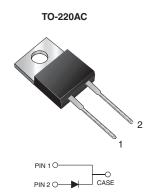


## Vishay General Semiconductor

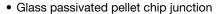
### **Ultrafast Plastic Rectifier**



PRIMARY CHARACTERISTICS						
I <sub>F(AV)</sub>	8.0 A					
V <sub>RRM</sub> 50 V, 100 V, 150 V, 200 V						
I <sub>FSM</sub>	125 A					
t <sub>rr</sub>	35 ns					
V <sub>F</sub> at I <sub>F</sub>	0.895 V					
T <sub>J</sub> max.	150 °C					
Package	TO-220AC					
Diode variation	Single					

#### **FEATURES**

Power pack





- · 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 <a href="https://www.vishay.com/doc?99912"><u>www.vishay.com/doc?99912</u></a>

#### 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.

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 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 <sub>RMS</sub>	35	70	105	140	V	
Max. DC blocking voltage	$V_{DC}$	50	100	150	200	V	
Max. average forward rectified current at T <sub>C</sub> = 125 °C	I <sub>F(AV)</sub>		Α				
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	125					
Operating and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150					

<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	TEST COI	NDITIONS	SYMBOL	GI1401	GI1402	GI1403	GI1404	UNIT	
Max. instantaneous forward voltage	I <sub>F</sub> = 4 A	T <sub>J</sub> = 25 °C		0.900					
	I <sub>F</sub> = 8 A	T <sub>J</sub> = 25 °C	V <sub>F</sub>	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		0.895					
Max. DC reverse current at rated DC blocking voltage		T <sub>C</sub> = 25 °C	5.0					μΑ	
		T <sub>C</sub> = 100 °C	I <sub>R</sub>	150					
Max. reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$		t <sub>rr</sub>	35			ns		
Typical junction capacitance	4.0 V, 1 MHz	4.0 V, 1 MHz C <sub>J</sub> 85				pF			



# Vishay General Semiconductor

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	DL GI1401 GI1402 GI1403 GI14				UNIT	
Typical thermal resistance (1)(2)	$R_{\theta JA}$	15				°C/W	
	$R_{\theta JC}$	2.2			C/VV		

#### **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)	HT (g) PACKAGE CODE BASE QUANTITY DELIVER					
TO-220AC	GI1401-E3/45	1.80	45	50/tube	Tube			

100

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

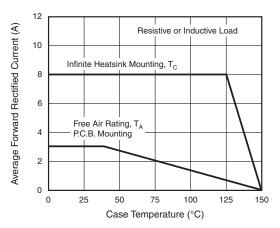
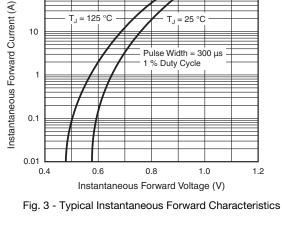


Fig. 1 - Max. Forward Current Derating Curve



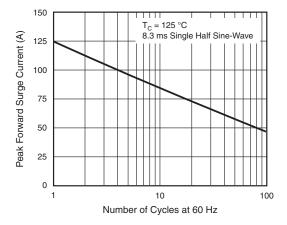


Fig. 2 - Max. Non-Repetitive Peak Forward Surge Current

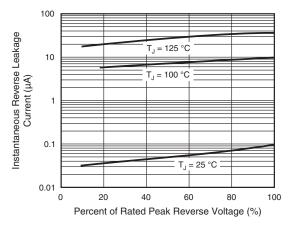


Fig. 4 - Typical Reverse Leakage Characteristics

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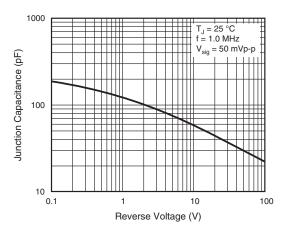


Fig. 5 - Typical Junction Capacitance

#### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

#### **TO-220AC** 0.415 (10.54) MAX 0.154 (3.91) DIA. 0.370 (9.40) 0.185 (4.70) 0.360 (9.14) 0.148 (3.74) DIA. 0.175 (4.44) 0.055 (1.39) 0.113 (2.87) 0.045 (1.14) 0.103 (2.62) 0.145 (3.68) 0.135 (3.43) 0.603 (15.32) 0.635 (16.13) 0.573 (14.55) 0.350 (8.89) 0.625 (15.87) 0.330 (8.38) PIN 1.148 (29.16) 1.118 (28.40) 0.160 (4.06) 0.110 (2.79) 0.140 (3.56) 0.100 (2.54) 0.057 (1.45) 0.560 (14.22) 0.045 (1.14) 0.530 (13.46) PIN 2 O 0.105 (2.67) 0.095 (2.41) 0.037 (0.94) 0.027 (0.68) 0.022 (0.56) 0.014 (0.36) 0.205 (5.20) 0.195 (4.95)



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