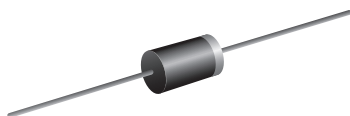




## Miniature Glass Passivated Junction Rectifier

SUPERECTIFIER®



DO-41 (DO-204AL)

### FEATURES

- Superectifier structure for high reliability application
- Cavity-free glass-passivated junction
- 0.36 A operation at  $T_A = 40^\circ\text{C}$  with no thermal runaway
- Typical  $I_R$  less than  $0.1\ \mu\text{A}$
- Solder dip  $275^\circ\text{C}$  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)



### 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.                     | $175^\circ\text{C}$ |
| Package                        | DO-41 (DO-204AL)    |
| Circuit configuration          | Single              |

### MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ 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 $T_A = 40^\circ\text{C}$ | $I_{F(AV)}$    | 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 | $^\circ\text{C}$ |

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

| PARAMETER                                                          | TEST CONDITIONS                                                     |                          | SYMBOL      | BYX10GP | UNIT          |
|--------------------------------------------------------------------|---------------------------------------------------------------------|--------------------------|-------------|---------|---------------|
| Maximum instantaneous forward voltage                              | $I_F = 2.0\ \text{A}$                                               | $T_A = 25^\circ\text{C}$ | $V_F^{(1)}$ | 1.6     | V             |
| Maximum peak reverse current at rated peak working reverse voltage | $V_{RWM} = 800\ \text{V}$                                           | $T_A = 25^\circ\text{C}$ | $I_R^{(2)}$ | 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  $\leq 40\ \text{ms}$

**THERMAL CHARACTERISTICS** ( $T_C = 25\text{ }^{\circ}\text{C}$  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

**ORDERING INFORMATION** (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 |

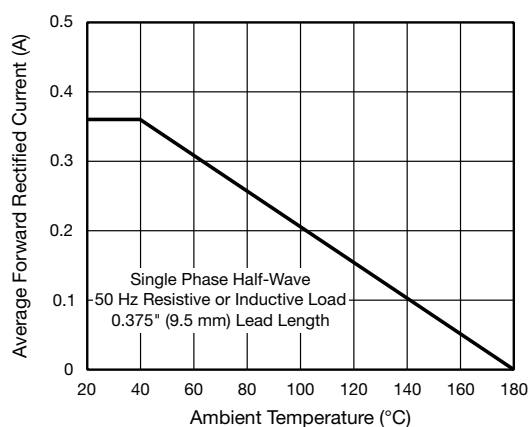
**RATINGS AND CHARACTERISTICS CURVES** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

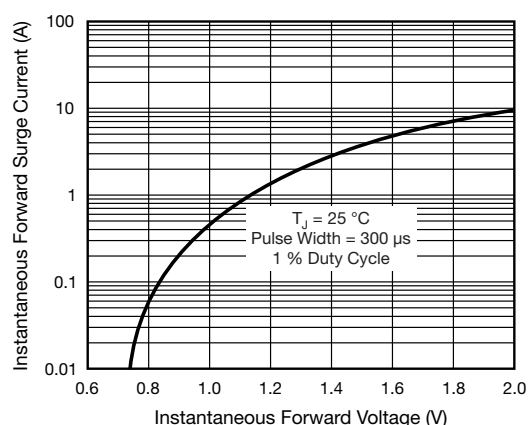


Fig. 3 - Typical Instantaneous Forward Characteristics

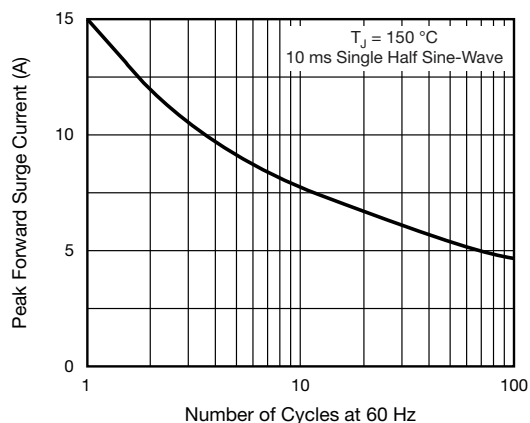


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

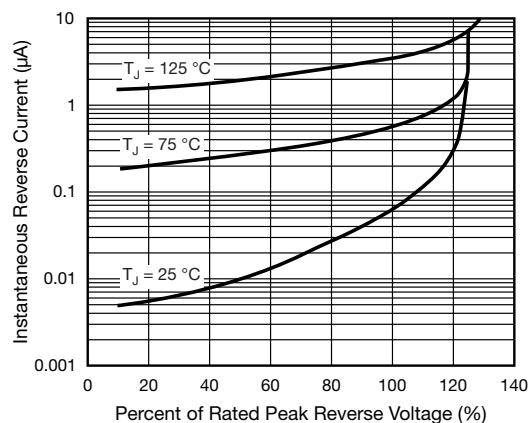


Fig. 4 - Typical Reverse Characteristics

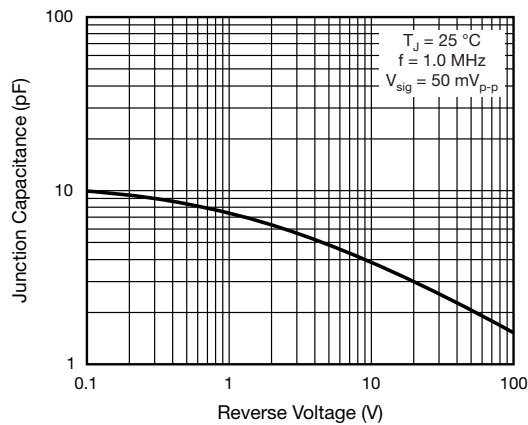
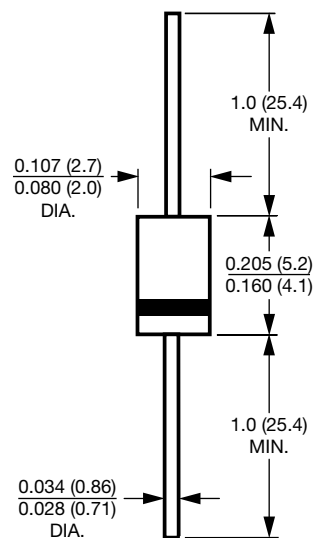


Fig. 5 - Typical Junction Capacitance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)**DO-41 (DO-204AL)**



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