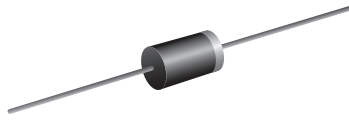


## Miniature Glass Passivated Junction Rectifier

**SUPERECTIFIER®**

**DO-41 (DO-204AL)**

### FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- 0.36 A operation at  $T_A = 40\text{ °C}$  with no thermal runaway
- Typical  $I_R$  less than  $0.1\ \mu\text{A}$
- Solder dip  $275\text{ °C}$  max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in rectification of high voltage power supplies, inverters, converters and freewheeling diodes application.

### MECHANICAL DATA

**Case:** DO-41 (DO-204AL), molded epoxy over glass body  
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

| PRIMARY CHARACTERISTICS       |                   |
|-------------------------------|-------------------|
| $I_{F(AV)}$                   | 0.36 A            |
| $V_{RRM}$                     | 1600 V            |
| $I_{FSM}$                     | 15 A              |
| $t_{rr}$                      | 2.0 $\mu\text{s}$ |
| $I_R$                         | 1.0 $\mu\text{A}$ |
| $V_F$ at $I_F = 2.0\text{ A}$ | 1.6 V             |
| $T_J$ max.                    | 175 °C            |
| Package                       | DO-41 (DO-204AL)  |
| Circuit configuration         | Single            |

| MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)                                   |                |             |      |
|--|----------------|-------------|------|
| PARAMETER  | SYMBOL         | BYX10GP     | UNIT |
| Maximum repetitive peak reverse voltage  | $V_{RRM}$      | 1600        | V    |
| Maximum working reverse voltage  | $V_{RWM}$      | 800         | V    |
| Maximum average forward rectified current<br>0.375" (9.5 mm) lead length at $T_A = 40\text{ °C}$ | $I_{F(AV)}$    | 0.36        | A    |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load per diode      | $I_{FSM}$      | 15          | A    |
| Operating junction and storage temperature range   | $T_J, T_{STG}$ | -65 to +175 | °C   |

| ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ °C}$ unless otherwise noted) |  |                      |             |         |               |
|---|--|----------------------|-------------|---------|---------------|
| PARAMETER   | TEST CONDITIONS  |                      | SYMBOL      | BYX10GP | UNIT          |
| Maximum instantaneous forward voltage                                     | $I_F = 2.0\text{ A}$   | $T_A = 25\text{ °C}$ | $V_F^{(1)}$ | 1.6     | V             |
| Maximum peak reverse current at rated peak working reverse voltage        | $V_{RWM} = 800\text{ V}$   | $T_A = 25\text{ °C}$ | $I_R^{(2)}$ | 1.0     | $\mu\text{A}$ |
| Typical reverse recovery time   | $I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$ |                      | $t_{rr}$    | 2.0     | $\mu\text{s}$ |
| Typical junction capacitance  | $V_R = 4.0\text{ V}, 1\text{ MHz}$                               |                      | $C_J$       | 5.0     | pF            |

#### Notes

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle  
 (2) Pulse test: Pulse width  $\leq 40\text{ ms}$



| <b>THERMAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted) |                       |         |                    |
|---|-----------------------|---------|--------------------|
| PARAMETER   | SYMBOL                | BYX10GP | UNIT               |
| Typical thermal resistance  | $R_{\theta JA}^{(1)}$ | 45      | $^\circ\text{C/W}$ |

**Note**

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

| <b>ORDERING INFORMATION</b> (Example) |                 |                        |               |                                  |
|---------------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N                         | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE                    |
| BYX10GP-E3/54                         | 0.339           | 54                     | 5500          | 13" diameter paper tape and reel |

