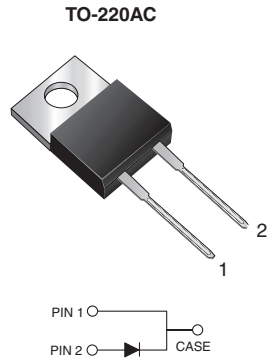


Ultrafast Plastic Rectifier


RoHS
COMPLIANT

FEATURES

- Power pack
- Glass passivated pellet chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low leakage current
- 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

TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, inverters, freewheeling diodes, DC/DC converters, and other power switching application.

MECHANICAL DATA

Case: TO-220AC

Molding compound meets UL 94V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix meets JESD 201 class 1A whisker test

Polarity: as marked

Mounting Torque: 10 in-lbs max.

| PRIMARY CHARACTERISTICS | |
|-------------------------|---------------------------|
| $I_{F(AV)}$ | 8.0 A |
| V_{RRM} | 50 V, 100 V, 150 V, 200 V |
| I_{FSM} | 125 A |
| t_{rr} | 35 ns |
| V_F at I_F | 0.895 V |
| T_J max. | 150 °C |
| Package | TO-220AC |
| Diode variation | Single |

| MAXIMUM RATINGS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | | |
|--|----------------|-------------|--------|--------|--------|------|
| PARAMETER | SYMBOL | GI1401 | GI1402 | GI1403 | GI1404 | UNIT |
| Max. repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 150 | 200 | V |
| Max. RMS voltage | V_{RMS} | 35 | 70 | 105 | 140 | V |
| Max. DC blocking voltage | V_{DC} | 50 | 100 | 150 | 200 | V |
| Max. average forward rectified current at $T_C = 125\text{ °C}$ | $I_{F(AV)}$ | 8.0 | | | | A |
| Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load | I_{FSM} | 125 | | | | A |
| Operating and storage temperature range | T_J, T_{STG} | -65 to +150 | | | | °C |

| ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ °C}$ unless otherwise noted) | | | | | | | | |
|---|--|-----------------------|----------|--------|--------|--------|--------|---------------|
| PARAMETER | TEST CONDITIONS | | SYMBOL | GI1401 | GI1402 | GI1403 | GI1404 | UNIT |
| Max. instantaneous forward voltage | $I_F = 4\text{ A}$ | $T_J = 25\text{ °C}$ | V_F | 0.900 | | | | V |
| | $I_F = 8\text{ A}$ | $T_J = 25\text{ °C}$ | | 0.975 | | | | |
| | $I_F = 4\text{ A}$ | $T_J = 100\text{ °C}$ | | 0.800 | | | | |
| | $I_F = 8\text{ A}$ | $T_J = 100\text{ °C}$ | | 0.895 | | | | |
| Max. DC reverse current at rated DC blocking voltage | $T_C = 25\text{ °C}$ | | I_R | 5.0 | | | | μA |
| | $T_C = 100\text{ °C}$ | | | 150 | | | | |
| Max. reverse recovery time | $I_F = 0.5\text{ A}, I_R = 1.0\text{ A}, I_{rr} = 0.25\text{ A}$ | | t_{rr} | 35 | | | | ns |
| Typical junction capacitance | 4.0 V, 1 MHz | | C_J | 85 | | | | pF |



| THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted) | | | | | | |
|--|-----------------|--------|--------|--------|--------|--------------------|
| PARAMETER | SYMBOL | GI1401 | GI1402 | GI1403 | GI1404 | UNIT |
| Typical thermal resistance ⁽¹⁾⁽²⁾ | $R_{\theta JA}$ | 15 | | | | $^\circ\text{C/W}$ |
| | $R_{\theta JC}$ | 2.2 | | | | |

Notes

- (1) Thermal resistance from junction to ambient in free air, no heatsink
- (2) Thermal resistance from junction to case and ambient mounted on heatsink

| ORDERING INFORMATION (Example) | | | | | |
|--------------------------------|---------------|-----------------|--------------|---------------|---------------|
| PACKAGE | PREFERRED P/N | UNIT WEIGHT (g) | PACKAGE CODE | BASE QUANTITY | DELIVERY MODE |
| TO-220AC | GI1401-E3/45 | 1.80 | 45 | 50/tube | Tube |

