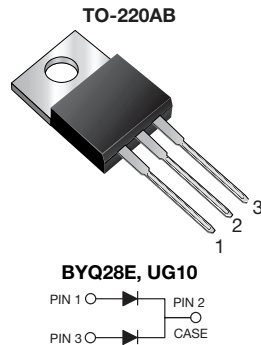


Dual Common Cathode Ultrafast Rectifier


RoHS
COMPLIANT

FEATURES

- Power pack
- Glass passivated pellet chip junction
- Ultrafast recovery times
- Soft recovery characteristics
- Low switching losses, high efficiency
- 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

TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching power supplies, freewheeling diodes, DC/DC converters and polarity protection application.

MECHANICAL DATA

Case: TO-220AB

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.

LINKS TO ADDITIONAL RESOURCES



3D Models

| PRIMARY CHARACTERISTICS | |
|-------------------------|----------------|
| $I_{F(AV)}$ | 2 x 5.0 A |
| V_{RRM} | 100 V to 200 V |
| I_{FSM} | 55 A |
| t_{rr} | 25 ns |
| V_F | 0.895 V |
| T_J max. | 150 °C |
| Package | TO-220AB |
| Circuit configuration | Common cathode |

| MAXIMUM RATINGS ($T_C = 25\text{ °C}$ unless otherwise noted) | | | | | |
|---|----------------|--------------|------------|------------|------|
| PARAMETER | SYMBOL | UG10BCT | UG10CCT | UG10DCT | UNIT |
| | | BYQ28E-100 | BYQ28E-150 | BYQ28E-200 | |
| Maximum repetitive peak reverse voltage | V_{RRM} | 100 | 150 | 200 | V |
| Working peak reverse voltage | V_{RWM} | 100 | 150 | 200 | V |
| Maximum DC blocking voltage | V_{DC} | 100 | 150 | 200 | V |
| Maximum average forward rectified current at $T_C = 100\text{ °C}$ | $I_{F(AV)}$ | total device | | | A |
| | | per diode | | | |
| Peak forward surge current 8.3 ms single half sine-wave | I_{FSM} | | 55 | | A |
| Non-repetitive peak reverse current per diode at $t_p = 100\text{ }\mu\text{s}$ | I_{RSM} | | 0.2 | | A |
| Electrostatic discharge capacitor voltage, human body model: $C = 250\text{ pF}$, $R = 1.5\text{ k}\Omega$ | V_C | | 8 | | kV |
| Operating junction and storage temperature range | T_J, T_{STG} | -40 to +150 | | | °C |



| ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | |
|--|---|-----------------------------------|-------------|-----------------------------------|---------------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | VALUE | UNIT |
| Maximum instantaneous forward voltage per diode | $I_F = 10\text{ A}$ | $T_J = 25\text{ }^\circ\text{C}$ | $V_F^{(1)}$ | 1.25 | V |
| | $I_F = 5\text{ A}$ | | | 1.10 | |
| | | | | $T_J = 150\text{ }^\circ\text{C}$ | |
| Maximum reverse current per diode at working peak reverse voltage | | $T_J = 25\text{ }^\circ\text{C}$ | I_R | 10 | μA |
| | | $T_J = 100\text{ }^\circ\text{C}$ | | 200 | |
| Maximum reverse recovery time per diode | $I_F = 1.0\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 0.1 I_{RM}$ | | t_{rr} | 25 | ns |
| Maximum reverse recovery time per diode | $I_F = 0.5\text{ A}$, $I_R = 1.0\text{ A}$, $I_{rr} = 0.25\text{ A}$ | | t_{rr} | 20 | ns |
| Maximum stored charge per diode | $I_F = 2\text{ A}$, $di/dt = 20\text{ A}/\mu\text{s}$, $V_R = 30\text{ V}$, $I_{rr} = 0.1 I_{RM}$ | | Q_{rr} | 9 | 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 | UG10 | UNIT |
| | | BYQ28E | |
| Typical thermal resistance per diode, junction to ambient | $R_{\theta JA}$ | 50 | $^\circ\text{C}/\text{W}$ |
| Typical thermal resistance per diode, junction to case | $R_{\theta JC}$ | 4.5 | |

| ORDERING INFORMATION (Example) | | | | | |
|---------------------------------------|------------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AB | BYQ28E-200-E3/45 | 1.80 | 45 | 50/tube | Tube |

