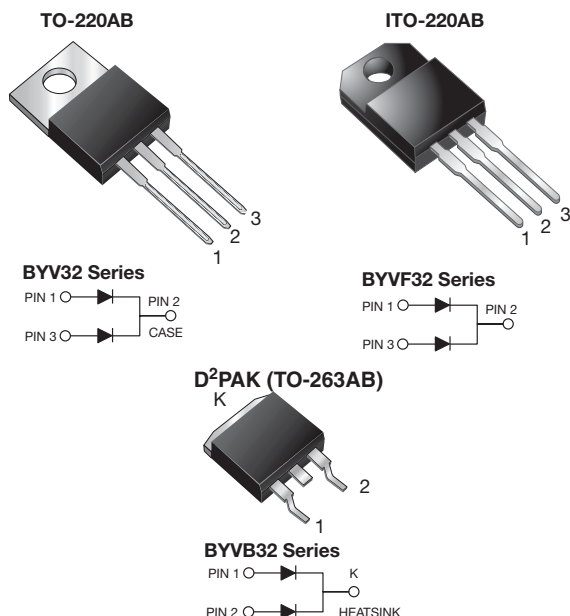


## Dual Common-Cathode Ultrafast Rectifier



### FEATURES

- Power pack
- Glass passivated pellet chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- 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-220AB and ITO-220AB package)
- AEC-Q101 qualified, (for ITO-220AB and TO-263AB package)
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### TYPICAL APPLICATIONS

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

### DESIGN SUPPORT TOOLS



[click logo to get started](#)

### PRIMARY CHARACTERISTICS

|                       |                                       |
|-----------------------|---------------------------------------|
| $I_{F(AV)}$           | 18 A                                  |
| $V_{RRM}$             | 50 V to 200 V                         |
| $I_{FSM}$             | 150 A                                 |
| $t_{rr}$              | 25 ns                                 |
| $V_F$                 | 0.85 V                                |
| $T_J$ max.            | 150 °C                                |
| Package               | TO-220AB, ITO-220AB, D²PAK (TO-263AB) |
| Circuit configuration | Common cathode                        |

### MECHANICAL DATA

**Case:** TO-220AB, ITO-220AB, D²PAK (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 max.

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

| PARAMETER                               | SYMBOL    | BYV32-50 | BYV32-100 | BYV32-150 | BYV32-200 | UNIT |
|-----------------------------------------|-----------|----------|-----------|-----------|-----------|------|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 50       | 100       | 150       | 200       | V    |
| Maximum RMS voltage                     | $V_{RMS}$ | 35       | 70        | 105       | 140       | V    |
| Maximum DC blocking voltage             | $V_{DC}$  | 50       | 100       | 150       | 200       | V    |
| Maximum average forward rect            |           |          |           |           |           |      |



| ELECTRICAL CHARACTERISTICS ( $T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                                                                                                                  |                                     |             |          |           |           |           |               |
|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------|----------|-----------|-----------|-----------|---------------|
| PARAMETER                                                                               | TEST CONDITIONS                                                                                                  |                                     | SYMBOL      | BYV32-50 | BYV32-100 | BYV32-150 | BYV32-200 | UNIT          |
| Maximum instantaneous forward voltage per diode                                         | $I_F = 20\text{ A}$                                                                                              | $T_J = 25\text{ }^{\circ}\text{C}$  | $V_F^{(1)}$ | 1.15     |           |           |           | V             |
|                                                                                         | $F = 5.0\text{ A}$                                                                                               | $T_J = 100\text{ }^{\circ}\text{C}$ |             | 0.85     |           |           |           |               |
| Maximum DC reverse current per diode at rated DC blocking voltage                       |                                                                                                                  |                                     | $I_R$       | 10       |           |           |           | $\mu\text{A}$ |
|                                                                                         |                                                                                                                  |                                     |             | 600      |           |           |           |               |
| Maximum reverse recovery time per diode                                                 | $I_F = 1\text{ A}$ , $V_R = 30\text{ V}$<br>$dI/dt = 100\text{ A}/\mu\text{s}$ , $I_{rr} = 10\text{ \% } I_{RM}$ |                                     | $t_{rr}$    | 25       |           |           |           | ns            |
| Typical junction capacitance per diode                                                  | 4.0 V, 1 MHz                                                                                                     |                                     | $C_J$       | 45       |           |           |           | pF            |

