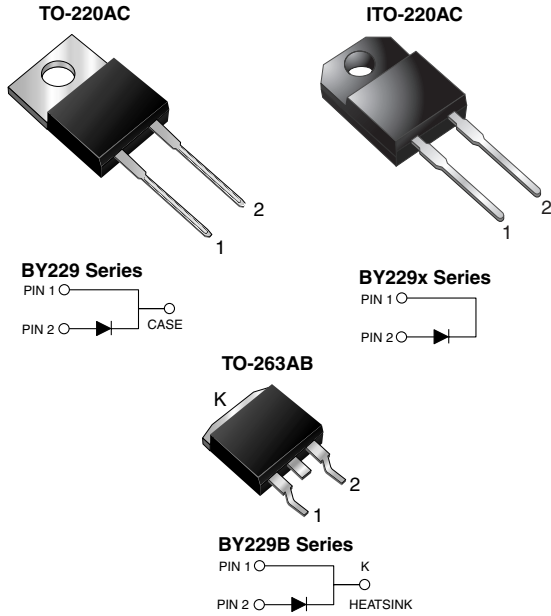


Fast Switching Plastic Rectifier



FEATURES

- Glass passivated chip junction
- Superfast recovery time for high efficiency
- Low leakage current
- High forward surge capability
- 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-220AC and ITO-220AC package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



RoHS
COMPLIANT

TYPICAL APPLICATIONS

For use in fast switching rectification of power supply, inverters, converters and freewheeling diodes application.

MECHANICAL DATA

Case: TO-220AC, ITO-220AC, 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 commercial 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 |
| V_{RRM} | 200 V to 800 V |
| I_{FSM} | 100 A |
| t_{tr} | 145 ns |
| V_F | 1.85 V |
| $T_J \text{ max.}$ | 150 °C |

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

| PARAMETER | SYMBOL | BY229-200 | BY229-400 | BY229-600 | BY229-800 | UNIT |
|---|----------------|---------------|-----------|-----------|-----------|------------------|
| Maximum recurrent peak reverse voltage | V_{RRM} | 200 | 400 | 600 | 800 | V |
| Maximum RMS voltage | V_{RMS} | 140 | 280 | 420 | 560 | V |
| Maximum DC blocking voltage | V_{DC} | 200 | 400 | 600 | 800 | V |
| Maximum average forward rectified current at $T_C = 100 \text{ °C}$ | $I_{F(AV)}$ | 8.0 | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 100 | | | | A |
| Maximum slope of reverse recovery current $I_F = 2.0 \text{ A}$, $V_R = 30 \text{ V}$, $di/dt = 20 \text{ } \mu\text{s}$ | di/dt | 60 | | | | A/ μs |
| Operating junction and storage temperature range | T_J, T_{STG} | - 40 to + 150 | | | | °C |
| Isolation voltage (ITO-220AC only) from terminal to heatsink $t = 1 \text{ min}$ | V_{AC} | 1500 | | | | V |

BY229(X,B)-200 thru BY229(X,B)-800

Vishay General Semiconductor



| ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | | | |
|--|--|---|----------|-----------|-----------|-----------|-----------|---------------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | BY229-200 | BY229-400 | BY229-600 | BY229-800 | UNIT |
| Maximum instantaneous forward voltage ⁽¹⁾ | 20 A | | V_F | | | 1.85 | | V |
| Maximum DC reverse current at rated DC blocking voltage | | $T_J = 25\text{ }^\circ\text{C}$ $T_J = 125\text{ }^\circ\text{C}$ | I_R | | | 10 300 | | μA |
| Maximum reverse recovery time | $I_F = 1.0\text{ A}$, $V_R = 30\text{ V}$, $di/dt = 50\text{ A}/\mu\text{s}$, $I_{rr} = 10\% I_{RM}$ | | t_{rr} | | | 145 | | ns |
| Maximum recovered stored charge | $I_F = 2.0\text{ A}$, $V_R = 30\text{ V}$, $di/dt = 20\text{ A}/\mu\text{s}$ | | Q_{rr} | | | 700 | | nC |

