

# Surface Mount Glass Passivated Junction Fast Switching Rectifier

**SUPERECTIFIER®**

**DO-214BA (GF1)**

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	50 V to 1000 V
$I_{FSM}$	30 A
$V_F$	1.3 V
$t_{rr}$	150 ns, 250 ns, 500 ns
$T_J$ max.	175 °C

**TYPICAL APPLICATIONS**

For use in fast switching rectification of power supply, inverters, converters, and freewheeling diodes for consumer, automotive, and telecommunication.

**FEATURES**

- Superectifier structure for high reliability condition
- Ideal for automated placement
- Fast switching for high efficiency
- Low leakage current
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC


**RoHS**  
COMPLIANT

**MECHANICAL DATA**

**Case:** DO-214BA, 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:** Two bands indicate cathode end - 1<sup>st</sup> band denotes device type and 2<sup>nd</sup> band denotes repetitive peak reverse voltage rating

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)									
PARAMETER	SYMBOL	RGF1A	RGF1B	RGF1D	RGF1G	RGF1J	RGF1K	RGF1M	UNIT
Device marking code		RA	RB	RD	RG	RJ	RK	RM	
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 $T_L = 120\text{ °C}$	$I_{F(AV)}$	1.0							A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	30							A
Maximum full load reverse current, full cycle average $T_A = 55\text{ °C}$	$I_{R(AV)}$	50							$\mu$ 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	RGF1A	RGF1B	RGF1D	RGF1G	RGF1J	RGF1K	RGF1M	UNIT	
Maximum instantaneous forward voltage	1.0 A	$V_F$	1.3								V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$	$I_R$	5.0								$\mu\text{A}$
	$T_A = 125\text{ }^\circ\text{C}$		100								
Typical reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	150					250	500		ns
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	8.5								pF

THERMAL CHARACTERISTICS ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)										
PARAMETER	SYMBOL	RGF1A	RGF1B	RGF1D	RGF1G	RGF1J	RGF1K	RGF1M	UNIT	
Typical thermal resistance	$R_{\theta JA}^{(1)}$	80								$^\circ\text{C/W}$
	$R_{\theta JL}^{(1)}$	28								

**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 mm x 5.0 mm) copper pad areas

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
RGF1J-E3/67A	0.104	67A	1500	7" diameter plastic tape and reel
RGF1J-E3/5CA	0.104	5CA	6500	13" diameter plastic tape and reel
RGF1JHE3/67A <sup>(1)</sup>	0.104	67A	1500	7" diameter plastic tape and reel
RGF1JHE3/5CA <sup>(1)</sup>	0.104	5CA	6500	13" diameter plastic tape and reel

