

## Surface Mount Glass Passivated Rectifier


**DO-214BA (GF1)**

Patented\*

\* Glass-plastic encapsulation technique is covered by patent No. 3,996,602, brazed-lead assembly by Patent No. 3,930,306 and lead forming by Patent No. 5,151,846

**FEATURES**

- Superrectifier structure for high reliability condition
- Patented glass-plastic encapsulation technique
- Ideal for automated placement
- Low forward voltage drop
- Low leakage current
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Meets MSL level 1, per J-STD-020C, LF max peak of 250 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


**TYPICAL APPLICATIONS**

For use in general purpose rectification of power supplies, inverters, converters and free-wheeling diodes for consumer, automotive and telecommunication.

**MECHANICAL DATA**

**Case:** DO-214BA, molded epoxy over glass body  
Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D  
E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

**Polarity:** Color band denotes cathode end

MAJOR RATINGS AND CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	50 V to 1000 V
$I_{FSM}$	30 A
$V_F$	1.1 V, 1.2 V
$I_R$	5.0 $\mu$ A
$T_j$ max.	175 °C

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)									
PARAMETER	SYMBOL	GF1A	GF1B	GF1D	GF1G	GF1J	GF1K	GF1M	UNIT
Device marking code		GA	GB	GD	GG	GJ	GK	GM	
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	V
Maximum RMS voltage	$V_{RMS}$	35	70	140	280	420	560	700	V
Maximum DC blocking voltage	$V_{DC}$	50	100	200	400	600	800	1000	V
Maximum average forward rectified current at $T_L = 125$ °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

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	TEST CONDITIONS	SYMBOL	GF1A	GF1B	GF1D	GF1G	GF1J	GF1K	GF1M	UNIT
Maximum instantaneous forward voltage	at 1.0 A	$V_F$	1.1				1.2			V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 125\text{ }^\circ\text{C}$	$I_R$	5.0				50			$\mu\text{A}$
Typical reverse recovery time	at $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $t_{rr} = 0.25\text{ A}$	$t_{rr}$	3.0							$\mu\text{s}$
Typical junction capacitance	at 4.0 V, 1 MHz	$C_J$	15							pF

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	GF1A	GF1B	GF1D	GF1G	GF1J	GF1K	GF1M	UNIT	
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$ $R_{\theta JL}$	80				26				$^\circ\text{C/W}$

**Note:**

(1) Thermal resistance from junction to ambient and from junction to lead, P.C.B. mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pad areas

<b>ORDERING INFORMATION</b>				
PREFERRED P/N	UNIT WEIGHT (g)	REFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
GF1J-E3/67A	0.104	67A	1500	7" Diameter Plastic Tape & Reel
GF1J-E3/5CA	0.104	5CA	6500	13" Diameter Plastic Tape & Reel

