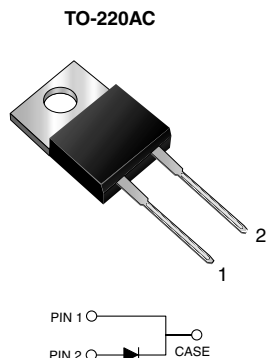


## Ultrafast Plastic Rectifier



### FEATURES

- Glass passivated chip junction
- Ultrafast recovery time
- Low switching losses, high efficiency
- Low leakage current
- High forward surge capability
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

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

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	8.0 A
$V_{RRM}$	50 V to 200 V
$I_{FSM}$	125 A
$t_{rr}$	35 ns
$V_F$	0.895 V
$T_J \text{ max.}$	150 °C

### MECHANICAL DATA

**Case:** TO-220AC

Epoxy meets UL 94V-0 flammability rating

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

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

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

PARAMETER	SYMBOL	GI1401	GI1402	GI1403	GI1404	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	150	200	V
Maximum RMS voltage	$V_{RMS}$	35	70	105	140	V
Maximum DC blocking voltage	$V_{DC}$	50	100	150	200	V
Maximum 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 <sub>A</sub> = 25 °C unless otherwise noted)																
PARAMETER	TEST CONDITIONS		SYMBOL	GI1401	GI1402	GI1403	GI1404	UNIT								
Maximum instantaneous forward voltage	I <sub>F</sub> = 4 A	T <sub>J</sub> = 25 °C	V <sub>F</sub>	0.900				V								
	I <sub>F</sub> = 8 A	T <sub>J</sub> = 25 °C							0.975							
	I <sub>F</sub> = 4 A	T <sub>J</sub> = 100 °C											0.800			
	I <sub>F</sub> = 8 A	T <sub>J</sub> = 100 °C														
Maximum DC reverse current at rated DC blocking voltage		T <sub>C</sub> = 25 °C T <sub>C</sub> = 100 °C	I <sub>R</sub>	5.0 150				μA								
Maximum reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A		t <sub>rr</sub>	35				ns								
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	85				pF								

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	GI1401	GI1402	GI1403	GI1404	UNIT
Typical thermal resistance <sup>(1, 2)</sup>	R <sub>θJA</sub>	15				°C/W
	R <sub>θJC</sub>	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
TO-220AC	GI1401HE3/45 <sup>(1)</sup>	1.80	45	50/tube	Tube

### Note:

- (1) Automotive grade AEC Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

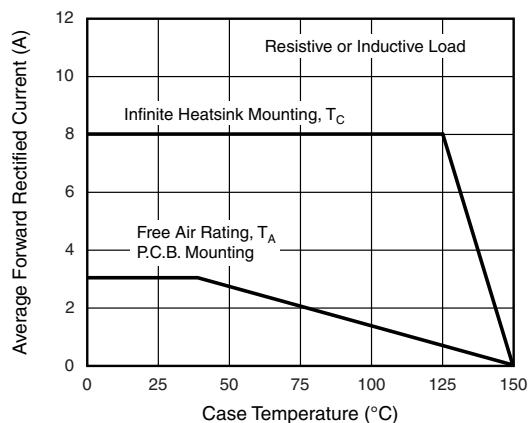


Figure 1. Maximum Forward Current Derating Curve

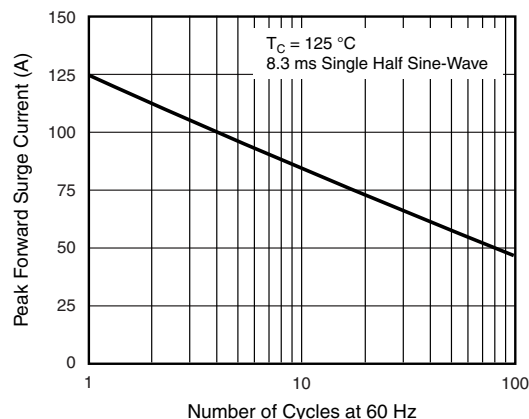


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

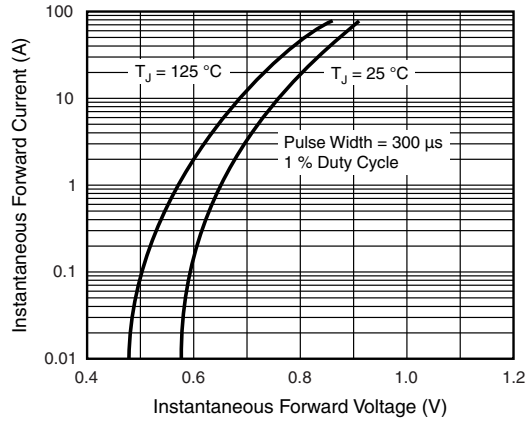


Figure 3. Typical Instantaneous Forward Characteristics

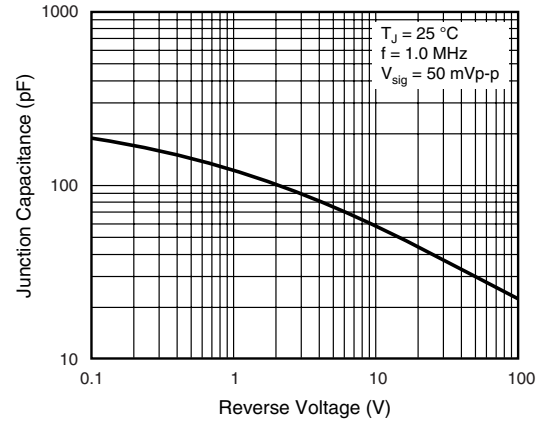


Figure 5. Typical Junction Capacitance

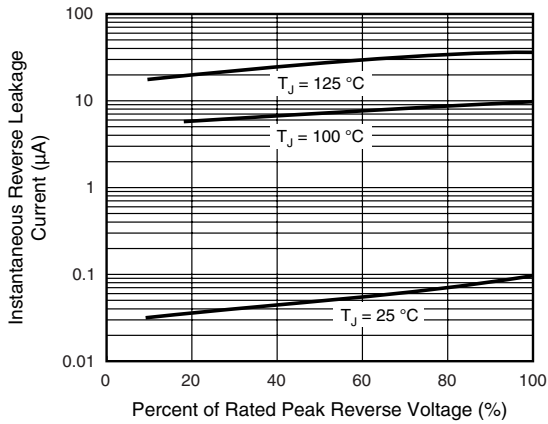
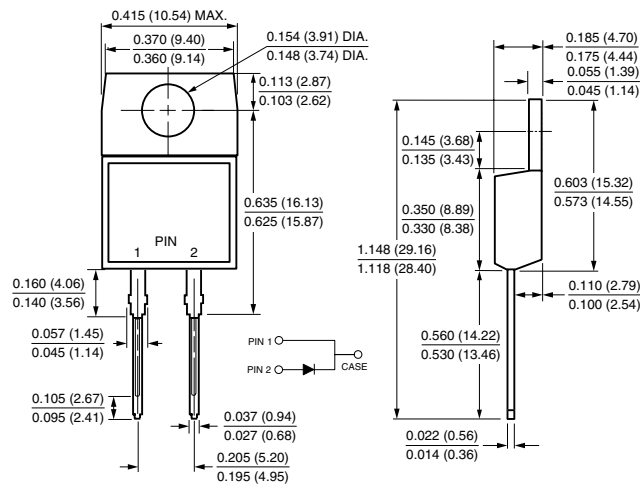


Figure 4. Typical Reverse Leakage Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

#### TO-220AC





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