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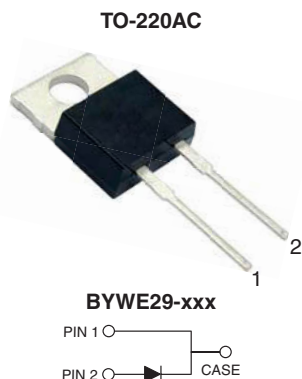
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Ultrafast Rectifier



FEATURES

- Power pack
- Glass passivated pellet chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low forward voltage drop
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- 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.

MECHANICAL DATA

Case: TO-220AC

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: As marked

Mounting Torque: 10 in-lbs max.

PRIMARY CHARACTERISTICS

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

MAXIMUM RATINGS ($T_C = 25\text{ °C}$ unless otherwise noted)

| PARAMETER | SYMBOL | BYWE29-50 | BYWE29-100 | BYWE29-150 | BYWE29-200 | 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 $T_C = 105\text{ °C}$ | $I_{F(AV)}$ | 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 |

ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ °C}$ unless otherwise noted)

| PARAMETER | TEST CONDITIONS | | SYMBOL | BYWE29-50 | BYWE29-100 | BYWE29-150 | BYWE29-200 | UNIT |
|---|---|-------------------------|-------------------------------|-----------|------------|------------|------------|------|
| Maximum instantaneous forward voltage | I _F = 20 A | T _J = 25 °C | V _F ⁽¹⁾ | 1.3 | | | | V |
| | I _F = 8.0 A | T _J = 150 °C | | 0.8 | | | | |
| Maximum DC reverse current at rated DC blocking voltage | | T _C = 25 °C | I _R | 10 | | | | μA |
| | | T _C = 100 °C | | 500 | | | | |
| Maximum reverse recovery time | I _F = 1 A, V _R = 30 V, dI/dt = 100 A/μs, 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 | BYWE29-50 | BYWE29-100 | BYWE29-150 | BYWE29-200 | UNIT |
|--|-----------------|-----------|------------|------------|------------|----------------------|
| Typical thermal resistance from junction to case per leg | $R_{\theta JC}$ | 2.5 | | | | $^{\circ}\text{C/W}$ |

ORDERING INFORMATION (Example)

| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
|----------|------------------|-----------------|--------------|---------------|---------------|
| TO-220AC | BYWE29-200-E3/45 | 1.80 | 45 | 50/tube | Tube |