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

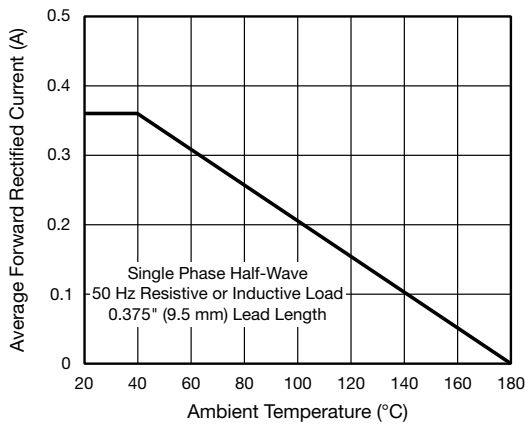


Fig. 1 - Forward Current Derating Curve

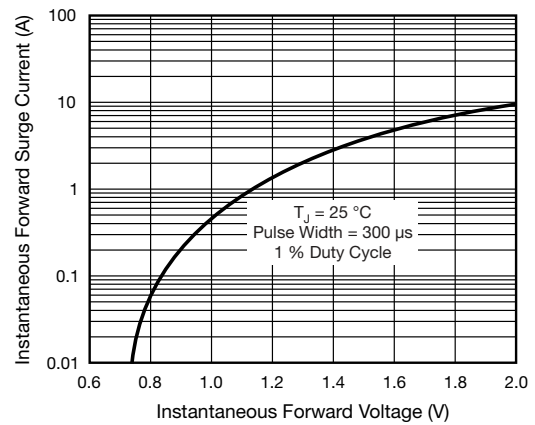


Fig. 3 - Typical Instantaneous Forward Characteristics

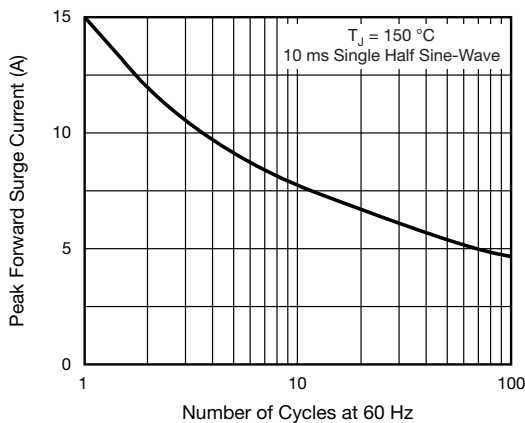


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

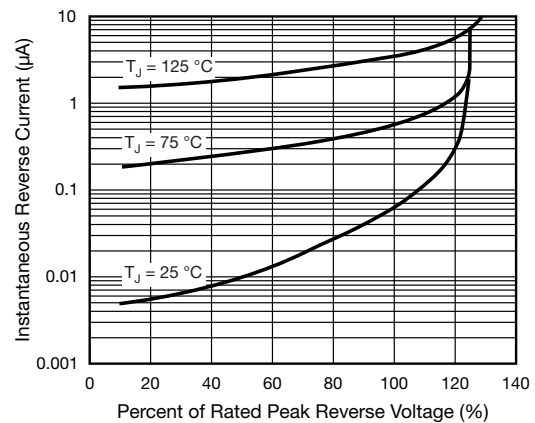


Fig. 4 - Typical Reverse Characteristics

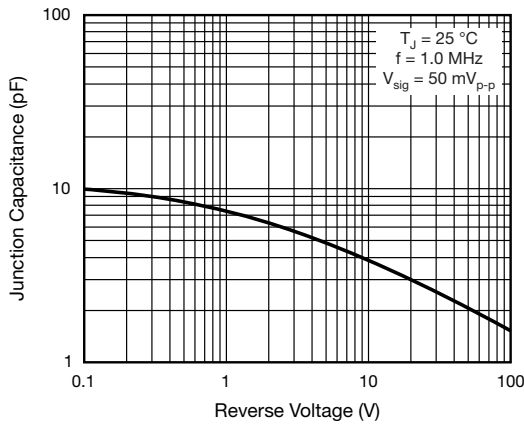
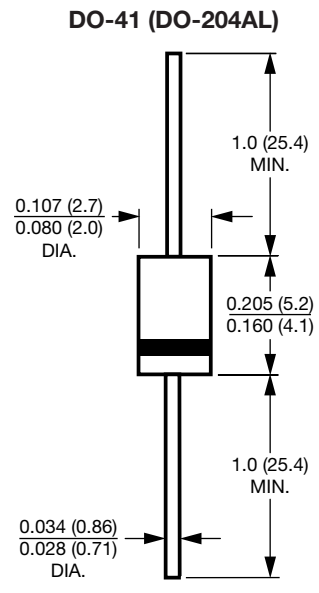


Fig. 5 - Typical Junction Capacitance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)





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