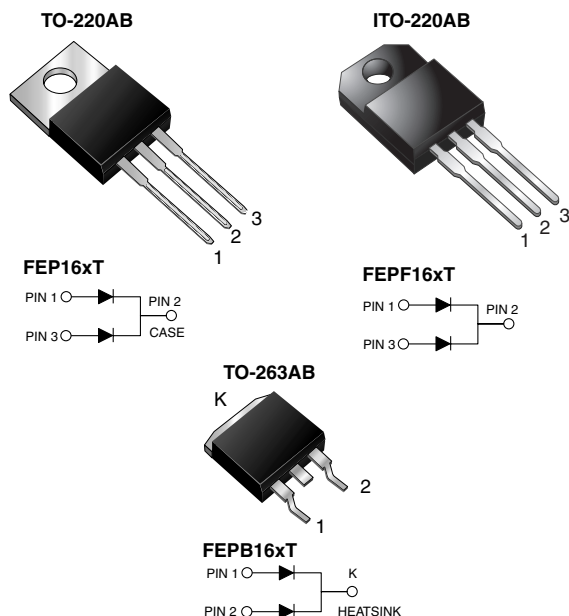


## Dual Common-Cathode Ultrafast Plastic Rectifier



### FEATURES

- Glass passivated chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- High forward surge capability
- AEC Q101 qualified
- 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-220AB and ITO-220AB package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, inverters, freewheeling diodes, dc-to-dc converters, and other power switching application.

### MECHANICAL DATA

**Case:** TO-220AB, ITO-220AB, 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 x 2              |
| $V_{RRM}$   | 50 V to 600 V          |
| $I_{FSM}$   | 200 A, 125 A           |
| $t_{rr}$    | 35 ns, 50 ns           |
| $V_F$       | 0.95 V, 1.30 V, 1.50 V |
| $T_J$ max.  | 150 °C                 |

### MAXIMUM RATINGS ( $T_C = 25$ °C unless otherwise noted)

| MAXIMUM RATINGS (T <sub>C</sub> = 25 °C unless otherwise noted)                              |                                   |              |          |          |          |          |          |          |          |      |
|----------------------------------------------------------------------------------------------|-----------------------------------|--------------|----------|----------|----------|----------|----------|----------|----------|------|
| PARAMETER                                                                                    | SYMBOL                            | FEP 16AT     | FEP 16BT | FEP 16CT | FEP 16DT | FEP 16FT | FEP 16GT | FEP 16HT | FEP 16JT | UNIT |
| Maximum repetitive peak reverse voltage                                                      | V <sub>RRM</sub>                  | 50           | 100      | 150      | 200      | 300      | 400      | 500      | 600      | V    |
| Maximum RMS voltage                                                                          | V <sub>RMS</sub>                  | 35           | 70       | 105      | 140      | 210      | 280      | 350      | 420      | V    |
| Maximum DC blocking voltage                                                                  | V <sub>DC</sub>                   | 50           | 100      | 150      | 200      | 300      | 400      | 500      | 600      | V    |
| Maximum average forward rectified current at T <sub>C</sub> = 100 °C                         | I <sub>F(AV)</sub>                | 16           |          |          |          |          |          |          |          | A    |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode | I <sub>FSM</sub>                  | 200          |          |          |          | 125      |          |          |          | A    |
| Operating storage and temperature range                                                      | T <sub>J</sub> , T <sub>STG</sub> | - 55 to +150 |          |          |          |          |          |          |          | °C   |
| Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min                       | V <sub>AC</sub>                   | 1500         |          |          |          |          |          |          |          | V    |

| ELECTRICAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted) |                                                                             |                                                   |                 |           |          |          |          |          |          |          |          |      |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------|---------------------------------------------------|-----------------|-----------|----------|----------|----------|----------|----------|----------|----------|------|
| PARAMETER                                                                  | TEST CONDITIONS                                                             |                                                   | SYMBOL          | FEP 16AT  | FEP 16BT | FEP 16CT | FEP 16DT | FEP 16FT | FEP 16GT | FEP 16HT | FEP 16JT | UNIT |
| Maximum instantaneous forward voltage per diode <sup>(1)</sup>             | 8.0 A                                                                       |                                                   | V <sub>F</sub>  | 0.95      |          |          |          | 1.30     |          | 1.50     |          | V    |
| Maximum DC reverse current per diode at rated DC blocking voltage          |                                                                             | T <sub>C</sub> = 25 °C<br>T <sub>C</sub> = 100 °C | I <sub>R</sub>  | 10<br>500 |          |          |          |          |          |          |          | μA   |
| Maximum reverse recovery time per diode                                    | I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A,<br>I <sub>rr</sub> = 0.25 A |                                                   | t <sub>rr</sub> | 35        |          |          |          | 50       |          |          |          | ns   |
| Typical junction capacitance per diode                                     | 4.0 V, 1 MHz                                                                |                                                   | C <sub>J</sub>  | 85        |          |          |          |          |          | 60       |          | pF   |

