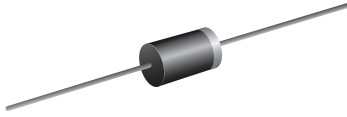


Glass Passivated Junction Fast Switching Rectifier

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

Notes

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

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

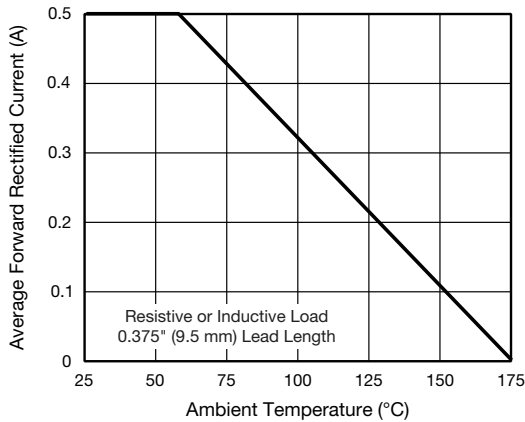


Fig. 1 - Forward Current Derating Curve

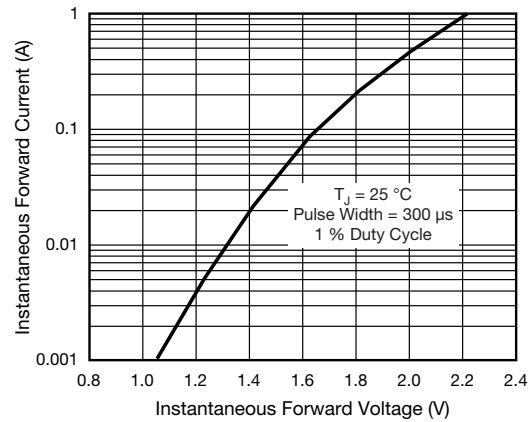


Fig. 2 - Typical Instantaneous Forward Characteristics

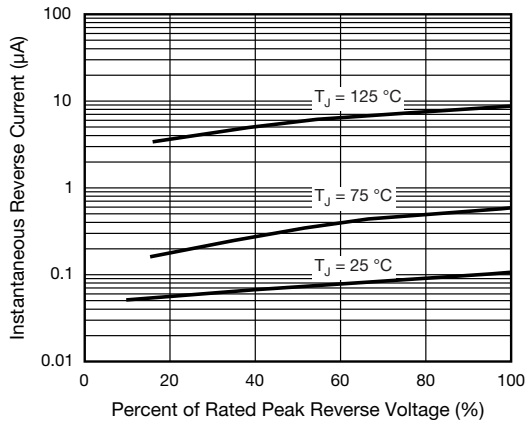


Fig. 3 - Typical Reverse Characteristics

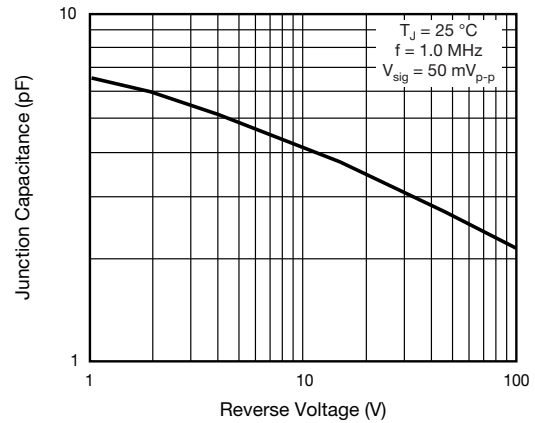
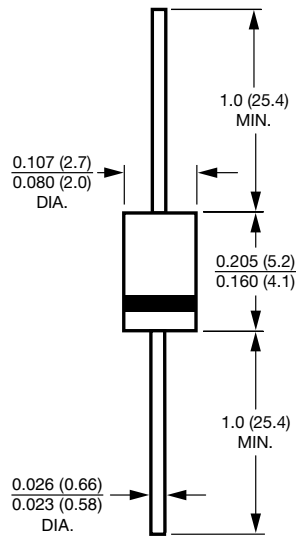


Fig. 4 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AL (DO-41)





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