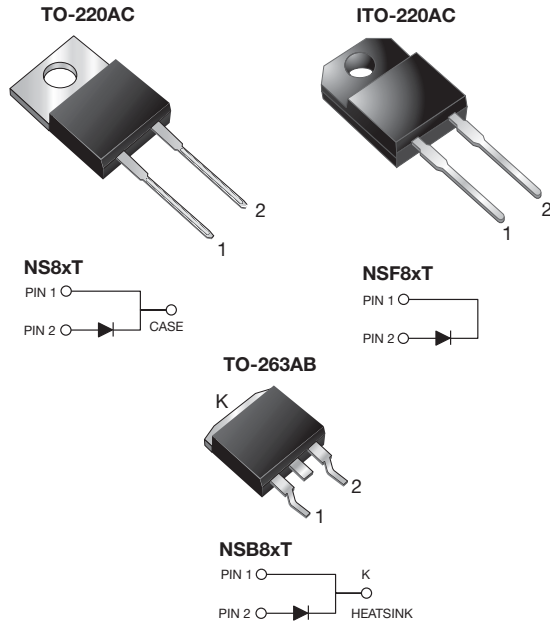


Glass Passivated General Purpose Plastic Rectifier



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
- 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, commercial grade
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

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 ($T_A = 25$ °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 ($T_A = 25\text{ }^\circ\text{C}$ 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 |
| 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 _{THE3} /45 ⁽¹⁾ | 1.80 | 45 | 50/tube | Tube |
| ITO-220AC | NSF8JT _{THE3} /45 ⁽¹⁾ | 1.95 | 45 | 50/tube | Tube |
| TO-263AB | NSB8JT _{THE3} /45 ⁽¹⁾ | 1.77 | 45 | 50/tube | Tube |
| TO-263AB | NSB8JT _{THE3} /81 ⁽¹⁾ | 1.77 | 81 | 800/reel | Tape and reel |

