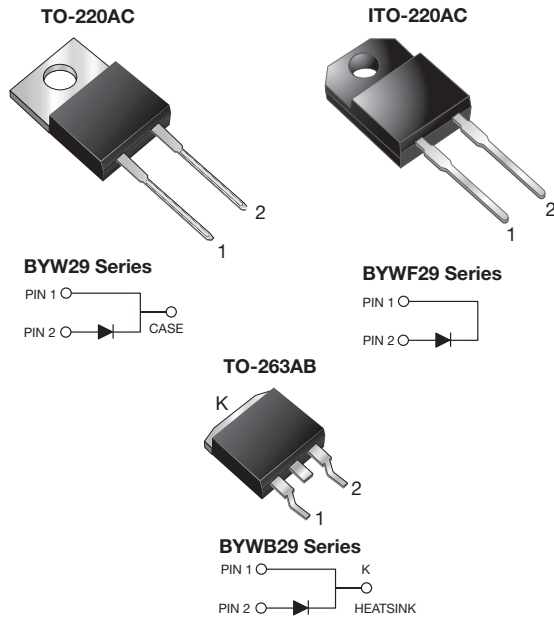


Ultrafast Rectifier



FEATURES

- Power pack
- Glass passivated pallet 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-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 high frequency rectifier of switching mode power supplies, inverters, freewheeling diodes, DC/DC converters, and other power switching application.

PRIMARY CHARACTERISTICS

| | |
|------------------|-------------------------------|
| $I_{F(AV)}$ | 8.0 A |
| V_{RRM} | 50 V to 200 V |
| I_{FSM} | 100 A |
| t_{rr} | 25 ns |
| V_F | 0.8 V |
| T_J max. | 150 °C |
| Package | TO-220AC, ITO-220AC, TO-263AB |
| Diode variations | Single die |

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 max.

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

| PARAMETER | SYMBOL | BYW29-50 | BYW29-100 | BYW29-150 | BYW29-200 | 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 rectified current at $T_C = 105$ °C | $I_{F(AV)}$ | 8.0 | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 100 | | | | A |
| Operating and storage temperature range | T_J, T_{STG} | -65 to +150 | | | | °C |
| Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1$ min | V_{AC} | 1500 | | | | V |



| ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|--|---|-----------------------------------|-------------|----------|-----------|-----------|-----------|---------------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | BYW29-50 | BYW29-100 | BYW29-150 | BYW29-200 | UNIT |
| Maximum instantaneous forward voltage | $I_F = 20\text{ A}$ | $T_J = 25\text{ }^\circ\text{C}$ | $V_F^{(1)}$ | 1.3 | | | | V |
| | $I_F = 8.0\text{ A}$ | $T_J = 150\text{ }^\circ\text{C}$ | | 0.8 | | | | |
| Maximum DC reverse current at rated DC blocking voltage | | | I_R | 10 | | | | μA |
| | | | | 500 | | | | |
| Maximum reverse recovery time | $I_F = 1\text{ A}$, $V_R = 30\text{ V}$, $di/dt = 100\text{ A}/\mu\text{s}$, $I_{rr} = 10\% I_{RM}$ | | t_{rr} | 25 | | | | ns |
| Typical junction capacitance | 4.0 V, 1 MHz | | C_J | 45 | | | | pF |

Note(1) Pulse test: 300 μs pulse width, 1 % duty cycle

| THERMAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|---|-----------------|-----|------|------|---------------------------|
| PARAMETER | SYMBOL | BYW | BYWF | BYWB | UNIT |
| Typical thermal resistance from junction to case per leg | $R_{\theta JC}$ | 2.5 | 5.5 | 2.5 | $^\circ\text{C}/\text{W}$ |

