Vishay General Semiconductor

Ultrafast Plastic Rectifier

FEATURES

- Glass passivated pellet chip junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- 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 <u>www.vishay.com/doc?99912</u>

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-201AD

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

| MAXIMUM RATINGS ($T_A = 25$ °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 $T_L = 110 \text{ °C}$ | I _{F(AV)} | 3.0 | А |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I _{FSM} | 90 | А |
| Operating junction and storage temperature range | T _J , T _{STG} | -40 to +150 | °C |
| Reverse avalanche energy (8/20 µs surge) | E _{AR} | 10 | mJ |

| ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted) | | | | |
|---|---|-------------------------------|-------|------|
| PARAMETER | TEST CONDITIONS | SYMBOL | VALUE | UNIT |
| Minimum reverse breakdown voltage | 10 µA | V _{BR} | 600 | V |
| Maximum instantaneous forward voltage | 3.0 A | V _F ⁽¹⁾ | 1.6 | V |
| Maximum DC reverse current at rated DC blocking voltage | | I _R | 20 | μA |
| Maximum reverse recovery time | $I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$ | t _{rr} | 30 | ns |

Note

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

Revision: 31-Mar-2022

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| PRIMARY CHARACTE | RISTICS |
|---------------------|---------|
| I _{F(AV)} | 3.0 A |
| V _{RRM} | 600 V |
| I _{FSM} | 90 A |
| t _{rr} | 30 ns |
| V _F | 1.6 V |
| T _J max. | 150 °C |

DO-201AD

Single



Package

Circuit configuration



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| THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted) | | | |
|--|---------------------------------|-------|------|
| PARAMETER | SYMBOL | VALUE | UNIT |
| Typical thermal resistance | R _{0JA} ⁽¹⁾ | 30 | °C/W |
| | R _{0JL} ⁽¹⁾ | 8.0 | |

Note

⁽¹⁾ Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|-----------------|------------------------|---------------|----------------------------------|--|
| PREFERRED P/N | UNIT WEIGHT (g) | PREFERRED PACKAGE CODE | BASE QUANTITY | DELIVERY MODE | |
| 31GF6-E3/54 | 1.13 | 54 | 1400 | 13" diameter paper tape and reel | |
| 31GF6-E3/73 | 1.13 | 73 | 1000 | Ammo pack packaging | |

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

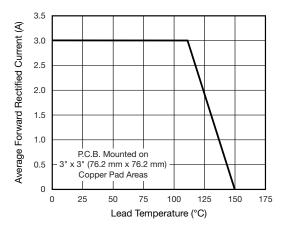


Fig. 1 - Maximum Forward Current Derating Curve

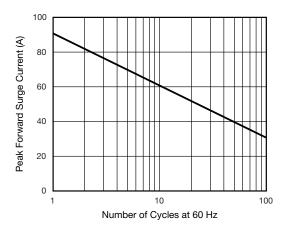


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

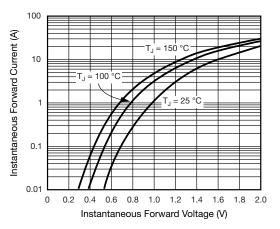


Fig. 3 - Typical Forward Voltage

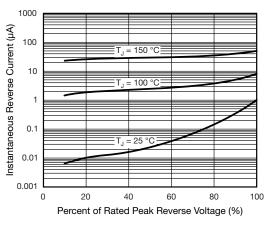


Fig. 4 - Typical Reverse Current

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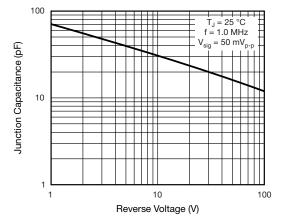
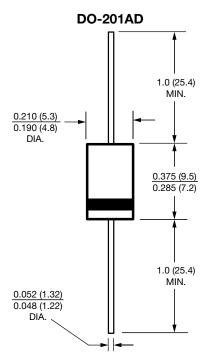


Fig. 5 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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