Note

(1) AEC-Q101 qualified

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

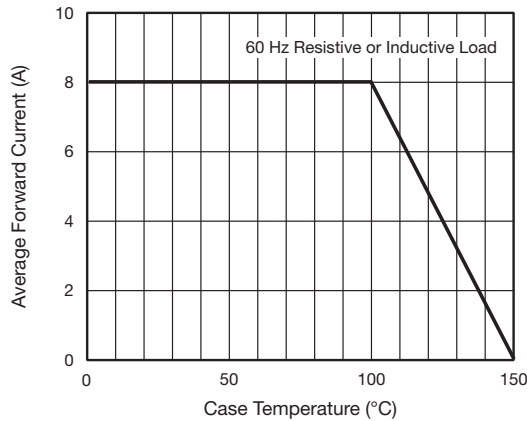


Fig. 1 - Forward Current Derating Curve

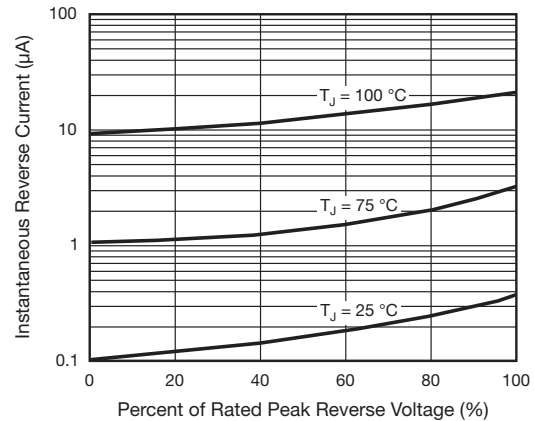


Fig. 4 - Typical Reverse Characteristics

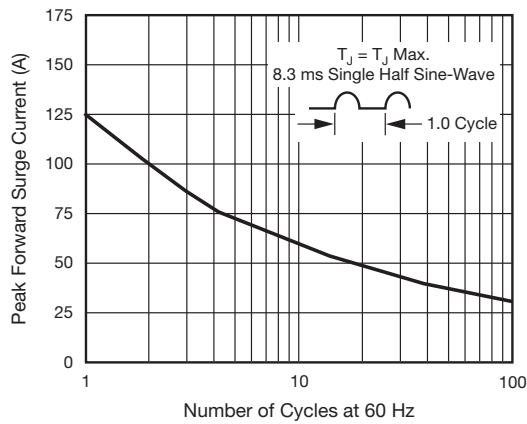


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

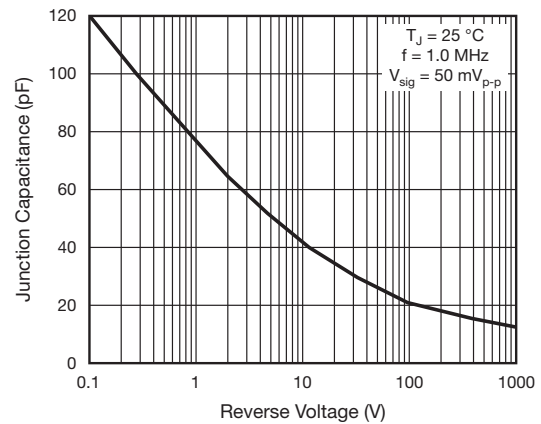


Fig. 5 - Typical Junction Capacitance Per Leg

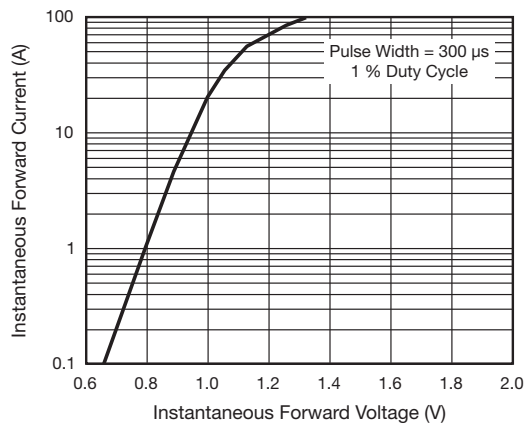
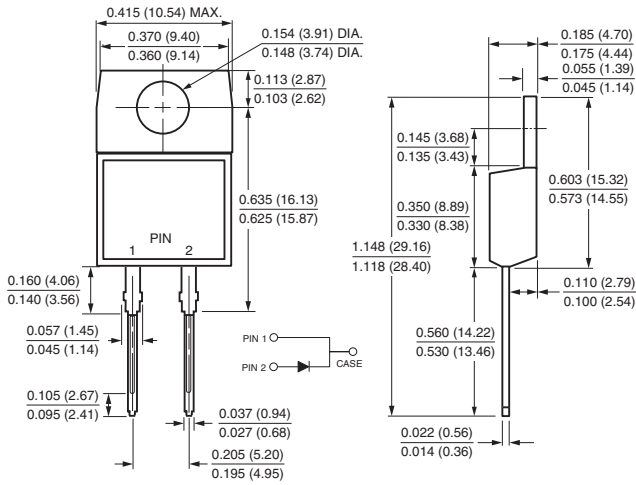


Fig. 3 - Typical Instantaneous Forward Characteristics

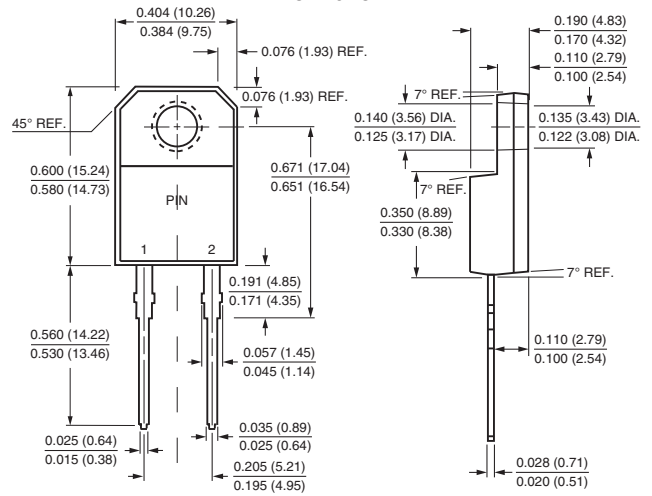


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

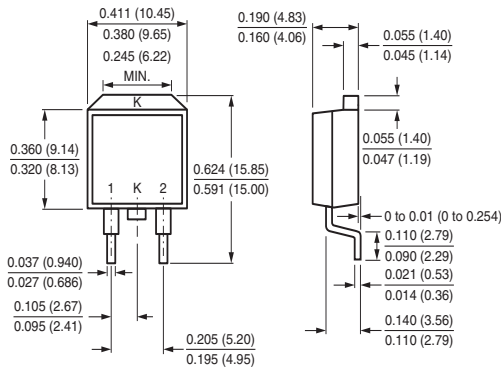
TO-220AC



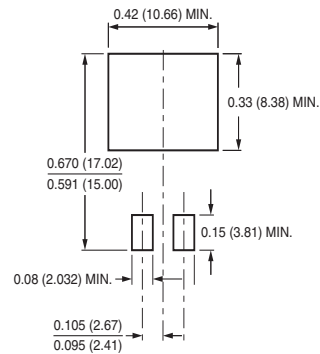
ITO-220AC



TO-263AB



Mounting Pad Layout





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