**Note**

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

| THERMAL CHARACTERISTICS ( $T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted) |                 |     |      |      |                             |  |
|--------------------------------------------------------------------------------------|-----------------|-----|------|------|-----------------------------|--|
| PARAMETER                                                                            | SYMBOL          | BYV | BYVF | BYVB | UNIT                        |  |
| Typical thermal resistance from junction to case per diode                           | $R_{\theta JC}$ | 1.6 | 5.0  | 1.6  | $^{\circ}\text{C}/\text{W}$ |  |

| ORDERING INFORMATION (Example) |                                 |                 |              |               |               |
|--------------------------------|---------------------------------|-----------------|--------------|---------------|---------------|
| PACKAGE                        | PREFERRED P/N                   | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB                       | BYV32-200-E3/45                 | 1.85            | 45           | 50/tube       | Tube          |
| ITO-220AB                      | BYVF32-200-E3/45                | 1.97            | 45           | 50/tube       | Tube          |
| TO-263AB                       | BYVB32-200-E3/45                | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB                       | BYVB32-200-E3/81                | 1.35            | 81           | 800/reel      | Tape and reel |
| ITO-220AB                      | BYVF32-200HE3/45 <sup>(1)</sup> | 1.97            | 45           | 50/tube       | Tube          |
| TO-263AB                       | BYVB32-200HE3/45 <sup>(1)</sup> | 1.35            | 45           | 50/tube       | Tube          |
| TO-263AB                       | BYVB32-200HE3/81 <sup>(1)</sup> | 1.35            | 81           | 800/reel      | Tape and reel |