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 | BY229 | BY229X | BY229B | UNIT |
| Typical thermal resistance from junction to case | $R_{\theta JC}$ | 2.0 | 4.8 | 2.0 | $^\circ\text{C}/\text{W}$ |
| Typical thermal resistance from junction to air | $R_{\theta JA}$ | 20 | - | 20 | $^\circ\text{C}/\text{W}$ |

| ORDERING INFORMATION (Example) | | | | | |
|---------------------------------------|---------------------------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AC | BY229-200-E3/45 | 1.80 | 45 | 50/tube | Tube |
| ITO-220AC | BY229X-200-E3/45 | 1.95 | 45 | 50/tube | Tube |
| TO-263AB | BY229B-200-E3/45 | 1.77 | 45 | 50/tube | Tube |
| TO-263AB | BY229B-200-E3/81 | 1.77 | 81 | 800/reel | Tape reel |
| TO-220AC | BY229-200HE3/45 ⁽¹⁾ | 1.80 | 45 | 50/tube | Tube |
| ITO-220AC | BY229X-200HE3/45 ⁽¹⁾ | 1.95 | 45 | 50/tube | Tube |
| TO-263AB | BY229B-200HE3/45 ⁽¹⁾ | 1.77 | 45 | 50/tube | Tube |
| TO-263AB | BY229B-200HE3/81 ⁽¹⁾ | 1.77 | 81 | 800/reel | Tape reel |

Note:

