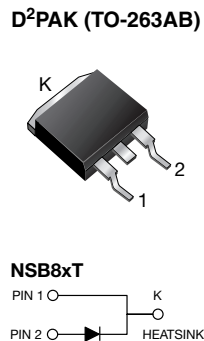
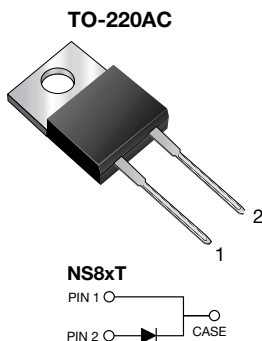




## Glass Passivated General Purpose Plastic Rectifier



### 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 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](http://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, D²PAK (TO-263AB) |
| Circuit configuration | Single                     |

### MECHANICAL DATA

**Case:** TO-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

### 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 <sub>J</sub> = 25 °C  | V <sub>F</sub> <sup>(1)</sup> | 1.1   |       |       |       |       |       |       | V    |
| Maximum DC reverse current at rated DC blocking voltage |                 | T <sub>J</sub> = 25 °C  | I <sub>R</sub>                | 10    |       |       |       |       |       |       | μA   |
|                                                         |                 | T <sub>J</sub> = 100 °C |                               | 100   |       |       |       |       |       |       |      |
| Typical junction capacitance                            | 4.0 V, 1 MHz    |                         | C <sub>J</sub>                | 55    |       |       |       |       |       |       | pF   |

**Note**

<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  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-E3/45                 | 1.77            | 45           | 50/tube       | Tube          |
| TO-263AB | NSB8JT-E3/81                 | 1.77            | 81           | 800/reel      | Tape and reel |
| TO-220AC | NS8JT-E3/45 <sup>(1)</sup>   | 1.80            | 45           | 50/tube       | Tube          |
| TO-263AB | NSB8JT-E3_B/P <sup>(1)</sup> | 1.77            | P            | 50/tube       | Tube          |
| TO-263AB | NSB8JT-E3_B/I <sup>(1)</sup> | 1.77            | I            | 800/reel      | Tape and reel |

**Note**

<sup>(1)</sup> AEC-Q101 qualified

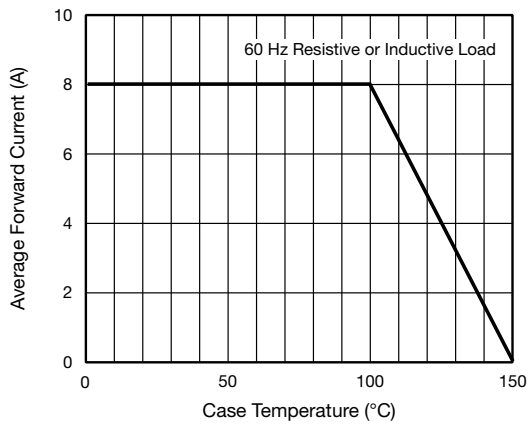
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

