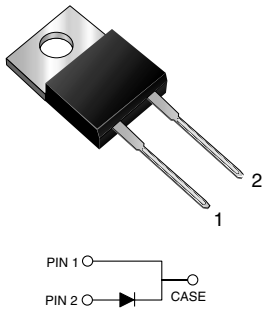
Ultrafast Plastic Rectifier

TO-220AC



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 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 °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 °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**
Maximum instantaneous forward voltage	I_F = 4 A I_F = 8 A I_F = 4 A I_F = 8 A	T_J = 25 °C T_J = 25 °C T_J = 100 °C T_J = 100 °C	V_F	0.900 0.975 0.800 0.895				V
Maximum DC reverse current at rated DC blocking voltage		T_C = 25 °C T_C = 100 °C	I_R	5.0 150				µA
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{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 °C unless otherwise noted)						
PARAMETER	**SYMBOL**	**GI1401**	**GI1402**	**GI1403**	**GI1404**	**UNIT**
Typical thermal resistance (1, 2)	$R_{\theta JA}$ $R_{\theta JC}$	15 2.2				°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) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

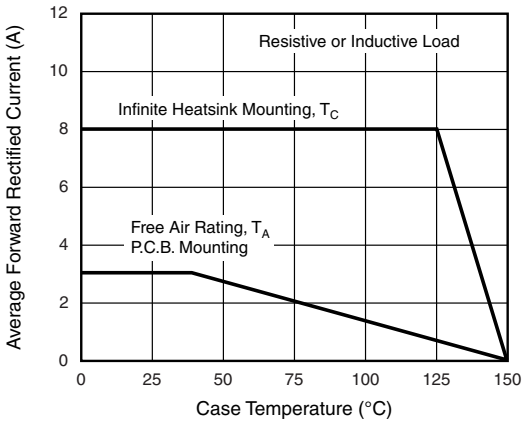


Figure 1. Maximum Forward Current Derating Curve

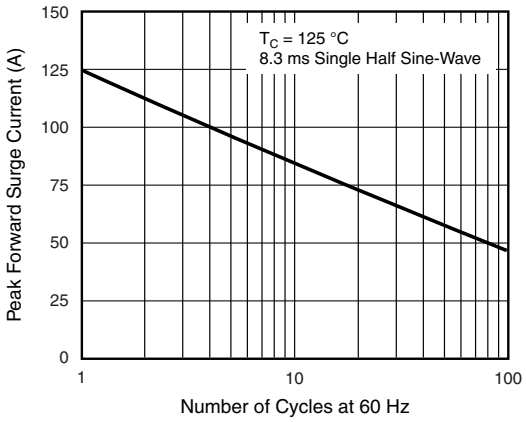


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

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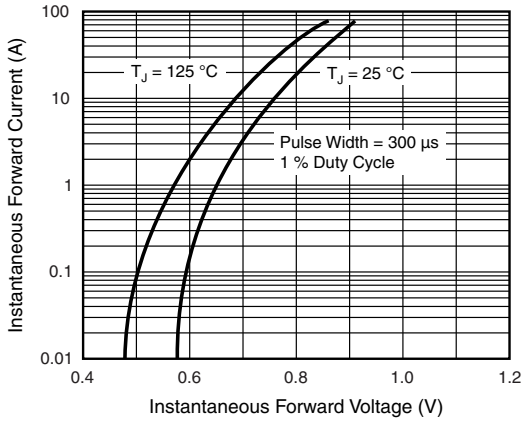


Figure 3. Typical Instantaneous Forward Characteristics

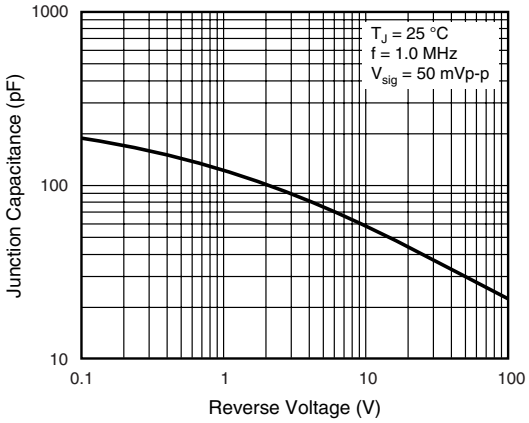


Figure 5. Typical Junction Capacitance

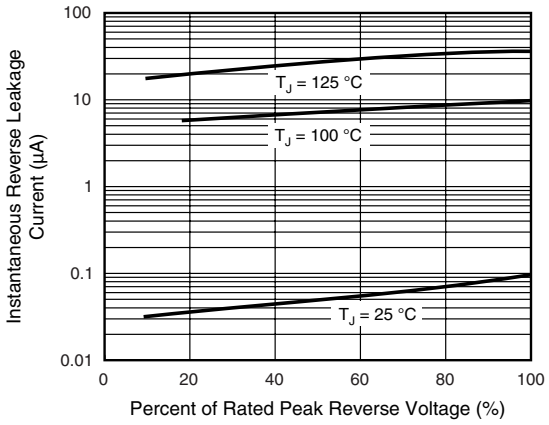
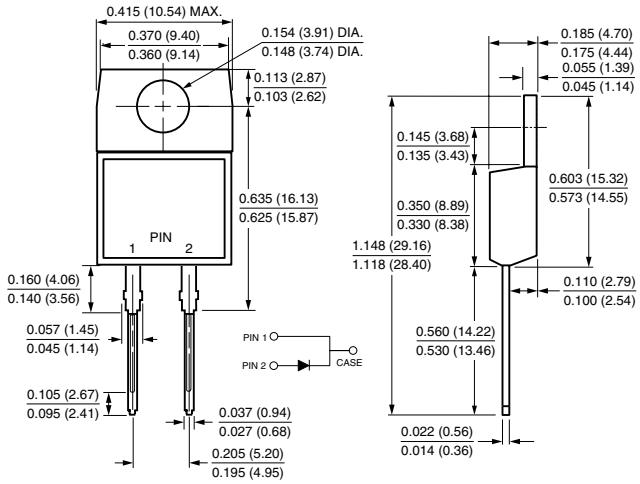


Figure 4. Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AC



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