

## Miniature High Voltage Glass Passivated Rectifier



### FEATURES

- Superrectifier structure for high reliability application
- Cavity-free glass-passivated junction
- Low forward voltage drop
- Typical  $I_R$  less than 0.1  $\mu\text{A}$
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high voltage rectification of power supplies, inverters, converters, freewheeling diodes applications

### MECHANICAL DATA

**Case:** DO-204AC, molded epoxy over glass body  
Molding compound meets UL 94 V-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 JESD 22-B102  
E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	1200 V to 1600 V
$I_{FSM}$	30 A
$I_R$	10 $\mu\text{A}$
$V_F$	1.1 V
$T_J$ max.	175 °C

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)					
PARAMETER	SYMBOL	GI1-1200GP	GI1-1400GP	GI1-1600GP	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	1200	1400	1600	V
Maximum RMS voltage	$V_{RMS}$	840	980	1120	V
Maximum DC blocking voltage	$V_{DC}$	1200	1400	1600	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_A = 75\text{ °C}$	$I_{F(AV)}$	1.0			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	30			A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175			°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	GI1-1200GP	GI1-1400GP	GI1-1600GP	UNIT
Maximum instantaneous forward voltage	$I_F = 1.0\text{ A}$	$V_F^{(1)}$		1.1		V
	$I_F = 3.14\text{ A}$			1.3		
Maximum reverse current	Rated $V_R$	$I_R^{(1)}$		10		$\mu\text{A}$
			$T_A = 100\text{ }^\circ\text{C}$		100	
Maximum reverse recovery time	$I_{FM} = 20\text{ mA}$ , $I_{RM} = 2\text{ mA}$	$t_{rr}$		25		$\mu\text{s}$
Reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	typical		0.7		$\mu\text{s}$
		maximum		1.5		
Maximum forward recovery time	$I_{FM} = 20\text{ mA}$	$t_{fr}$		1.0		$\mu\text{s}$
Typical junction capacitance	4.0 V, 1 MHz	$C_J$		15		pF

**Note**

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	GI1-1200GP	GI1-1400GP	GI1-1600GP	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$		55		$^\circ\text{C/W}$

**Note**

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length, PCB mounted

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
GI1-1200-E3/54	0.425	54	4000	13" diameter paper tape and reel
GI1-1200-E3/73	0.425	73	2000	Ammo pack packaging
GI1-1200HE3/54 (1)	0.425	54	4000	13" diameter paper tape and reel
GI1-1200HE3/73 (1)	0.425	73	2000	Ammo pack packaging

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

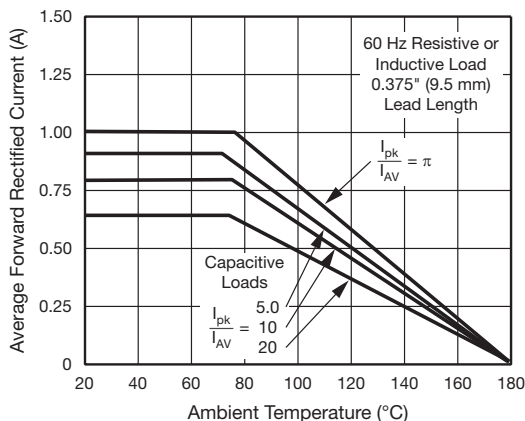


Fig. 1 - Forward Current Derating Curve

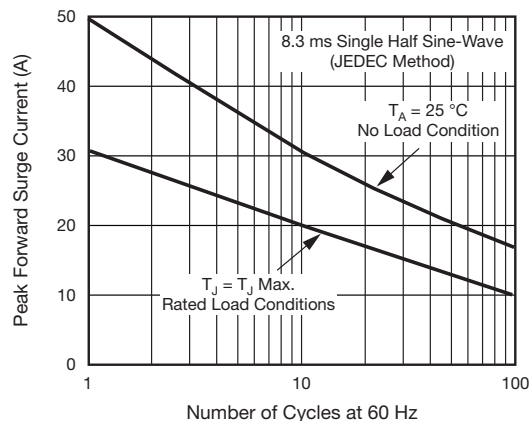


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

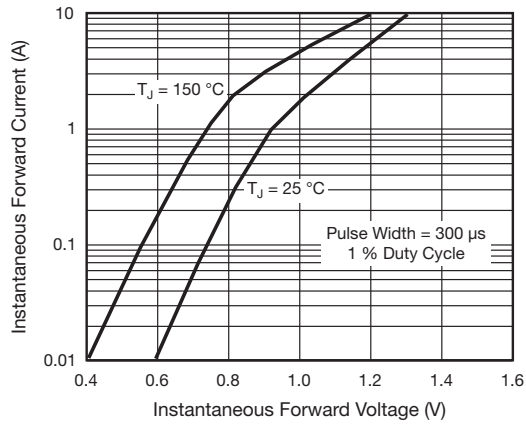


Fig. 3 - Typical Instantaneous Forward Characteristics

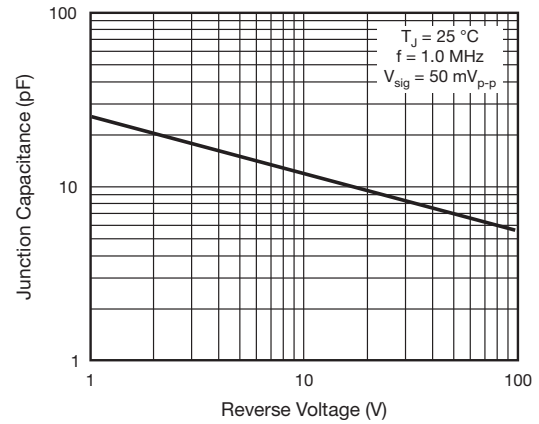


Fig. 5 - Typical Junction Capacitance

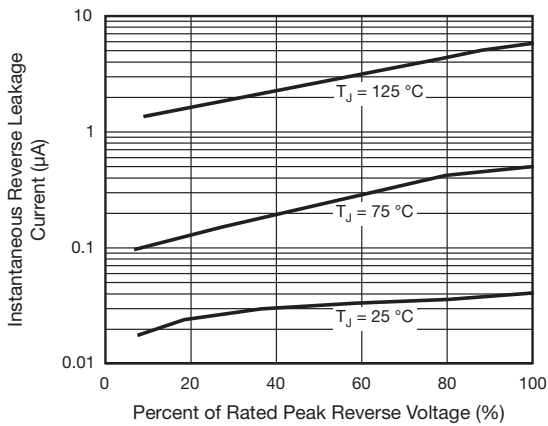
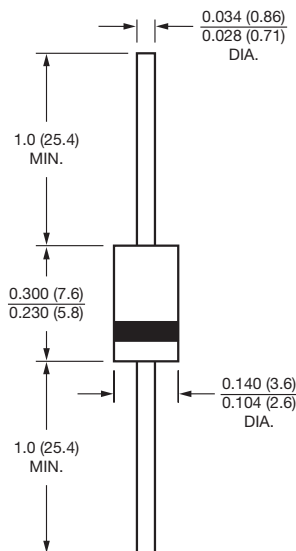


Fig. 4 - Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-204AC (DO-15)





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