(1) Automotive grade AEC Q101 qualified



RATINGS AND CHARACTERISTICS CURVES

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

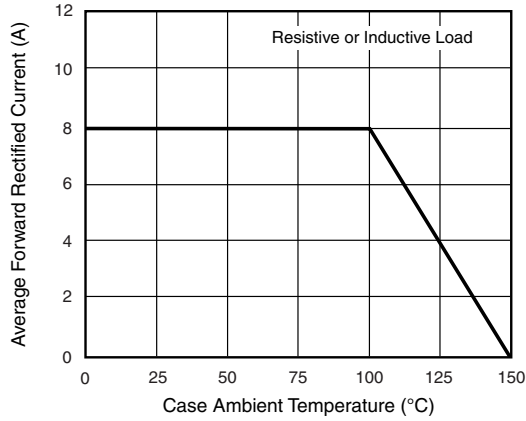


Figure 1. Forward Current Derating Curve

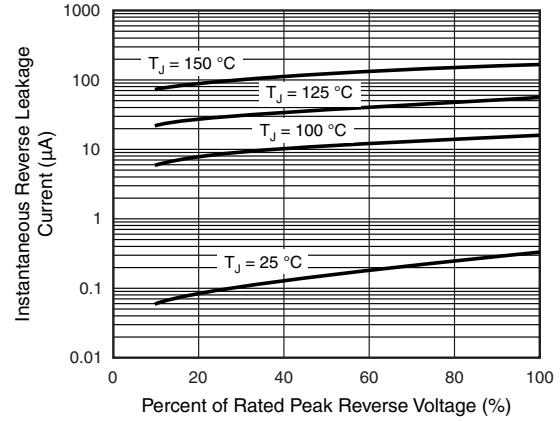


Figure 4. Typical Reverse Leakage Characteristics

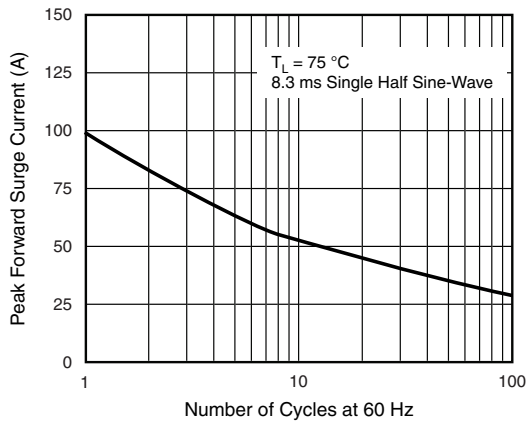


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

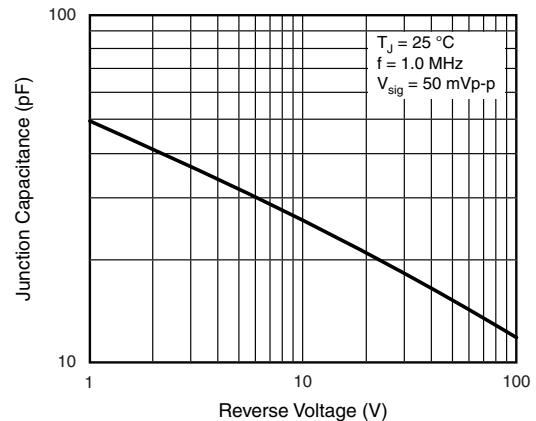


Figure 5. Typical Junction Capacitance

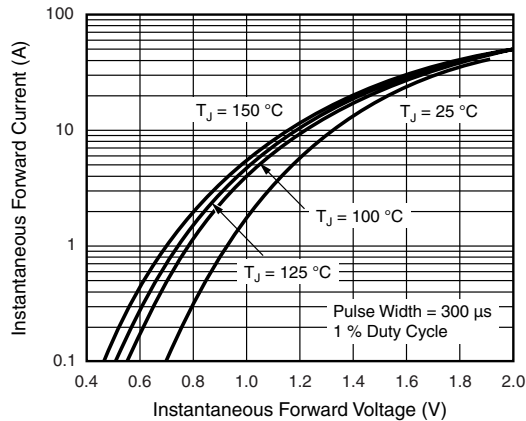
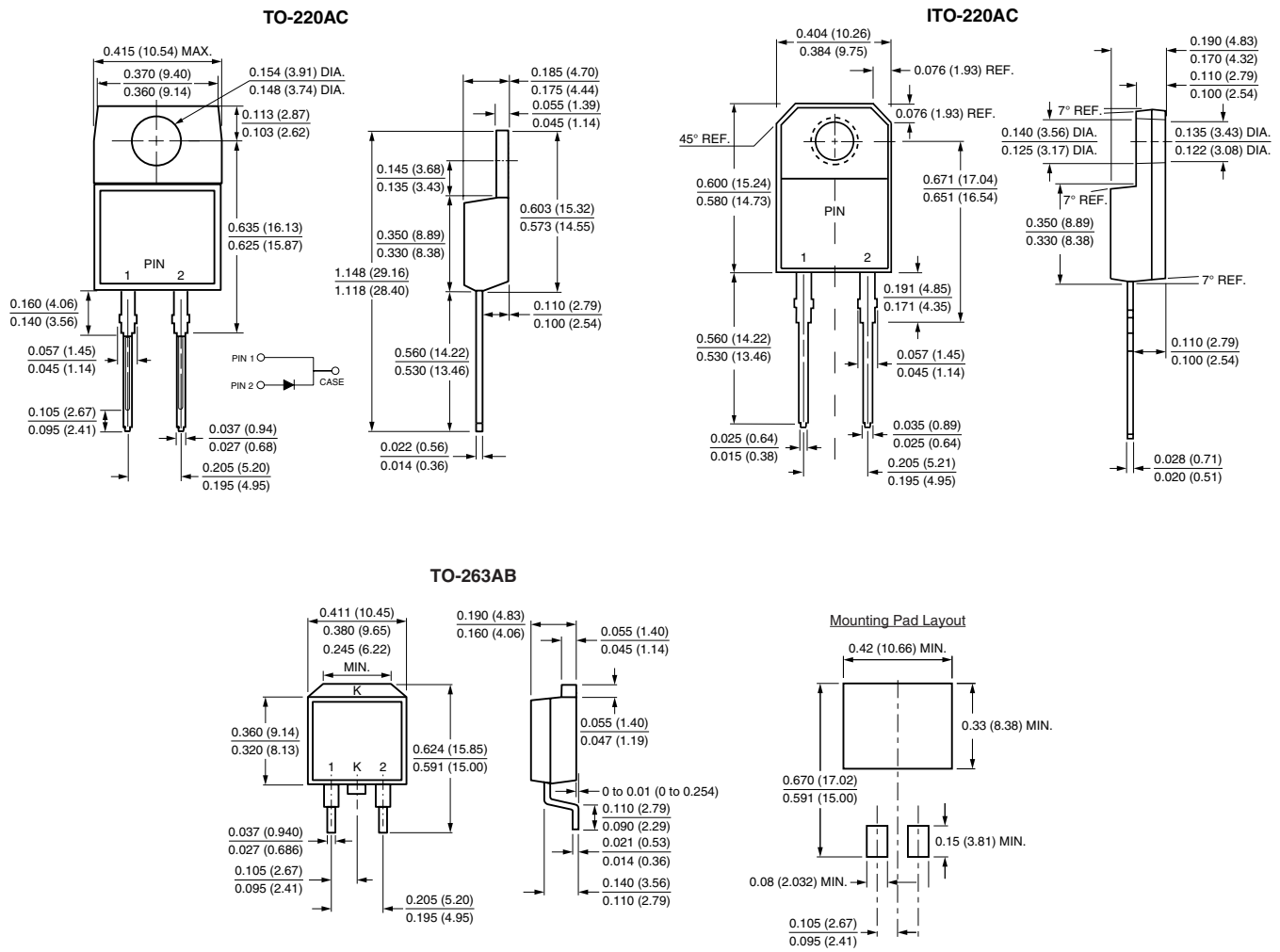


Figure 3. Typical Instantaneous Forward Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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