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

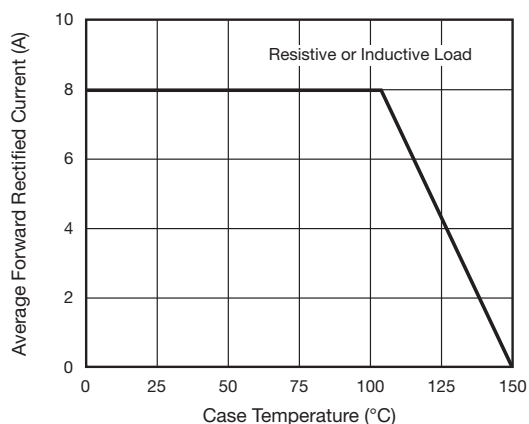


Fig. 1 - Maximum Forward Current Derating Curve

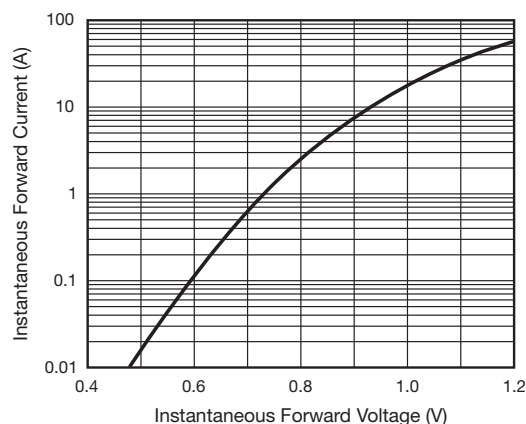


Fig. 3 - Typical Instantaneous Forward Characteristics

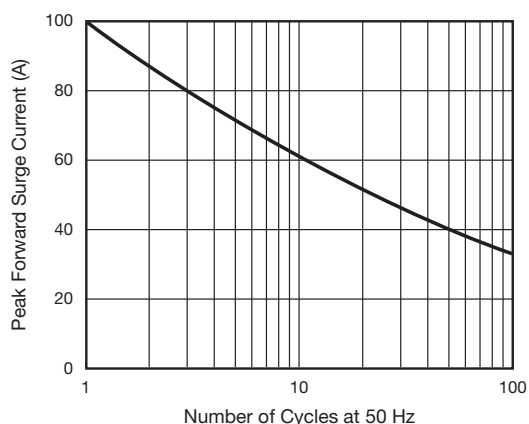


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

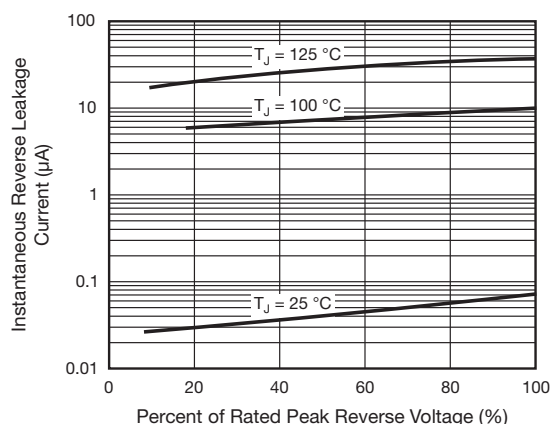


Fig. 4 - Typical Reverse Leakage Characteristics

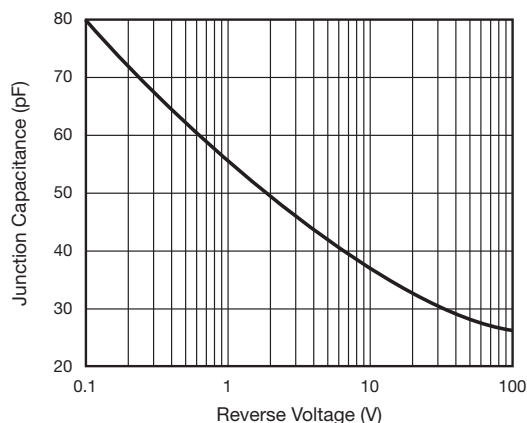
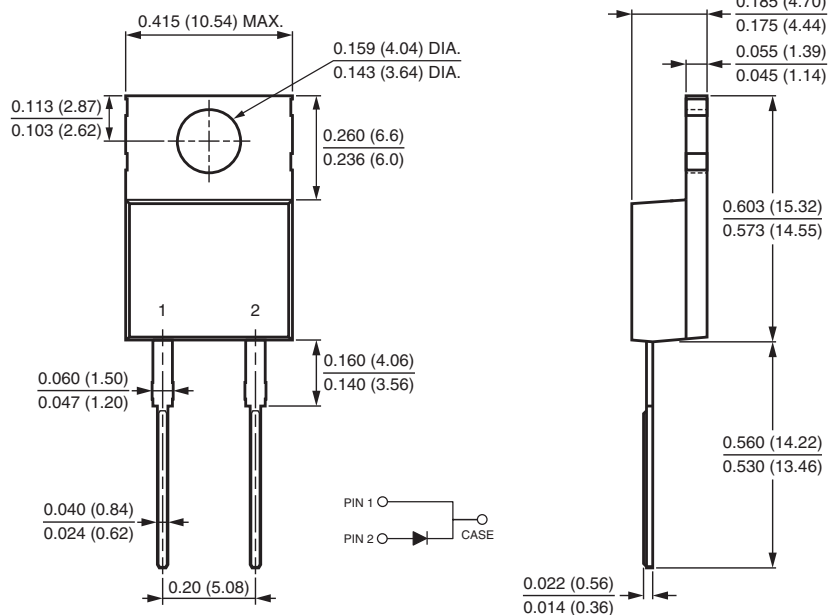


Fig. 5 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AC





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