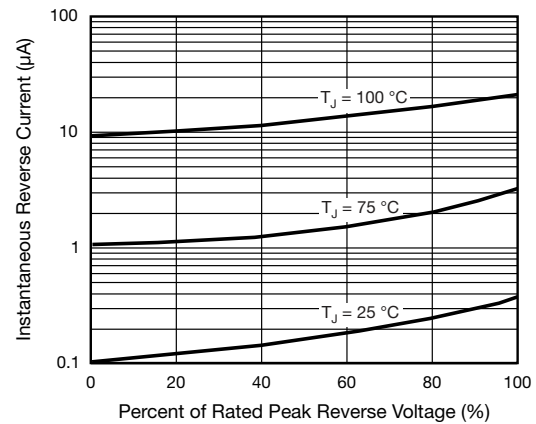


Fig. 4 - Typical Reverse Characteristics

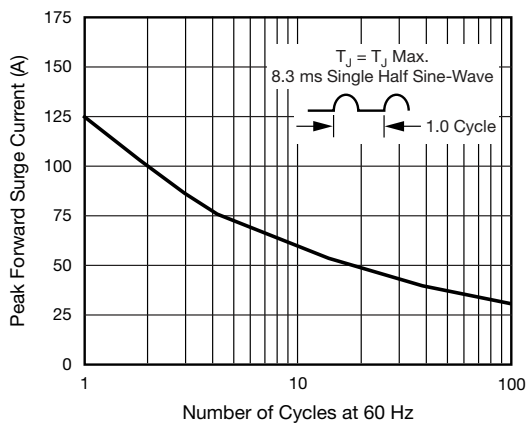


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

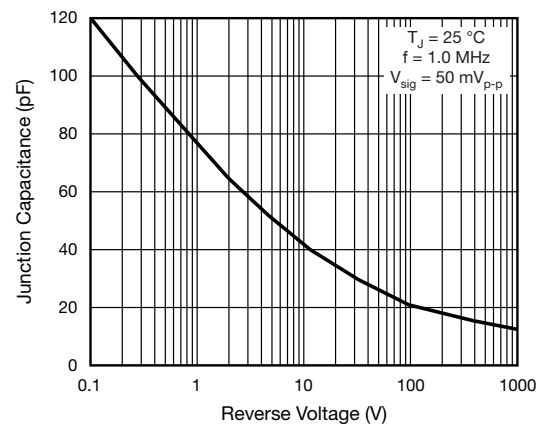


Fig. 5 - Typical Junction Capacitance Per Leg

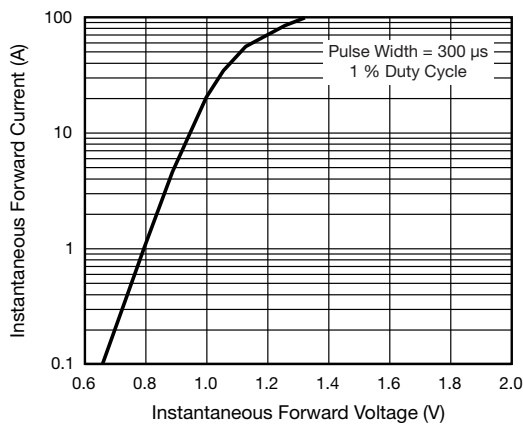
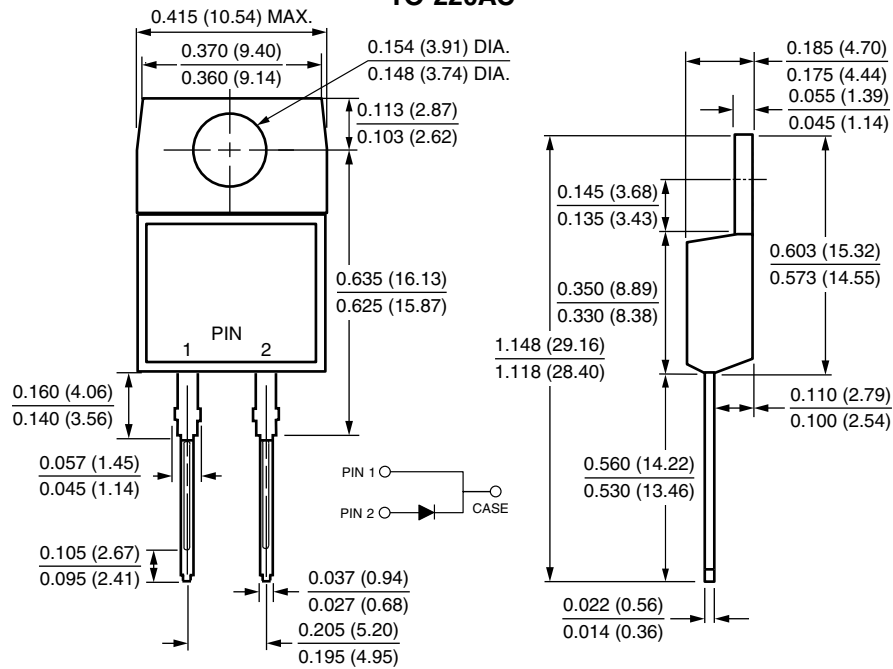
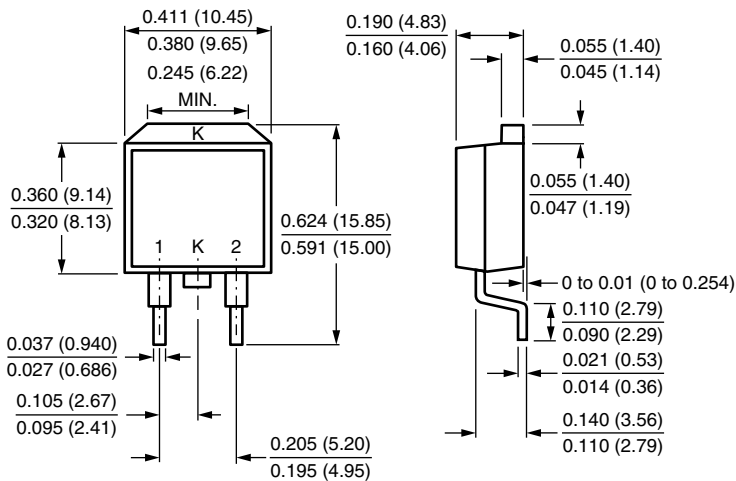
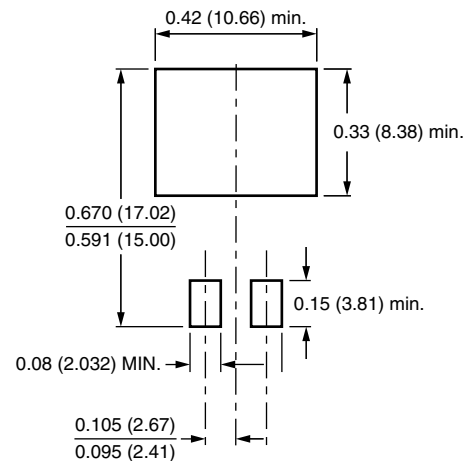


Fig. 3 - Typical Instantaneous Forward Characteristics

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)**TO-220AC****D<sup>2</sup>PAK (TO-263AB)****Mounting Pad Layout**



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