

RGF1A, RGF1B, RGF1D, RGF1G, RGF1J, RGF1K, RGF1M

Vishay General Semiconductor

Surface Mount Glass Passivated Junction Fast Switching Rectifier

SUPERECTIFIER®



DO-214BA (GF1)

PPRIMARY CHARACTERISTICS								
I _{F(AV)} 1.0 A								
V_{RRM}	50 V, 100 V, 200 V, 400 V, 600 V, 800 V, 1000 V							
I _{FSM}	30 A							
V_{F}	1.3 V							
t _{rr}	150 ns, 250 ns, 500 ns							
T _J max.	175 °C							
Package	DO-214BA (GF1)							
Diode variations	Single							

TYPICAL APPLICATIONS

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

FEATURES





· Fast switching for high efficiency

• Low leakage current

• High forward surge capability

NA - NACL - 14 CTD 000

 Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C

AEC-Q101 qualified

 Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

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 - 1st band denotes device type and 2nd band denotes repetitive peak reverse voltage rating

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 $^{\circ}$ C	I _{F(AV)}	1.0					Α		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	30					А		
Maximum full load reverse current, full cycle average $T_A = 55\ ^{\circ}C$	I _{R(AV)}	50					μΑ		
Operating junction and storage temperature range	T_J , T_{STG}	- 65 to + 175					°C		



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ELECTRICAL CHARACTERISTICS (T _A = 25 °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		T _A = 25 °C	I _R	5.0							μA
blocking voltage		T _A = 125 °C	чК	100							
Typical reverse recovery time	I _F = 0.5 I _{rr} = 0.2	A, I _R = 1.0 A, 5 A	t _{rr}	150 250 500				00	ns		
Typical junction capacitance	4.0 V, 1	MHz	CJ	8.5					рF		

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)								
PARAMETER	PARAMETER SYMBOL RGF1A RGF1B RGF1D RGF1G RGF1J RGF1K RGF1M						RGF1M	UNIT
Typical thermal resistance	R _{0JA} (1)	80						°C/W
Typical thermal resistance	R _{0JL} (1)	28				C/VV		

Note

⁽¹⁾ Thermal resistance from junction to ambient and from junction to lead, PCB 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 (1)	0.104	67A	1500	7" diameter plastic tape and reel					
RGF1JHE3/5CA (1)	0.104	5CA	6500	13" diameter plastic tape and reel					

Note

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

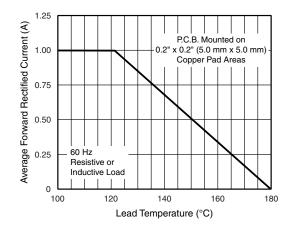


Fig. 1 - Forward Current Derating Curve

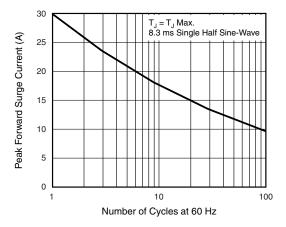


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ AEC-Q101 qualified



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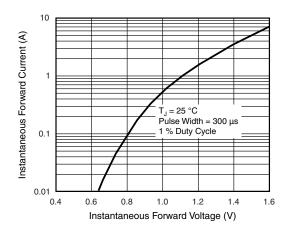


Fig. 3 - Typical Instantaneous Forward Characteristics

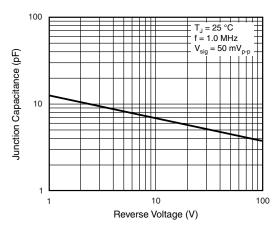


Fig. 5 - Typical Junction Capacitance

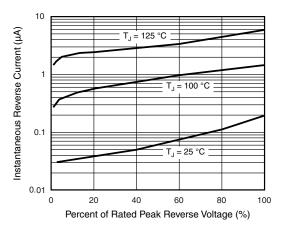


Fig. 4 - Typical Reverse Characteristics

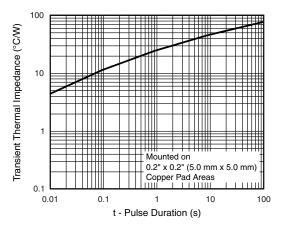


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214BA (GF1) Cathode Band **Mounting Pad Layout** 0.076 (1.93) 0.066 (1.68) 0.066 (1.68) MAX. 0.040 (1.02) MIN. 0.187 (4.75) 0.167 (4.24) 0.015 (0.38) 0.0065 (0.17) 0.060 (1.52) MIN. 0.108 (2.74) 0.118 (3.00) 0.100 (2.54) 0.098 (2.49) 0.220 (5.58) REF. 0.114 (2.90) 0.006 (0.152) TYP 0.060 (1.52) 0.094 (2.39) 0.030 (0.76) 0.226 (5.74) 0.196 (4.98)



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