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

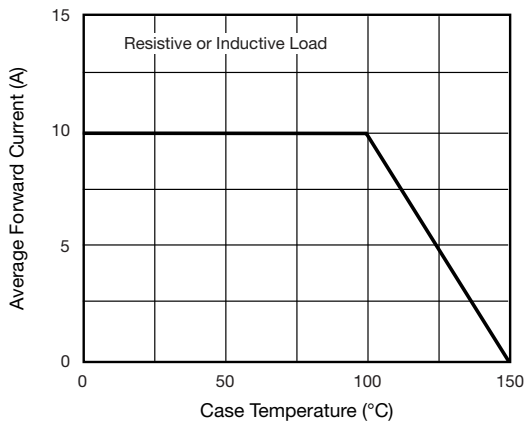


Fig. 1 - Forward Current Derating Curve

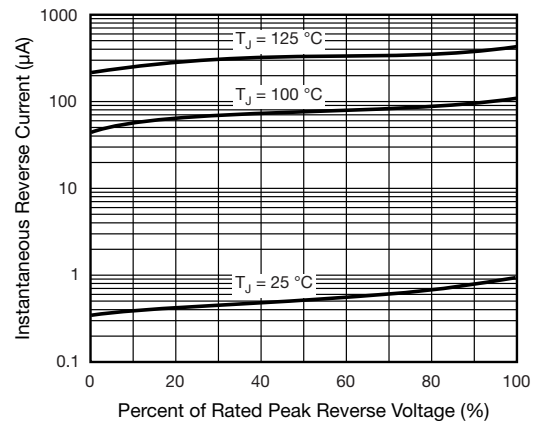


Fig. 4 - Typical Reverse Characteristics Per Diode

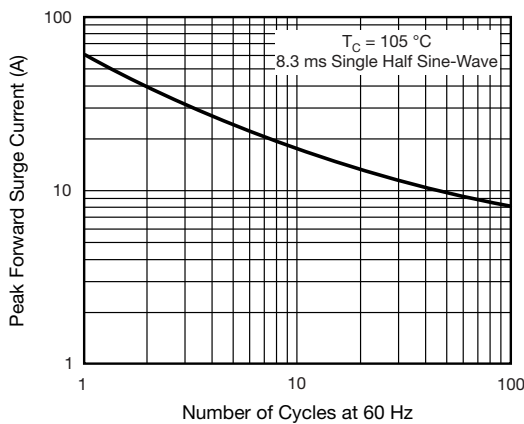


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

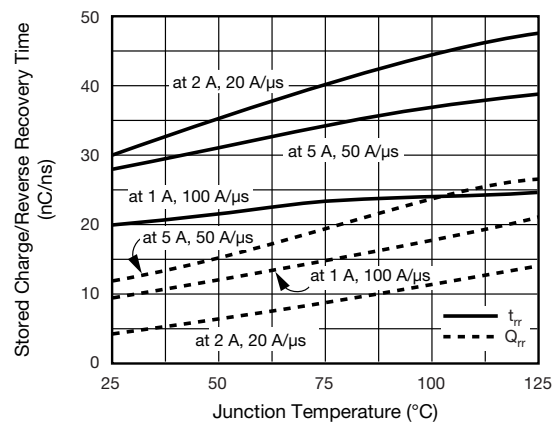


Fig. 5 - Reverse Switching Characteristics Per Diode

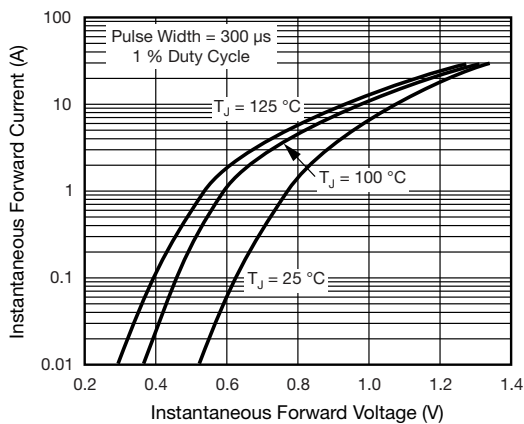


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

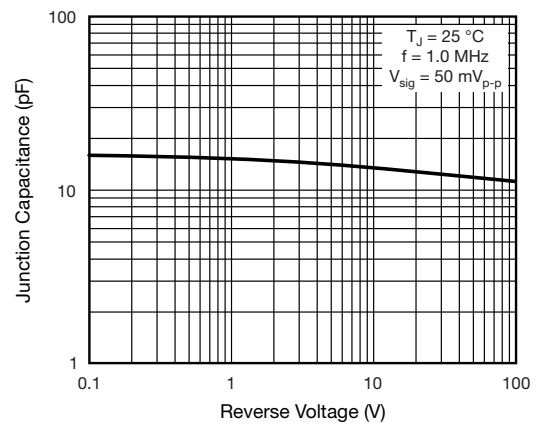
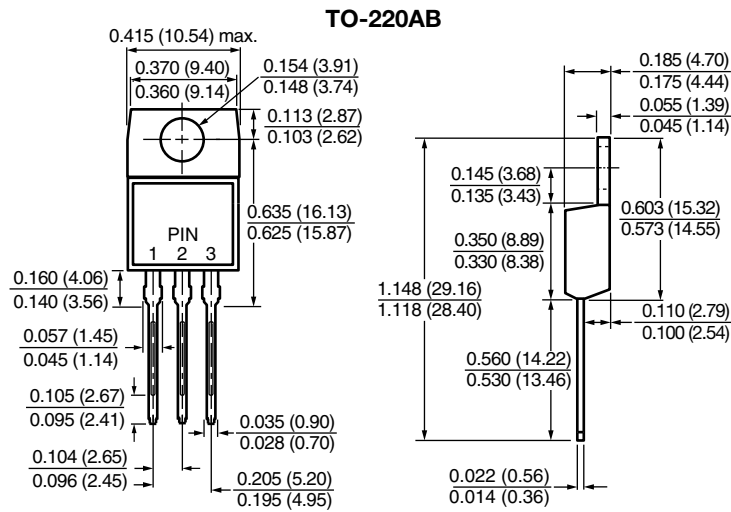


Fig. 6 - Typical Junction Capacitance Per Diode



PACKAGE OUTLINE DIMENSION in inches (millimeters)





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