

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

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Vishay General Semiconductor

Surface Mount Glass Passivated Junction Fast Switching Rectifier

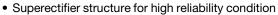
Superectifier®



GF1 (DO-214BA)

PRIMARY 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	GF1 (DO-214BA)							
Diode variations	Single							

FEATURES





RoHS

Fast switching for high efficiency

- · Low leakage current
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- AEC-Q101 qualified available
 - Automotive ordering code: base P/NHE3
- Material categorization: for definitions of compliance please see <u>www.vishav.com/doc?99912</u>

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: GF1 (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_X - RoHS-compliant and AEC-Q101 qualified ("X" denotes revision code e.g. A, B, ...)

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 $^{\circ}\text{C}$	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 °C	I _{R(AV)}	50					μA		
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	'K	100							μΛ
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				pF			

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

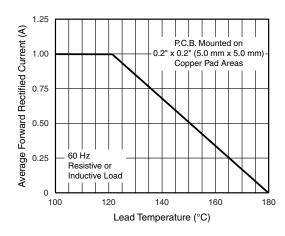
Note

⁽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				
RGF1KHE3_A/I (1)(2)	0.104	I	6500	13" diameter plastic tape and reel				

Notes

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





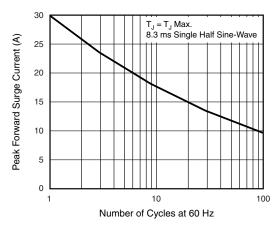


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

⁽¹⁾ AEC-Q101 qualified

⁽²⁾ _A is only applied for K and M class



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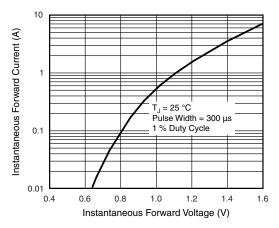


Fig. 3 - Typical Instantaneous Forward Characteristics

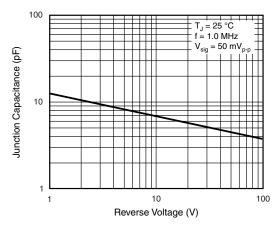


Fig. 5 - Typical Junction Capacitance

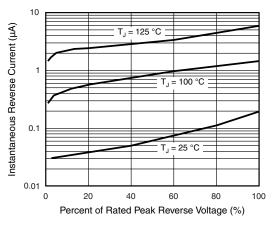


Fig. 4 - Typical Reverse Characteristics

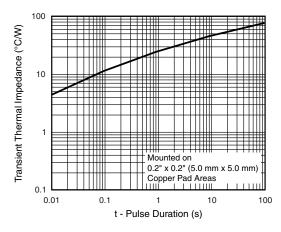
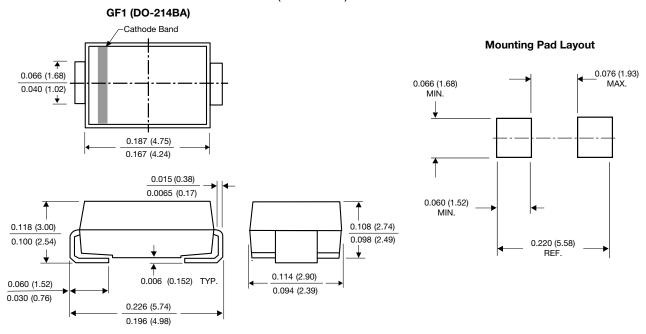


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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