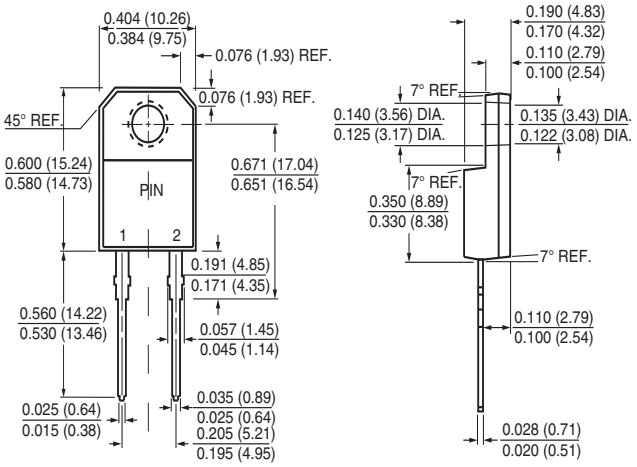
Fig. 3 - Typical Instantaneous Forward Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

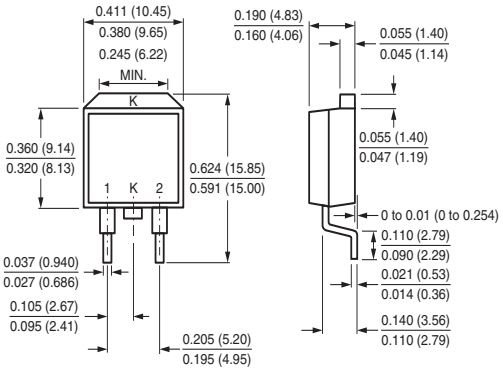
TO-220AC



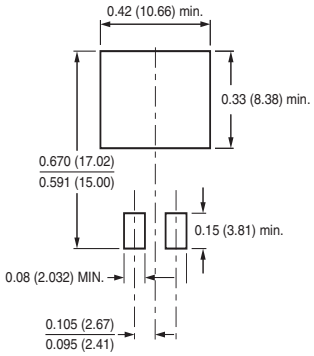
ITO-220AC



D²PAK (TO-263AB)



Mounting Pad Layout



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