



Surface Mount Glass Passivated Junction Fast Switching Rectifier

Major Ratings and 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



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

DO-214BA (GF1)

Features

- Superectifier structure for high reliability condition
- Patented glass-plastic encapsulation technique
- 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-020C
- Solder Dip 260 °C, 40 seconds



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: Two bands indicate cathode end - 1st band denotes device type and 2nd band denotes repetitive peak reverse voltage rating

Typical Applications

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

Maximum Ratings

($T_A = 25$ °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 $T_L = 120$ °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
Max. full load reverse current, full cycle average $T_A = 55$ °C	$I_{R(AV)}$	50							μ 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 condition	Symbol	RGF1A	RGF1B	RGF1D	RGF1G	RGF1J	RGF1K	RGF1M	Unit	
Maximum instantaneous forward voltage	at 1.0 A	V_F	1.3							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	5.0 100							μA	
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}	150				250		500		ns
Typical junction capacitance	at 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 ⁽¹⁾	$R_{\theta JA}$ $R_{\theta JL}$	80				28				$^\circ\text{C/W}$

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

Ratings and Characteristics Curves

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

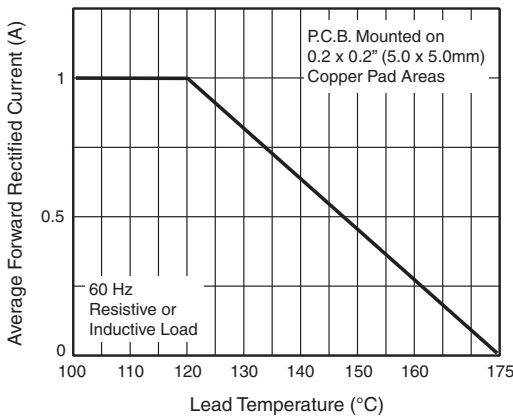


Figure 1. Forward Current Derating Curve

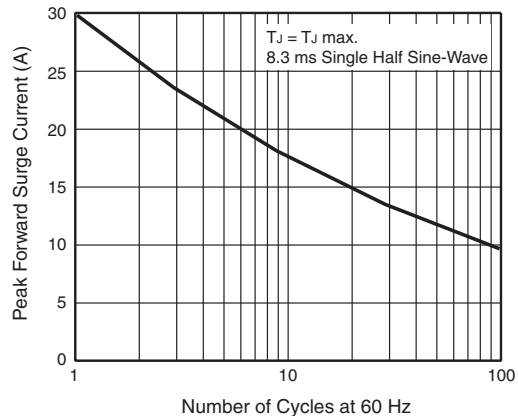


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

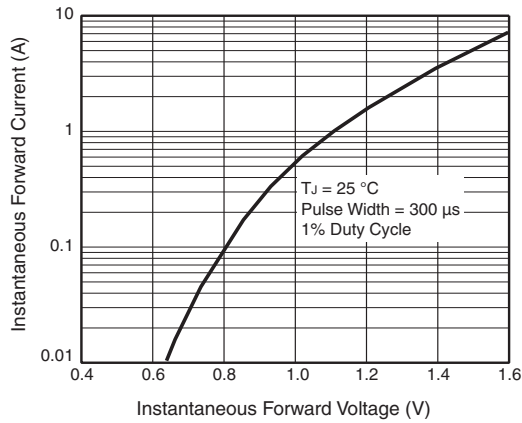


Figure 3. Typical Instantaneous Forward Characteristics

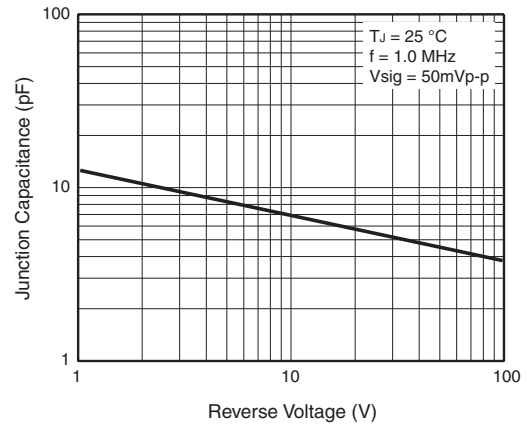


Figure 5. Typical Junction Capacitance

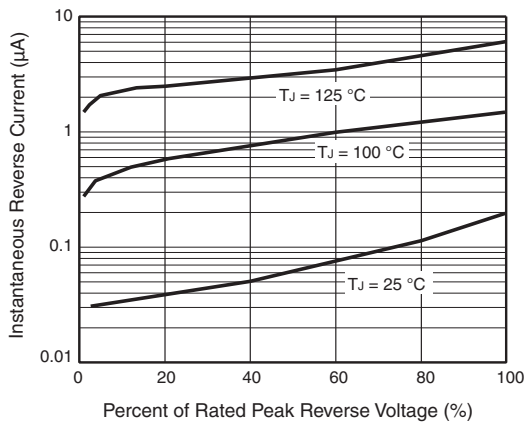


Figure 4. Typical Reverse Characteristics

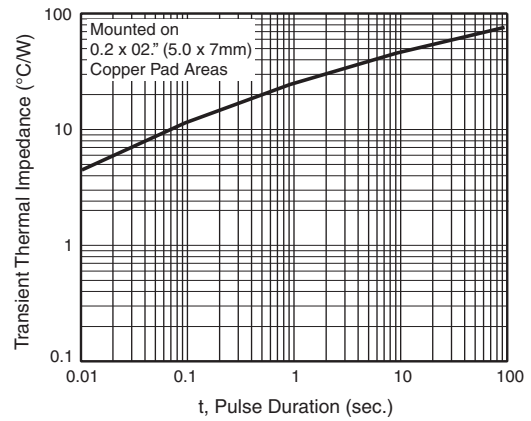
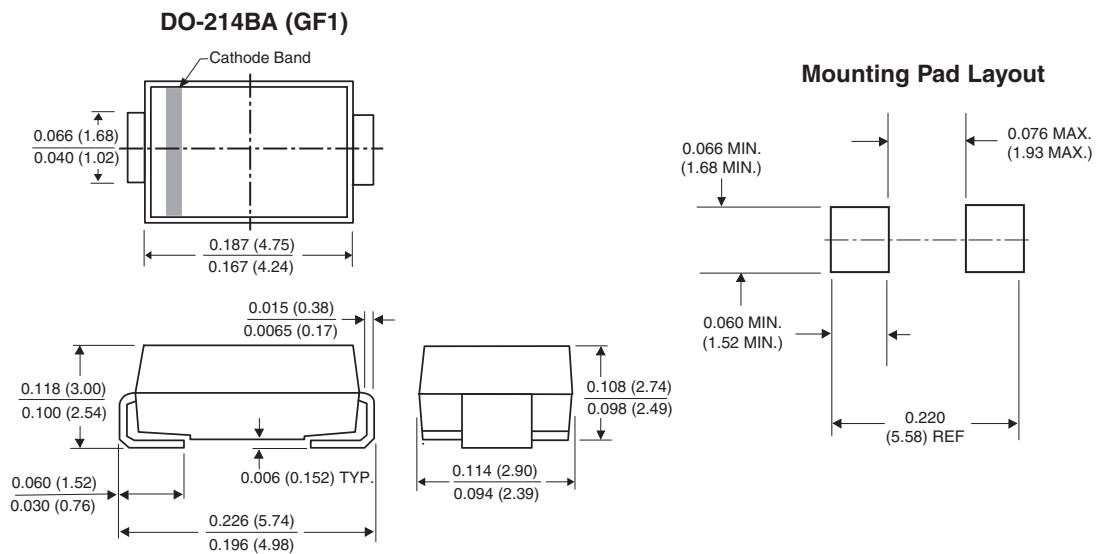


Figure 6. Typical Transient Thermal Impedance

Package outline dimensions in inches (millimeters)





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