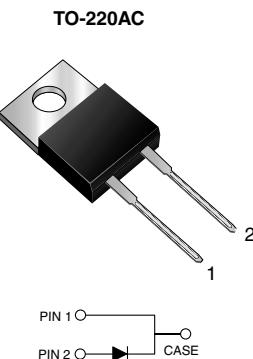


Ultrafast Plastic Rectifier



FEATURES

- Power pack
- Glass passivated 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
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912


**RoHS
COMPLIANT**

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
Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102
E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 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	0.895 V
T_J max.	150 °C
Package	TO-220AC
Diode variation	Single die

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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 $T_C = 125^\circ\text{C}$	$I_{F(AV)}$	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 ($T_A = 25^\circ\text{C}$ unless otherwise noted)									
PARAMETER	TEST CONDITIONS		SYMBOL	GI1401	GI1402	GI1403	GI1404	UNIT	
Max. instantaneous forward voltage	$I_F = 4 \text{ A}$		$T_J = 25^\circ\text{C}$	0.900				V	
	$I_F = 8 \text{ A}$		$T_J = 25^\circ\text{C}$	0.975					
	$I_F = 4 \text{ A}$		$T_J = 100^\circ\text{C}$	0.800					
	$I_F = 8 \text{ A}$		$T_J = 100^\circ\text{C}$	0.895					
Max. DC reverse current at rated DC blocking voltage	$T_C = 25^\circ\text{C}$		I_R	5.0				μA	
			$T_C = 100^\circ\text{C}$	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	$4.0 \text{ V}, 1 \text{ MHz}$		C_J	85				pF	

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

PARAMETER	SYMBOL	GI1401	GI1402	GI1403	GI1404	UNIT
Typical thermal resistance ⁽¹⁾⁽²⁾	$R_{\theta\text{JA}}$			15		
	$R_{\theta\text{JC}}$			2.2		$^\circ\text{C/W}$

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 ⁽¹⁾	1.80	45	50/tube	Tube

Note

⁽¹⁾ AEC-Q101 qualified

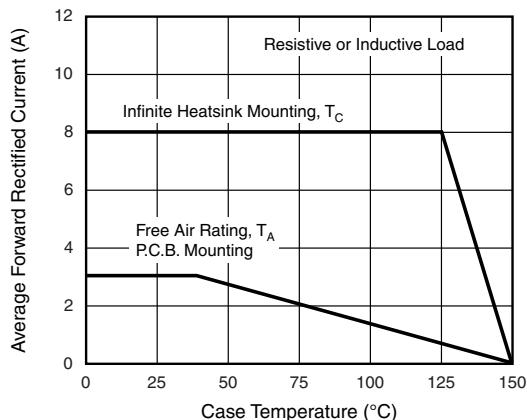
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Max. Forward Current Derating Curve

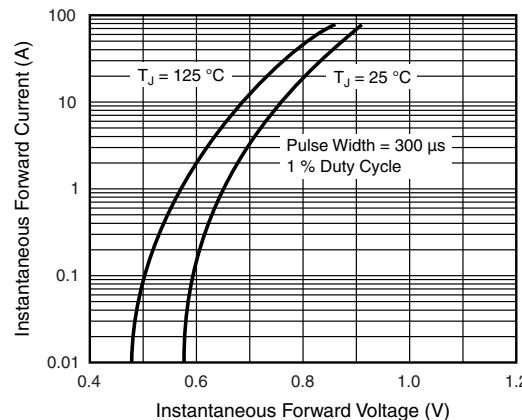


Fig. 3 - Typical Instantaneous Forward Characteristics

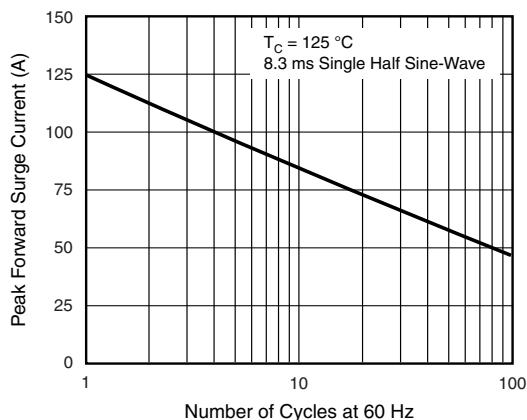


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

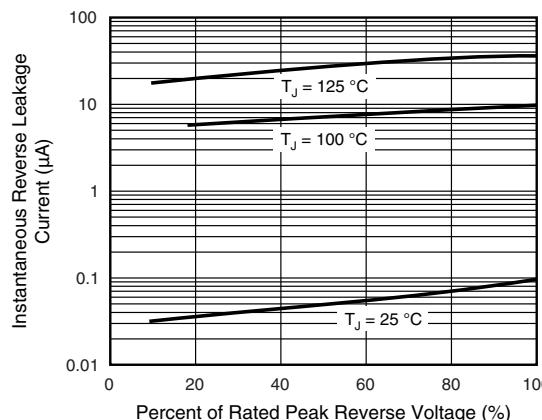


Fig. 4 - Typical Reverse Leakage Characteristics

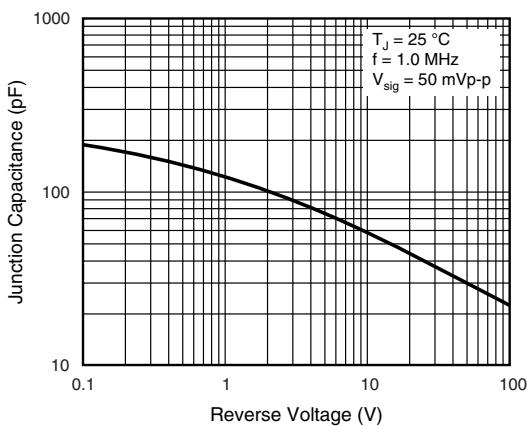
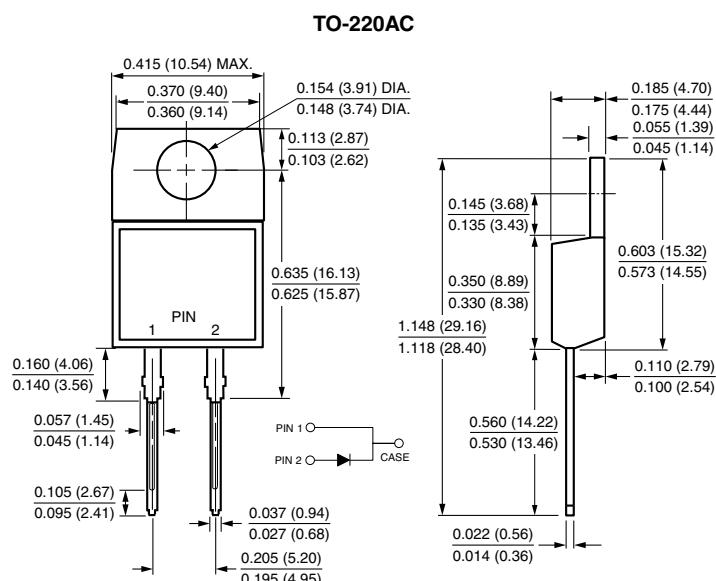


Fig. 5 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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