

Glass Passivated Ultrafast Plastic Rectifier



FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Ideal for printed circuit boards
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- Low switching losses, high efficiency
- High forward surge capability
- 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

PRIMARY CHARACTERISTICS

| | |
|-----------------------|------------------|
| $I_{F(AV)}$ | 1.0 A |
| V_{RRM} | 600 V |
| I_{FSM} | 30 A |
| t_{rr} | 30 ns |
| V_F | 1.3 V |
| T_J max. | 175 °C |
| Package | DO-41 (DO-204AL) |
| Circuit configuration | Single |

TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer and telecommunication.

MECHANICAL DATA

Case: DO-41 (DO-204AL), molded plastic over glass body
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant and 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

MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted)

| PARAMETER | SYMBOL | VALUE | UNIT |
|--|-----------------|-------------|------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 600 | V |
| Maximum RMS voltage | V_{RMS} | 420 | V |
| Maximum DC blocking voltage | V_{DC} | 600 | V |
| Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_L = 85\text{ °C}$ (fig. 1) | $I_{F(AV)}$ | 1.0 | A |
| Peak forward surge current 10 ms single half sine-wave superimposed on rated load | I_{FSM} | 30 | A |
| Non repetitive peak reverse energy | $E_{RSM}^{(1)}$ | 5.0 | mJ |
| Operating junction and storage temperature range | T_J, T_{STG} | -65 to +175 | °C |

Note

(1) Peak reverse energy measured with 8/20 μ s surge



| ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | | | |
|--|--|---------------------|-------------------------|------|----|
| PARAMETER | TEST CONDITIONS | SYMBOL | VALUE | UNIT | |
| Minimum avalanche breakdown voltage | 100 μA | V _{BR} | 600 | V | |
| Maximum instantaneous forward voltage | 1.0 A | V _F | T _J = 25 °C | 2.5 | V |
| | | | T _J = 175 °C | 1.3 | |
| Maximum DC reverse current at rated DC blocking voltage | | I _R | T _A = 25 °C | 5.0 | μA |
| | | | T _A = 165 °C | 150 | |
| Max. reverse recovery time | I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A | t _{rr} | 30 | ns | |
| Maximum junction capacitance | 4.0 V, 1 MHz | C _J | 45 | pF | |
| Maximum reverse recovery current slope | I _F = 1 A, V _R = 30 V, di/dt = - 1 A/μs | di _r /dt | 7.0 | A/μs | |

| THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted) | | | |
|---|---------------------------------|-------|------|
| PARAMETER | SYMBOL | VALUE | UNIT |
| Typical thermal resistance | R _{θJA} ⁽¹⁾ | 70 | °C/W |
| | R _{θJL} ⁽²⁾ | 16 | |

Notes

- (1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, mounted on PCB with 0.5" x 0.5" (12 mm x 12 mm) copper pads
- (2) Thermal resistance from junction to lead at 0.375" (9.5 mm) lead length with both leads attached to heatsink

| ORDERING INFORMATION (Example) | | | | |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| SBYV26C-E3/54 | 0.339 | 54 | 5500 | 13" diameter paper tape and reel |
| SBYV26C-E3/73 | 0.339 | 73 | 3000 | Ammo pack packaging |