## RATINGS AND CHARACTERISTICS CURVES

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

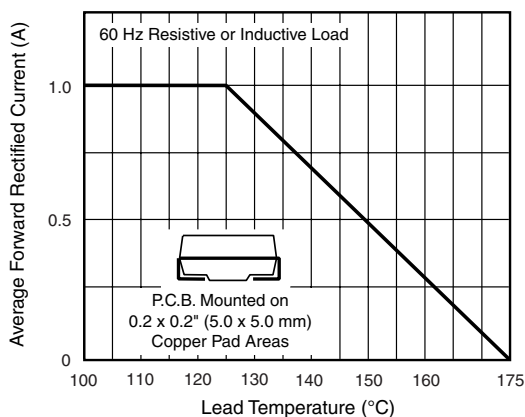


Figure 1. Forward Current Derating Curve

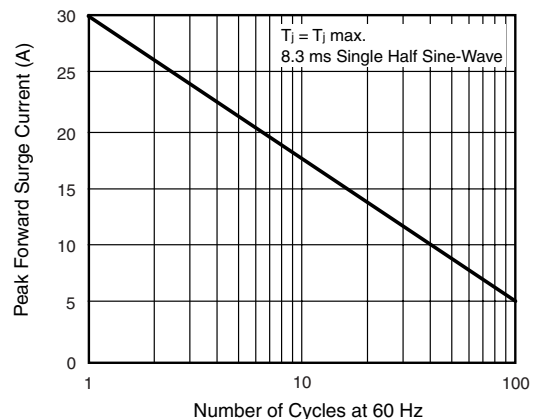


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

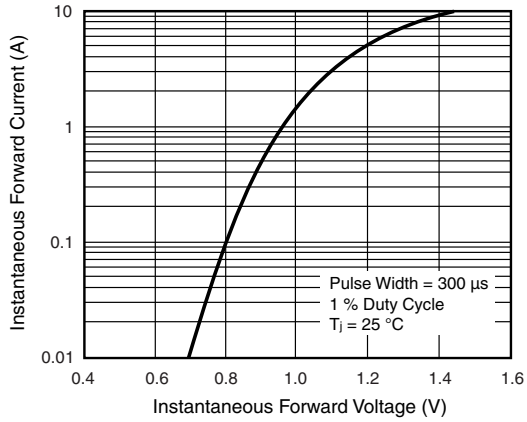


Figure 3. Typical Instantaneous Forward Characteristics

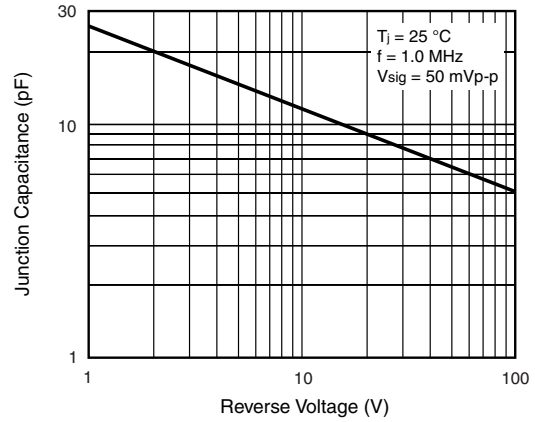


Figure 5. Typical Junction Capacitance

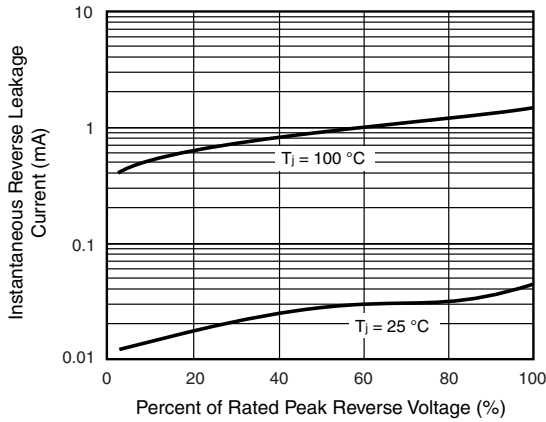


Figure 4. Typical Reverse Characteristics

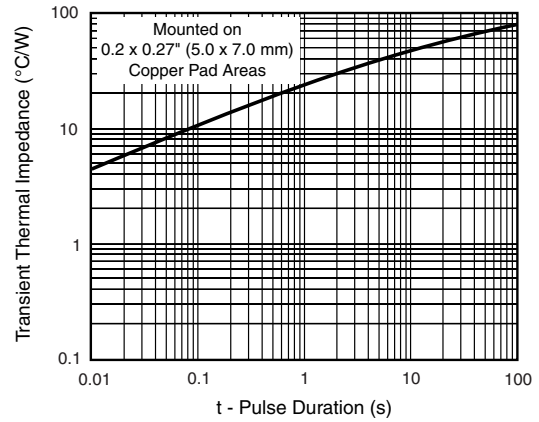
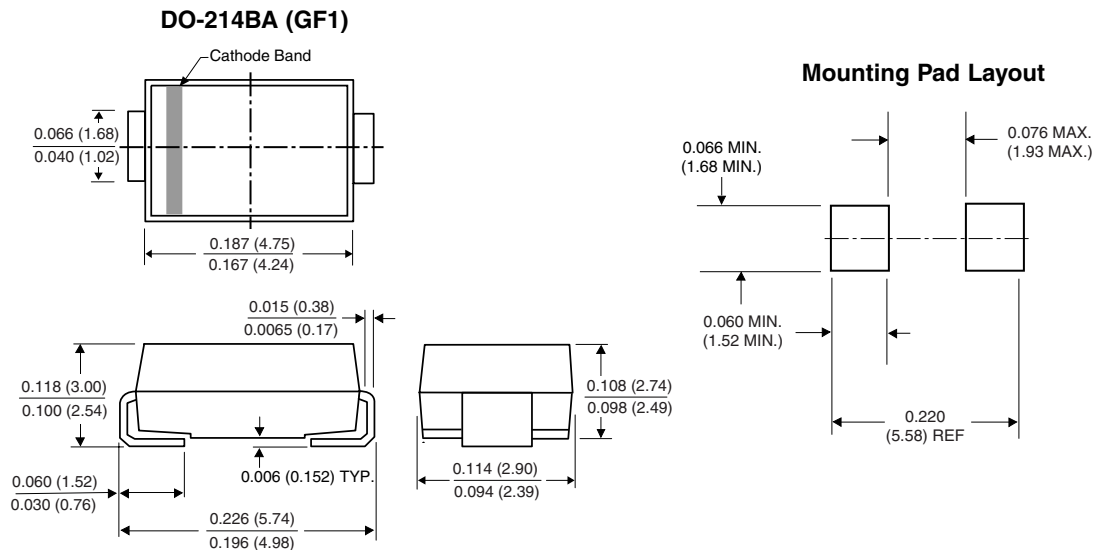


Figure 6. Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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