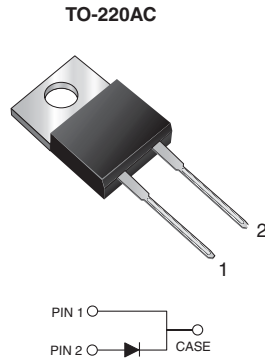


## Ultrafast Plastic Rectifier


**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](http://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 ( $T_A = 25$ °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 $T_C = 125$ °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 ( $T_A = 25$ °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	GI1401	GI1402	GI1403	GI1404	UNIT
Max. instantaneous forward voltage	$I_F = 4$ A	$T_J = 25$ °C	$V_F$	0.900				V
	$I_F = 8$ A	$T_J = 25$ °C		0.975				
	$I_F = 4$ A	$T_J = 100$ °C		0.800				
	$I_F = 8$ A	$T_J = 100$ °C		0.895				
Max. DC reverse current at rated DC blocking voltage	$T_C = 25$ °C		$I_R$	5.0				µA
	$T_C = 100$ °C			150				
Max. reverse recovery time	$I_F = 0.5$ A, $I_R = 1.0$ A, $t_{rr} = 0.25$ 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 <sup>(1)(2)</sup>	$R_{\theta JA}$	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)**

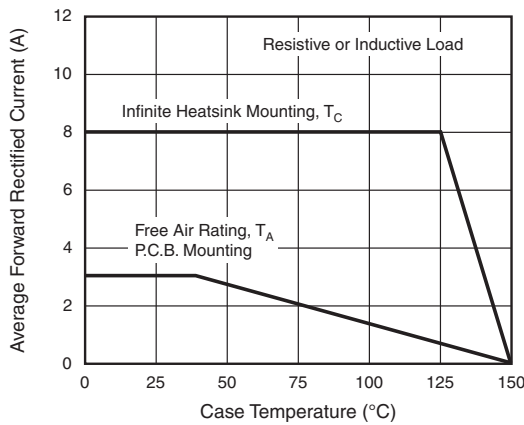


Fig. 1 - Max. Forward Current Derating Curve

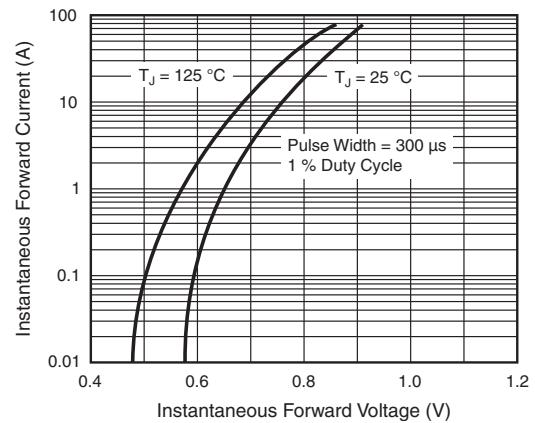


Fig. 3 - Typical Instantaneous Forward Characteristics

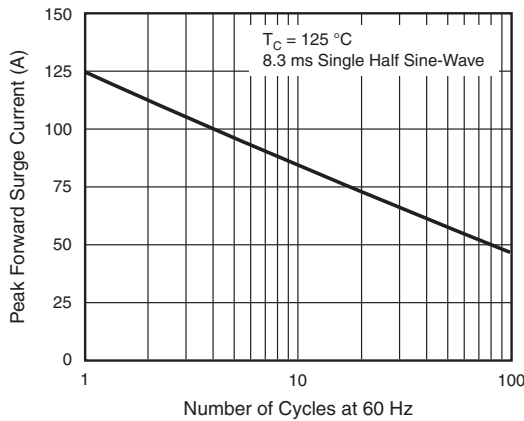


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

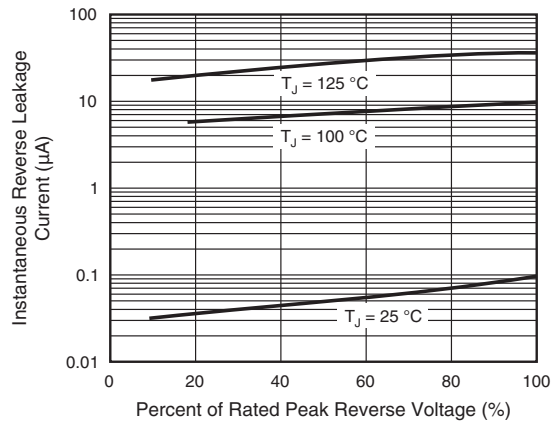


Fig. 4 - Typical Reverse Leakage Characteristics

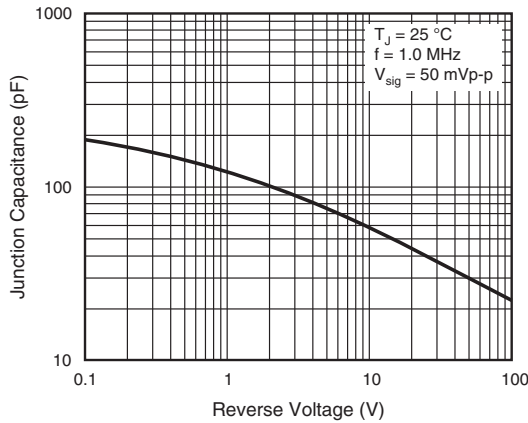
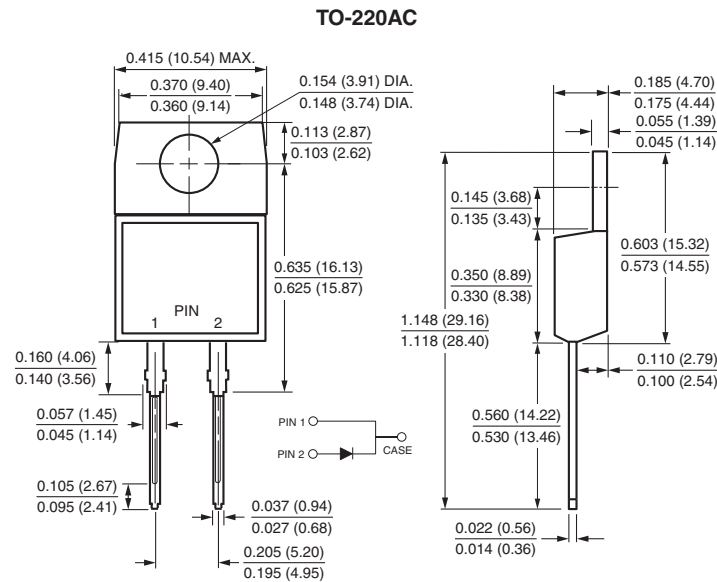


Fig. 5 - Typical Junction Capacitance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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