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

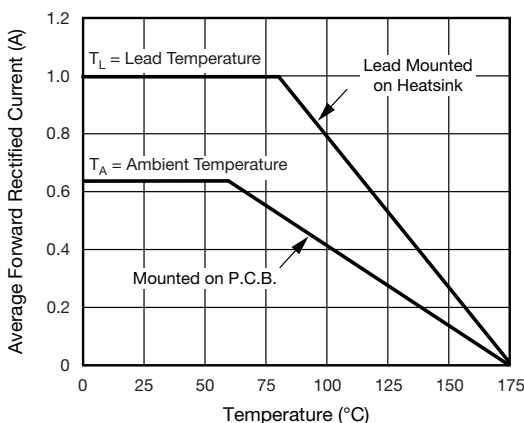


Fig. 1 - Maximum Forward Current Derating Curve

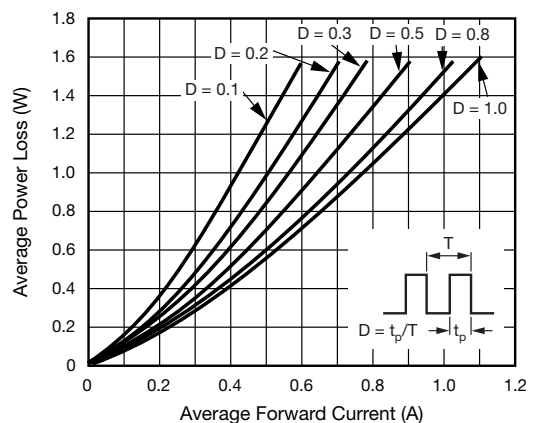


Fig. 2 - Forward Power Loss Characteristics

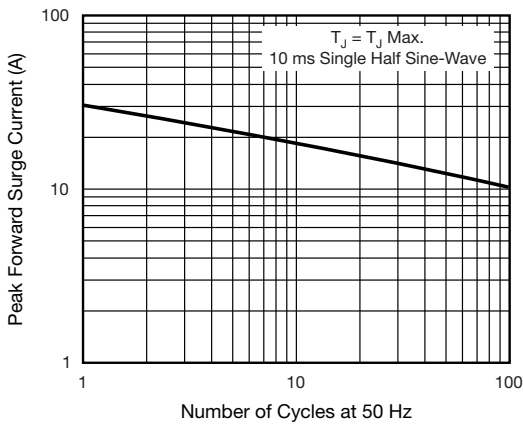


Fig. 3 - Maximum Non-Repetitive Peak Forward Surge Current

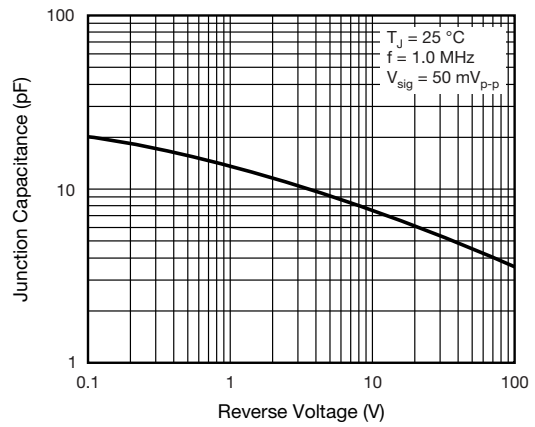


Fig. 6 - Typical Junction Capacitance

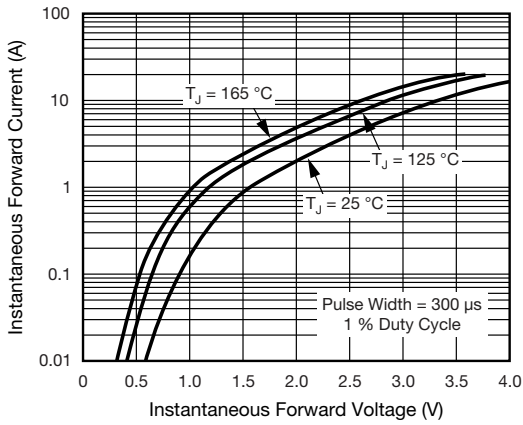


Fig. 4 - Typical Instantaneous Forward Characteristics

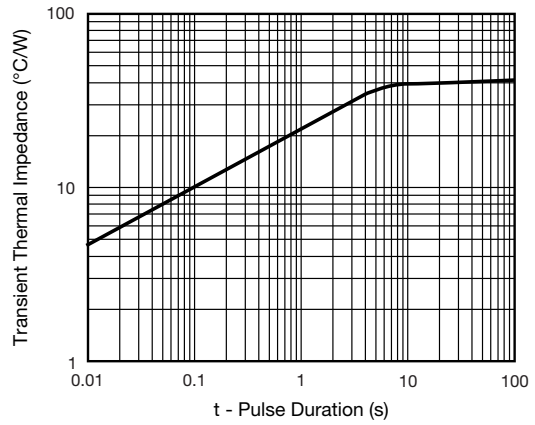


Fig. 7 - Typical Transient Thermal Impedance

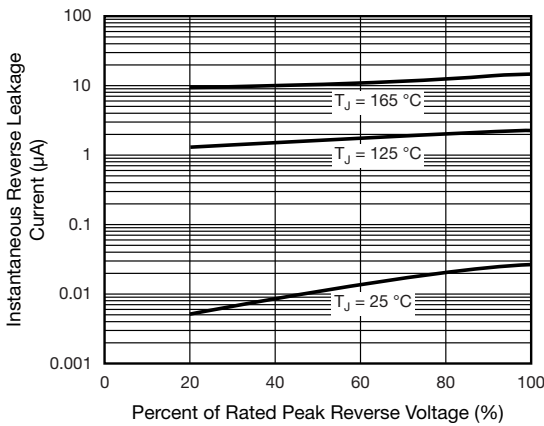
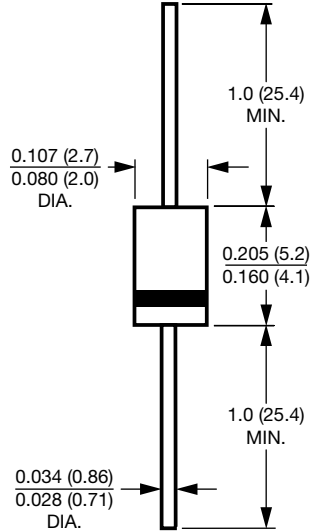


Fig. 5 - Typical Reverse Leakage Characteristics



PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-41 (DO-204AL)





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