| ORDERING INFORMATION (Example) | | | | | |
|---------------------------------------|---------------------------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AC | BYW29-200-E3/45 | 1.80 | 45 | 50/tube | Tube |
| ITO-220AC | BYWF29-200-E3/45 | 1.95 | 45 | 50/tube | Tube |
| TO-263AB | BYWB29-200-E3/45 | 1.77 | 45 | 50/tube | Tube |
| TO-263AB | BYWB29-200-E3/81 | 1.77 | 81 | 800/reel | Tape and reel |
| TO-220AC | BYW29-200HE3/45 ⁽¹⁾ | 1.80 | 45 | 50/tube | Tube |
| ITO-220AC | BYWF29-200HE3/45 ⁽¹⁾ | 1.95 | 45 | 50/tube | Tube |
| TO-263AB | BYWB29-200HE3/45 ⁽¹⁾ | 1.77 | 45 | 50/tube | Tube |
| TO-263AB | BYWB29-200HE3/81 ⁽¹⁾ | 1.77 | 81 | 800/reel | Tape and reel |

Note

(1) AEC-Q101 qualified



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

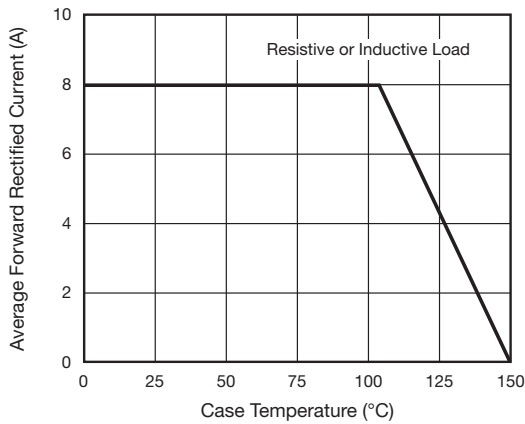


Fig. 1 - Maximum Forward Current Derating Curve

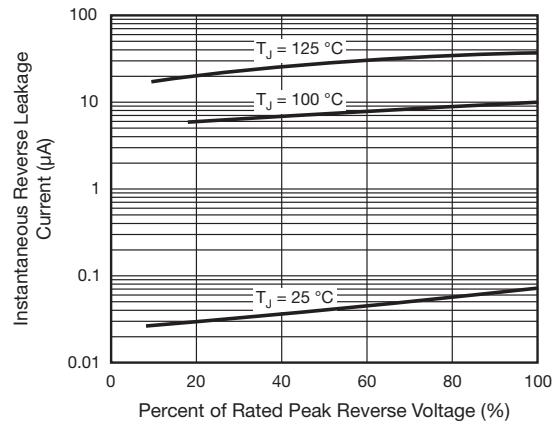


Fig. 4 - Typical Reverse Leakage Characteristics

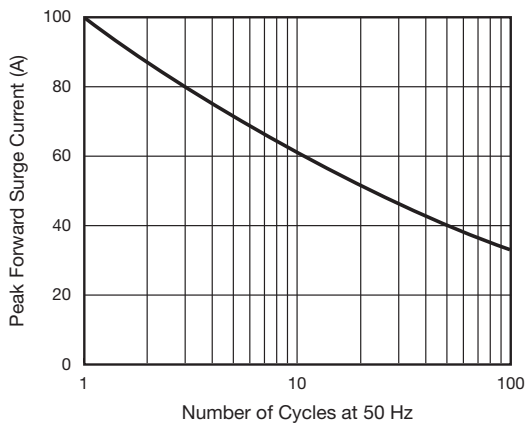


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

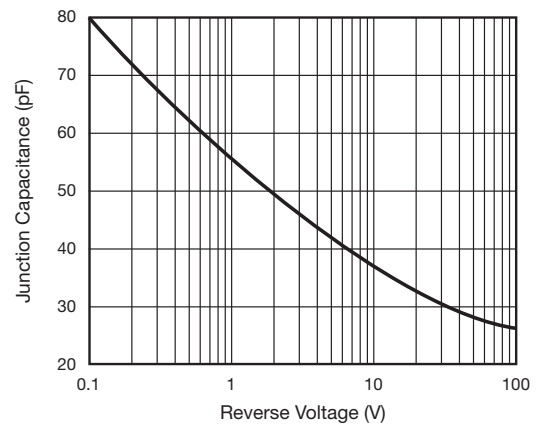


Fig. 5 - Typical Junction Capacitance

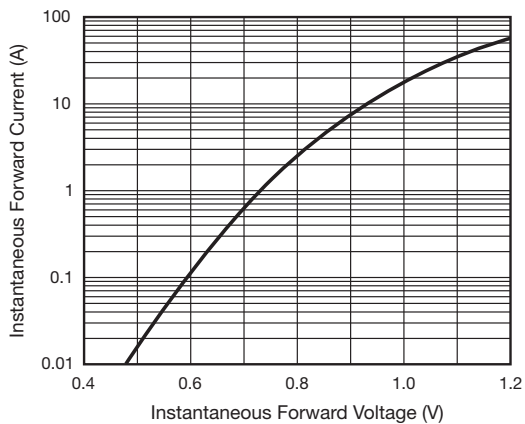
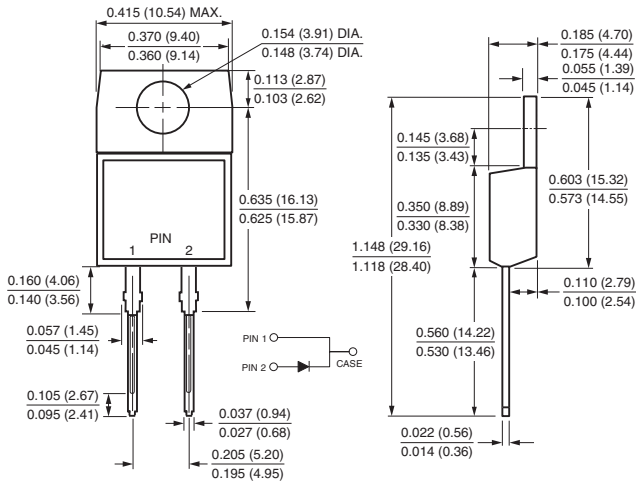


Fig. 3 - Typical Instantaneous Forward Characteristics

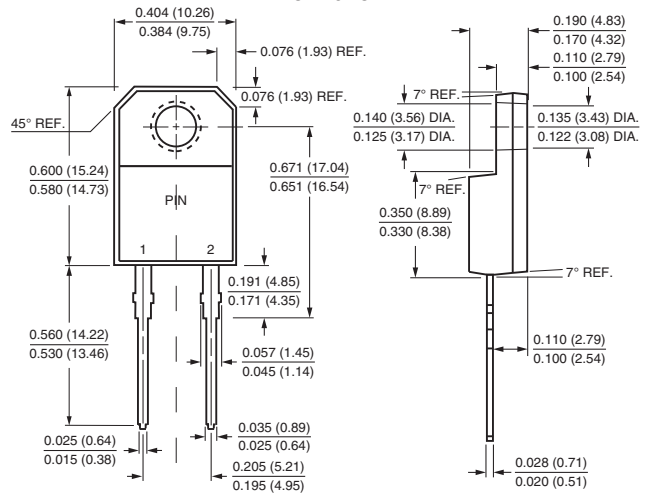


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

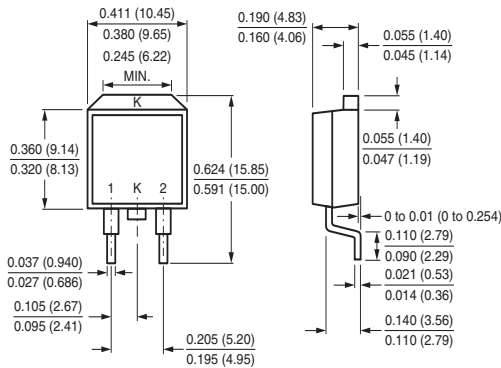
TO-220AC



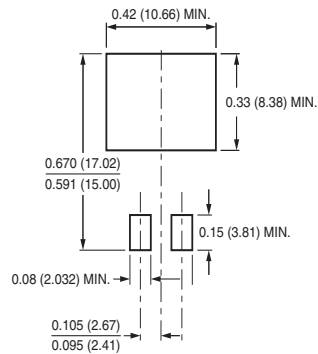
ITO-220AC



TO-263AB



Mounting Pad Layout





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