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

| <b>THERMAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                 |     |      |      |                      |
|---------------------------------------------------------------------------------------------|-----------------|-----|------|------|----------------------|
| PARAMETER                                                                                   | SYMBOL          | FEP | FEPF | FEPB | UNIT                 |
| Typical thermal resistance from junction to case per diode                                  | $R_{\theta JC}$ | 2.2 | 3.1  | 2.2  | $^{\circ}\text{C/W}$ |

| <b>ORDERING INFORMATION</b> (Example) |                               |                 |              |               |               |
|---------------------------------------|-------------------------------|-----------------|--------------|---------------|---------------|
| PACKAGE                               | PREFERRED P/N                 | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB                              | FEP16JT-E3/45                 | 1.85            | 45           | 50/tube       | Tube          |
| ITO-220AB                             | FEPF16JT-E3/45                | 1.97            | 45           | 50/tube       | Tube          |
| TO-263AB                              | FEPB16JT-E3/45                | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB                              | FEPB16JT-E3/81                | 1.35            | 81           | 800/reel      | Tape and reel |
| TO-220AB                              | FEP16JT-E3/45 <sup>(1)</sup>  | 1.85            | 45           | 50/tube       | Tube          |
| ITO-220AB                             | FEPF16JT-E3/45 <sup>(1)</sup> | 1.97            | 45           | 50/tube       | Tube          |
| TO-263AB                              | FEPB16JT-E3/45 <sup>(1)</sup> | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB                              | FEPB16JT-E3/81 <sup>(1)</sup> | 1.35            | 81           | 800/reel      | Tape and reel |

