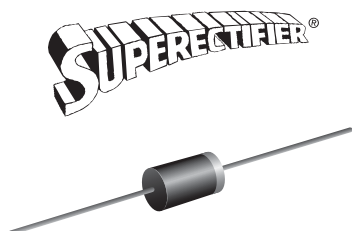


# Miniature Glass Passivated Junction Rectifier



DO-204AL (DO-41)

## FEATURES

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- 0.36 A operation at  $T_A = 40\text{ }^{\circ}\text{C}$  with no thermal runaway
- Typical  $I_R$  less than  $0.1\text{ }\mu\text{A}$
- Meets environmental standard MIL-S-19500
- Solder dip  $275\text{ }^{\circ}\text{C}$  max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



**RoHS**  
COMPLIANT

## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

**Case:** DO-204AL, molded epoxy over glass body  
Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS compliant, commercial grade  
Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102  
E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

## PRIMARY CHARACTERISTICS

|                               |                               |
|-------------------------------|-------------------------------|
| $I_{F(AV)}$                   | 0.36 A                        |
| $V_{RRM}$                     | 1600 V                        |
| $I_{FSM}$                     | 15 A                          |
| $I_R$                         | $1.0\text{ }\mu\text{A}$      |
| $V_F$ at $I_F = 2.0\text{ A}$ | 1.6 V                         |
| $T_J$ max.                    | $175\text{ }^{\circ}\text{C}$ |

## MAXIMUM RATINGS ( $T_A = 25\text{ }^{\circ}\text{C}$ 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 $T_A = 40\text{ }^{\circ}\text{C}$ | $I_{F(AV)}$    | 0.36          | A                  |
| Peak forward surge current 10 ms single half sine-wave<br>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** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

| PARAMETER                                                          | TEST CONDITIONS                                                        |                                    | SYMBOL      | BYX10GP | UNIT          |
|--------------------------------------------------------------------|------------------------------------------------------------------------|------------------------------------|-------------|---------|---------------|
| Maximum instantaneous forward voltage                              | $I_F = 2.0\text{ A}$                                                   | $T_A = 25\text{ }^{\circ}\text{C}$ | $V_F^{(1)}$ | 1.6     | V             |
| Maximum peak reverse current at rated peak working reverse voltage | $V_{RWM} = 800\text{ V}$                                               | $T_A = 25\text{ }^{\circ}\text{C}$ | $I_R^{(2)}$ | 1.0     | $\mu\text{A}$ |
| Typical reverse recovery time                                      | $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $t_{rr} = 0.25\text{ A}$ |                                    | $t_{rr}$    | 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, P.C.B. 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 |
| BYX10GPHE3/54 <sup>(1)</sup> | 0.339           | 54                     | 5500          | 13" diameter paper tape and reel |

**Note**

(1) AEC-Q101 qualified

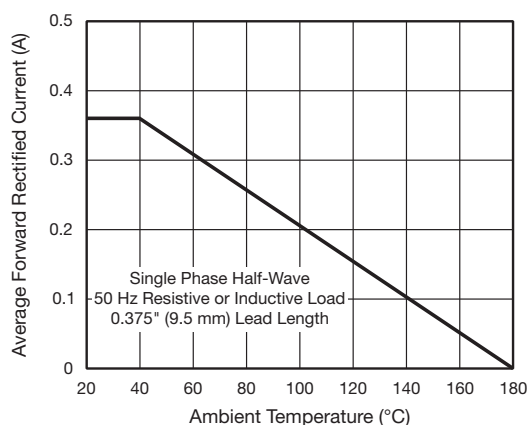
**RATINGS AND CHARACTERISTICS CURVES**( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Forward Current Derating Curve

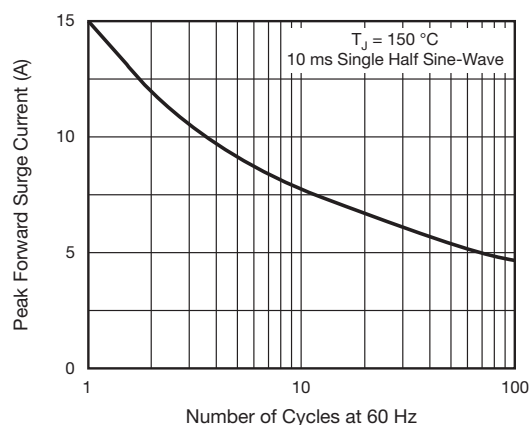
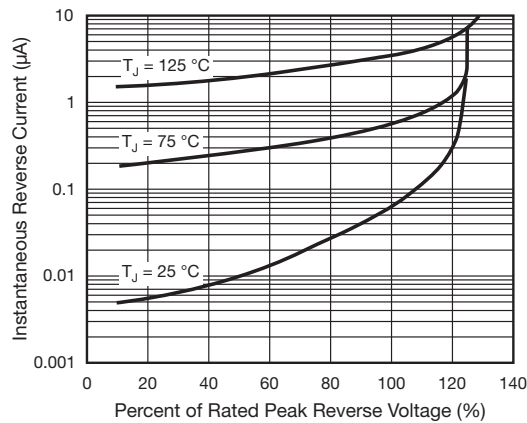
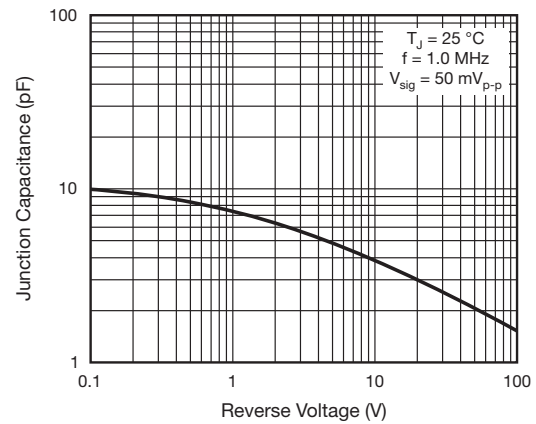
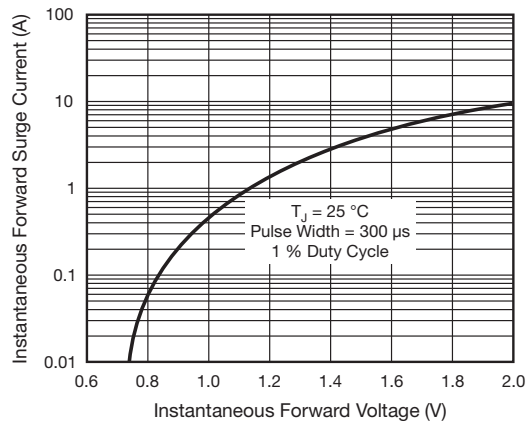
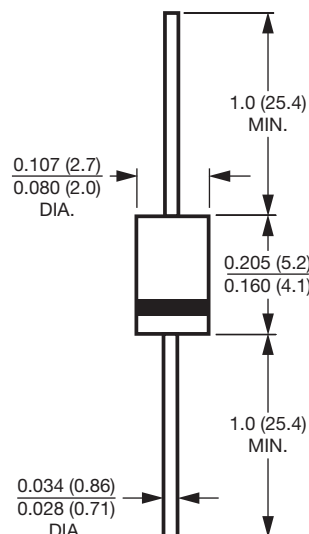


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current



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

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





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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

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moschip.ru\_9