**Note**

<sup>(1)</sup> AEC-Q101 qualified, available in ITO-220AB and TO-263AB package



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

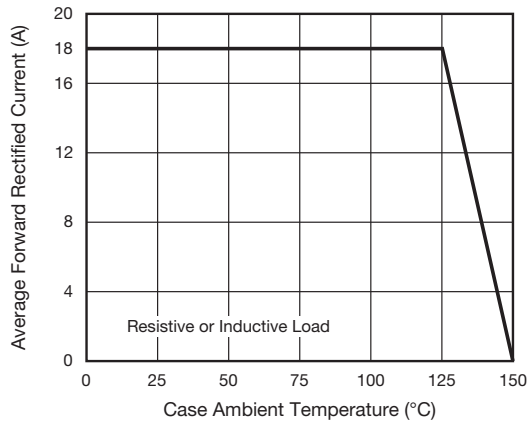


Fig. 1 - Forward Current Derating Curve

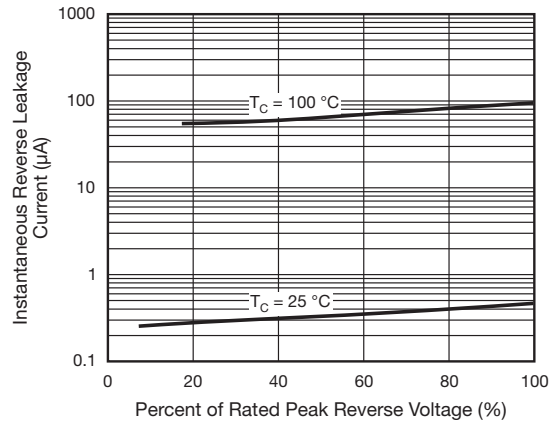


Fig. 4 - Typical Reverse Leakage Characteristics Per Diode

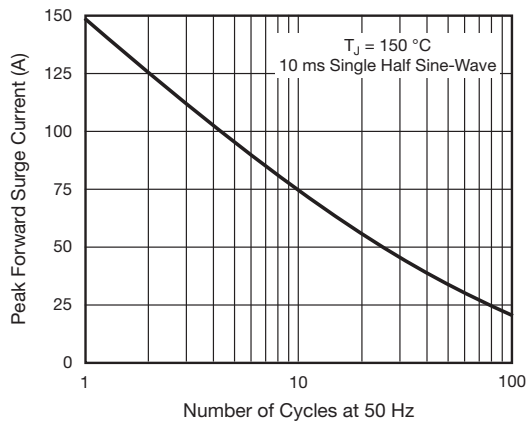


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

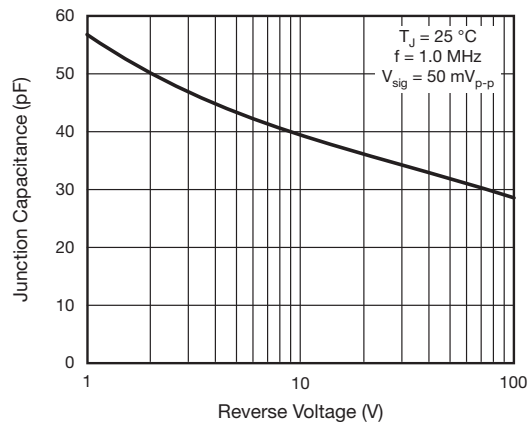


Fig. 5 - Typical Junction Capacitance Per Diode

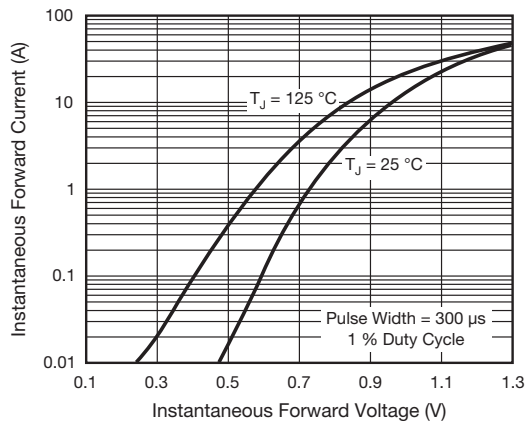
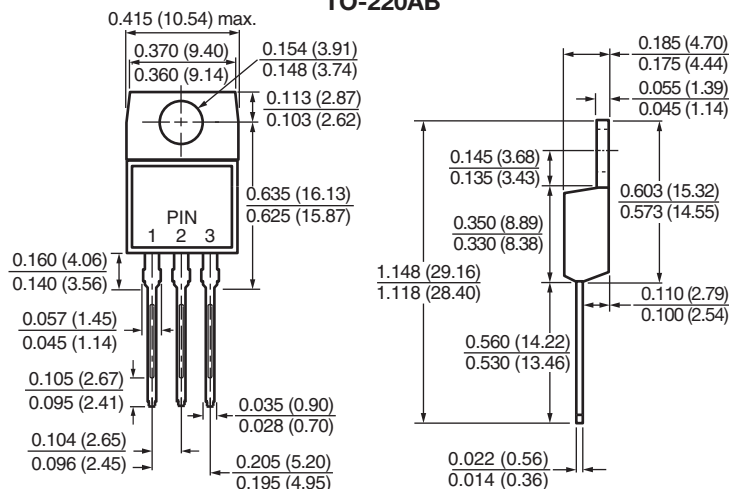


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

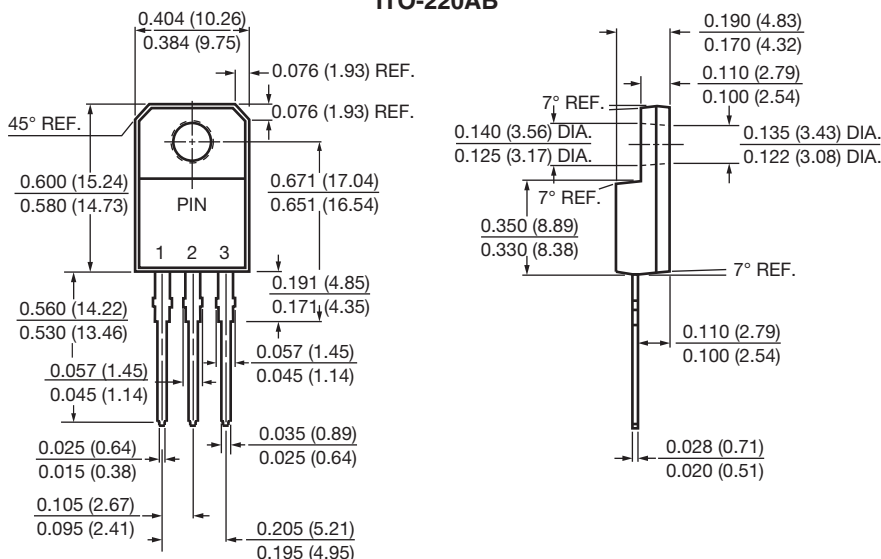


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

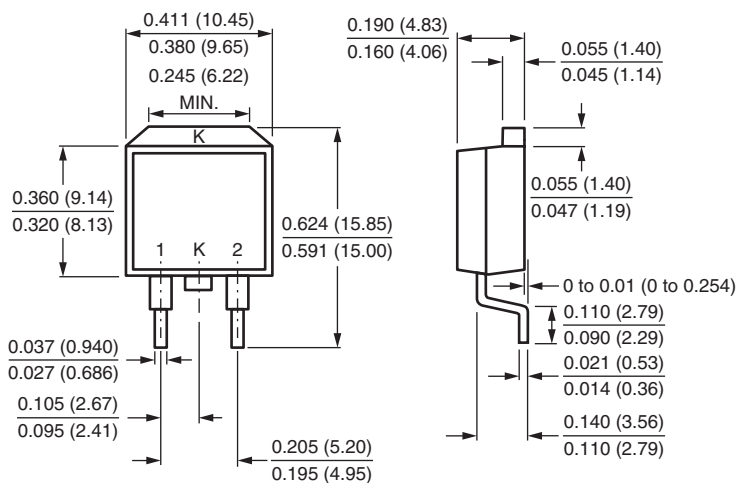
TO-220AB



ITO-220AB



D<sup>2</sup>PAK (TO-263AB)





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