**Note:**

(1) Automotive grade AEC Q101 qualified

### RATINGS AND CHARACTERISTICS CURVES

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

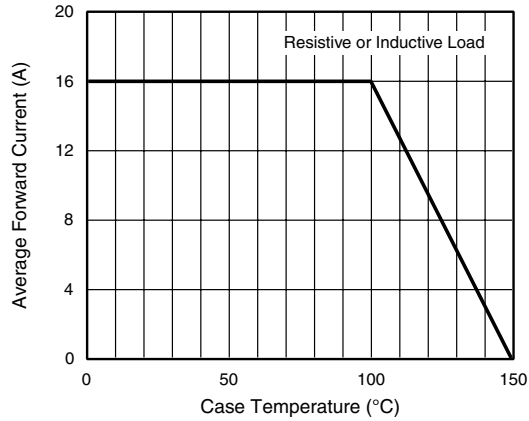


Figure 1. Forward Current Derating Curve

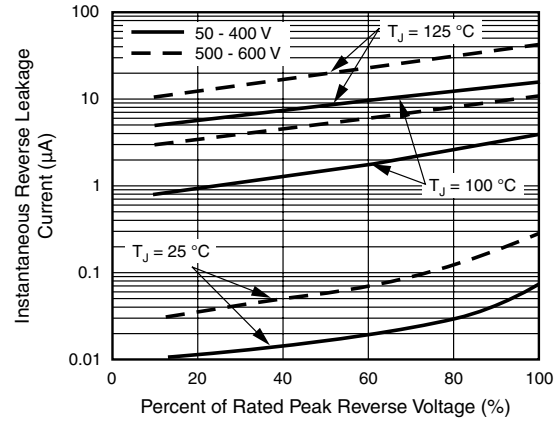


Figure 4. Typical Reverse Characteristics Per Diode

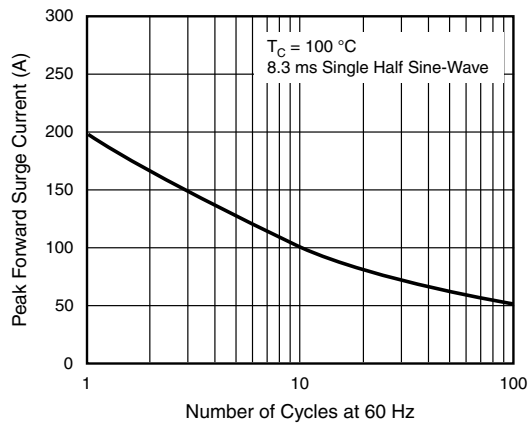


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

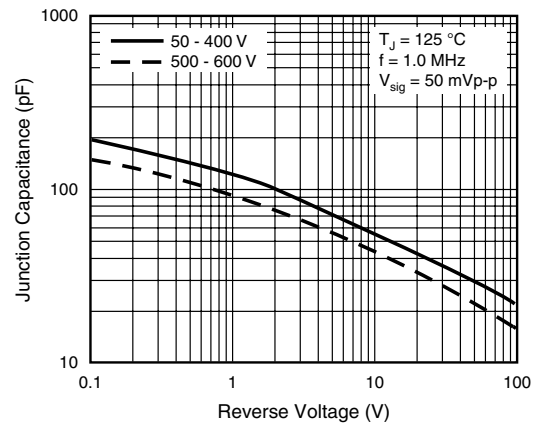


Figure 5. Typical Junction Capacitance Per Diode

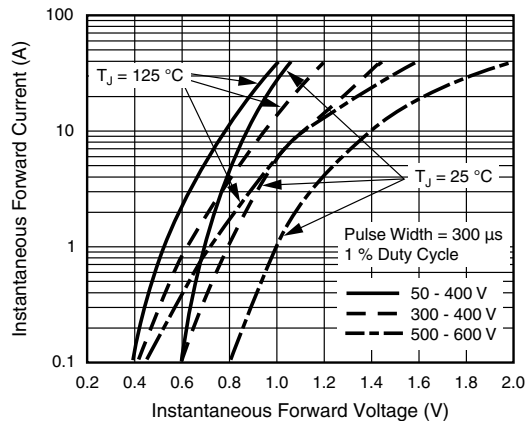


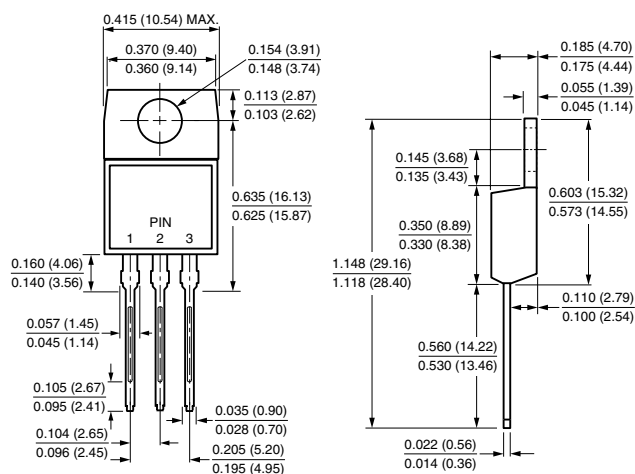
Figure 3. Typical Instantaneous Forward Characteristics Per Diode

Vishay General Semiconductor

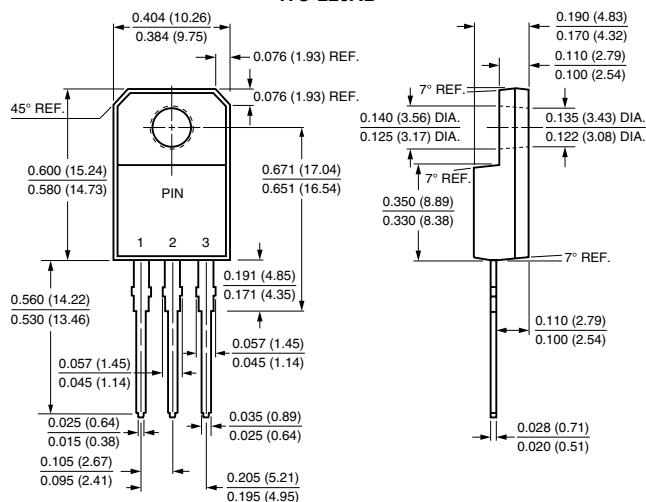


### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

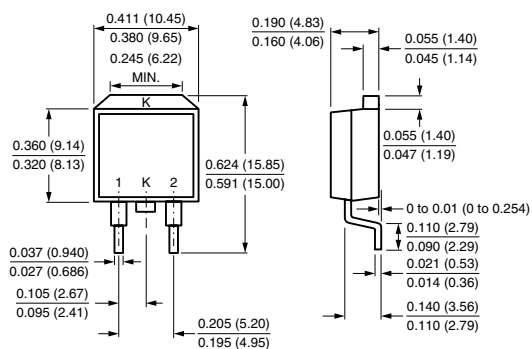
TO-220AB



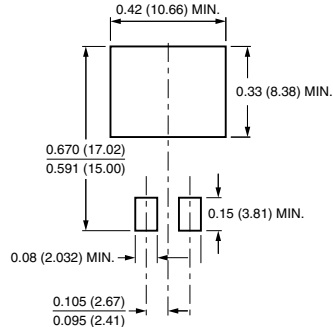
**ITO-220AB**



**TO-263AB**



### Mounting Pad Layout





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