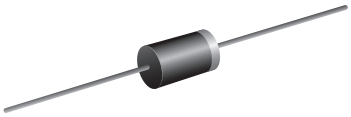
# Glass Passivated Junction Fast Switching Rectifier

**SUPERECTIFIER®**



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

## FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- 24 mils lead wire diameter
- Fast switching for high efficiency
- Low leakage current
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

## TYPICAL APPLICATIONS

- High voltage rectification
- Snubber circuit of camera flash

## 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

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

**Polarity:** Color band denotes cathode end

| PRIMARY CHARACTERISTICS | |
|---|---|
| $I_{F(AV)}$ | 0.5 A |
| $V_{RRM}$ | 1400 V, 1600 V |
| $I_{FSM}$ | 20 A |
| $t_{rr}$ | 500 ns |
| $V_F$ | 2.4 V |
| $I_R$ | 5.0 µA |
| $T_J$ max. | 175 °C |
| Package | DO-204AL (DO-41) |
| Diode variation | Single die |

**MAXIMUM RATINGS** ($T_A$ = 25 °C unless otherwise noted)

| PARAMETER | SYMBOL | BY520-14E | BY520-16E | UNIT |
|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 1400 | 1600 | V |
| Maximum RMS voltage | $V_{RMS}$ | 980 | 1120 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 1400 | 1600 | V |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A$ = 55 °C | $I_{F(AV)}$ | 0.5 | | A |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated | $I_{FSM}$ | 20 | | A |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | -65 to +175 | | °C |

| **ELECTRICAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | | | |
|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITIONS** | | **SYMBOL** | **BY520-14E** | **BY520-16E** | **UNIT** |
| Maximum instantaneous forward voltage | $I_F$ = 0.5 A | $T_A$ = 25 °C | $V_F$ (1) | 2.4 | | V |
| Maximum reverse current | $V_R = V_{RRM}$ | $T_A$ = 25 °C | $I_R$ (2) | 5.0 | | µA |
| | | $T_A$ = 125 °C | | 50 | | |
| Maximum reverse recovery time | $I_F$ = 0.5 A, $I_R$ = 1.0 A, $I_{rr}$ = 0.25 A | | $t_{rr}$ | 500 | | ns |

**Notes**

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

| **THERMAL CHARACTERISTICS** ($T_A$ = 25 °C unless otherwise noted) | | | | |
|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **BY520-14E** | **BY520-16E** | **UNIT** |
| Typical thermal resistance | $R_{\theta JA}$ (1) | 65 | | °C/W |
| | $R_{\theta JL}$ (1) | 30 | | |

**Note**

(1) Thermal resistance from junction to ambient and from junction to lead 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** |
| BY520-14E-E3/54 | 0.24 | 54 | 5500 | 13" diameter paper tape and reel |

## RATINGS AND CHARACTERISTICS CURVES ($T_A$ = 25 °C unless otherwise noted)

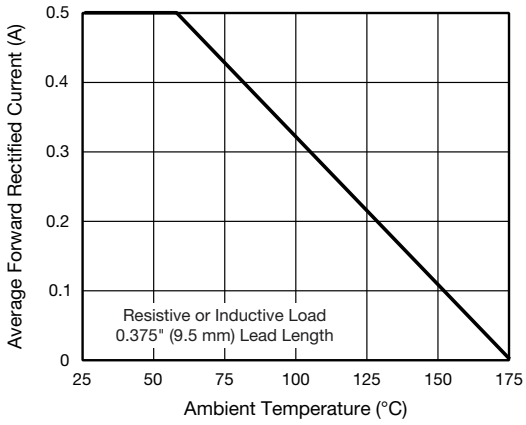



Fig. 1 - Forward Current Derating Curve

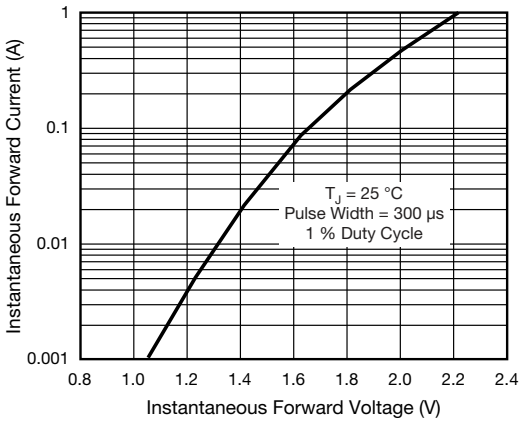



Fig. 2 - Typical Instantaneous Forward Characteristics

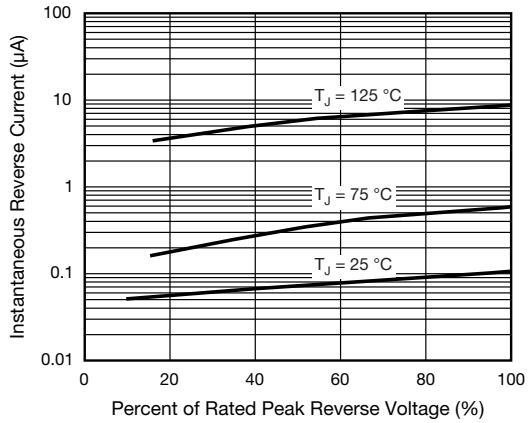



Fig. 3 - Typical Reverse Characteristics

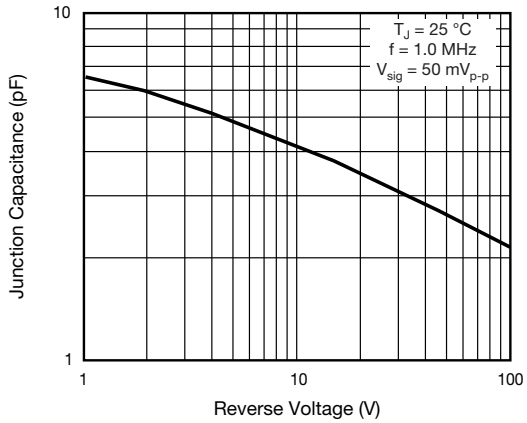
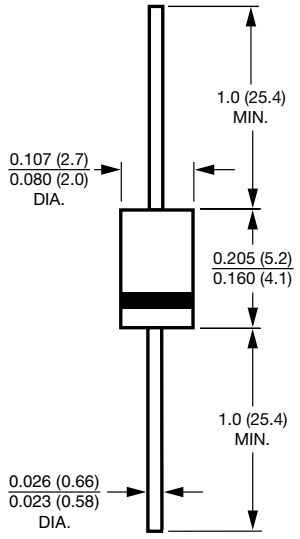



Fig. 4 - Typical Junction Capacitance

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

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



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