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

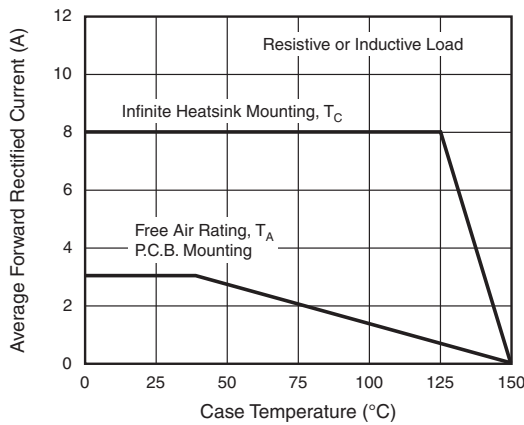


Fig. 1 - Max. Forward Current Derating Curve

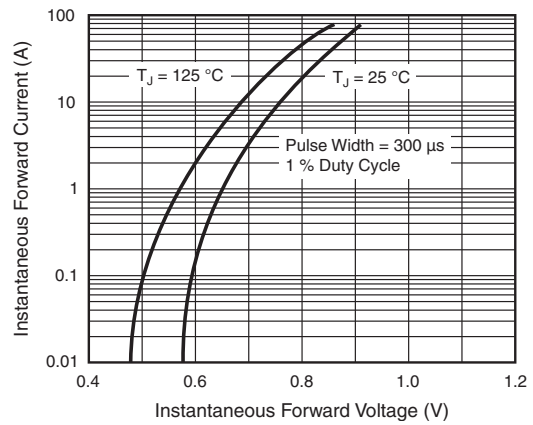


Fig. 3 - Typical Instantaneous Forward Characteristics

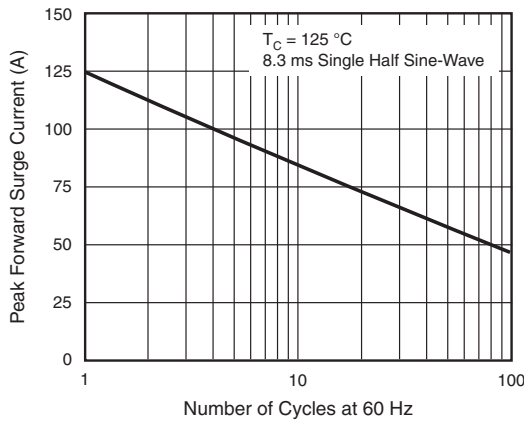


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

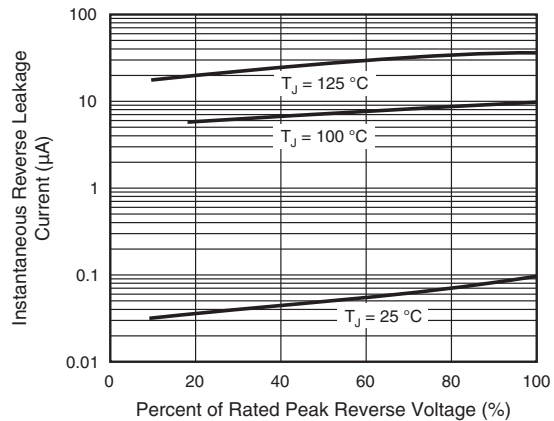


Fig. 4 - Typical Reverse Leakage Characteristics

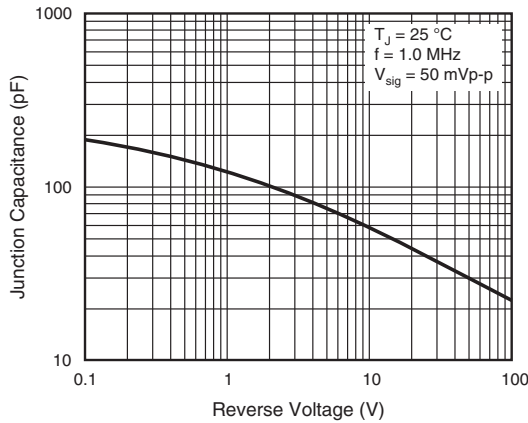
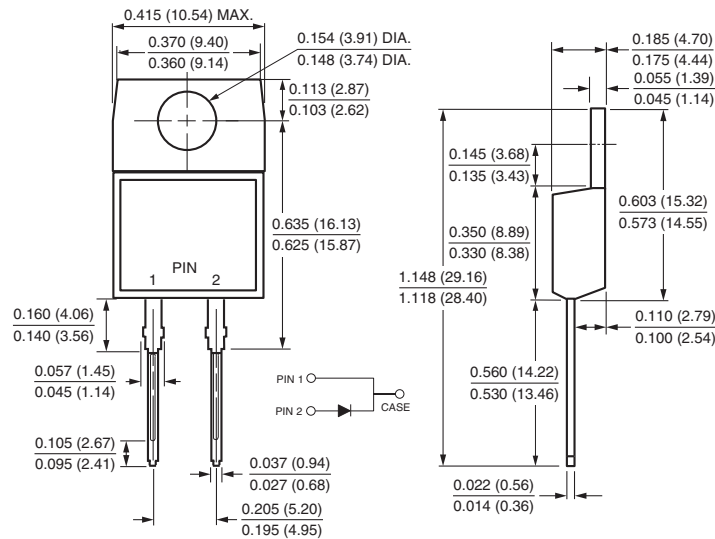


Fig. 5 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AC





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