**Note**

(1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

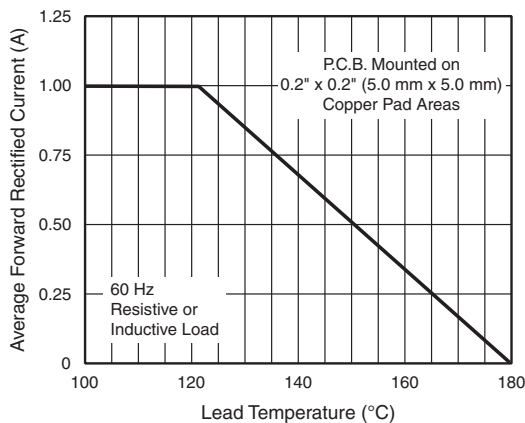


Fig. 1 - Forward Current Derating Curve

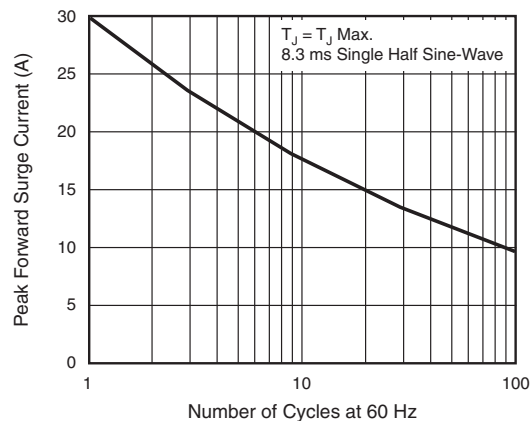


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

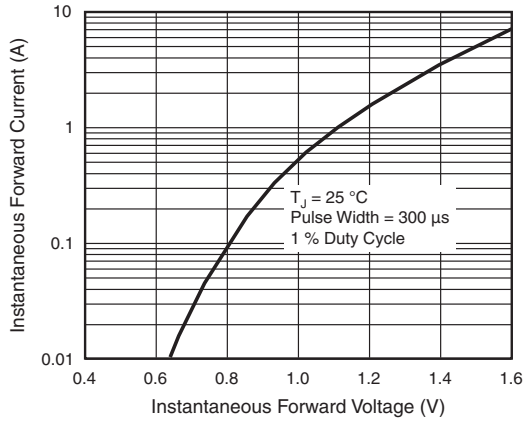


Fig. 3 - Typical Instantaneous Forward Characteristics

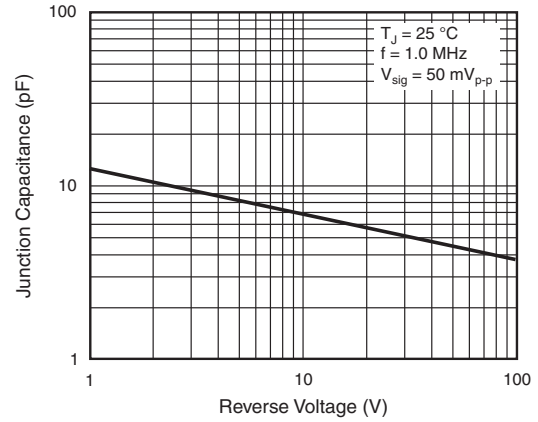


Fig. 5 - Typical Junction Capacitance

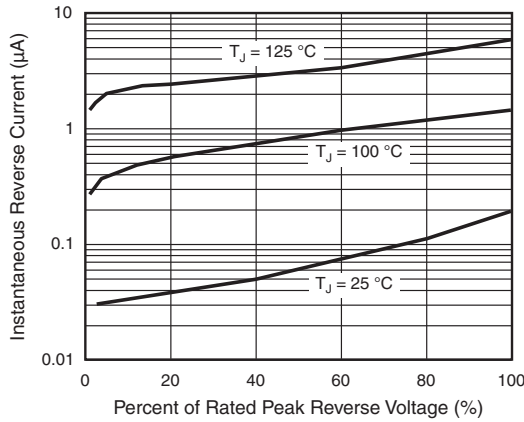


Fig. 4 - Typical Reverse Characteristics

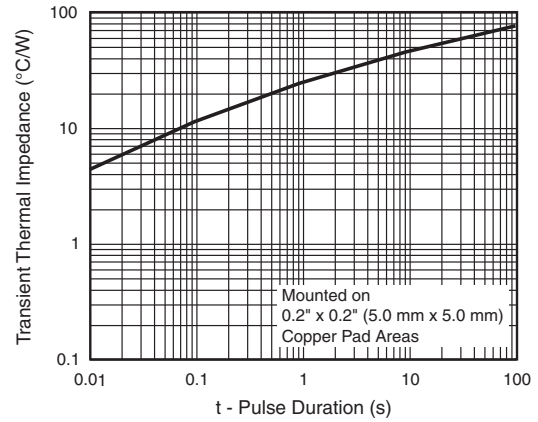
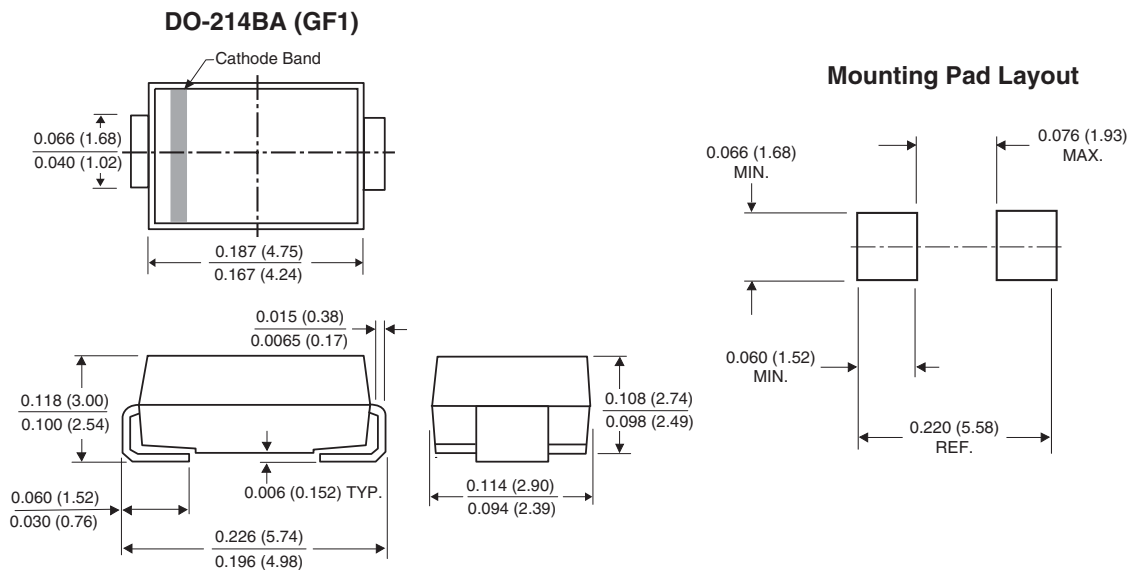


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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