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



Vishay General Semiconductor

Surface Mount Glass Passivated Junction Fast Switching Rectifier



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

- Superectifier structure for high reliability condition
- Ideal for automated placement
- · 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.vishay.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 $T_L = 120$ °C	I _{F(AV)}	1.0						А	
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 $T_A = 55 \ ^\circ C$	I _{R(AV)}	n 50					μA		
Operating junction and storage temperature range	T _J , T _{STG}	-65 to +175						°C	



COMPLIANT

Revision: 25-Aug-17

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

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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)												
PARAMETER	TEST CONDITIONS		SYMBOL	RGF1A RGF1B RGF1D RGF1G RGF1J RGF1K RG						RGF1M	UNIT	
Maximum instantaneous forward voltage	1.0 A		V _F	V _F 1.3						v		
Maximum DC reverse current at rated DC		T _A = 25 °C	1-	5.0								
blocking voltage		T _A = 125 °C	I _R	100							μA	
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					150 250 500			ns
Typical junction capacitance	4.0 V, 1	MHz	CJ	8.5						pF		

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)									
PARAMETER	SYMBOL RGF1A RGF1B RGF1D RGF1G RGF1J RGF1K RGF1M UNIT								UNIT
Typical thermal resistance	R _{0JA} ⁽¹⁾	80							°C/W
	R _{0JL} ⁽¹⁾	(1) 28						0/10	

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

⁽¹⁾ AEC-Q101 qualified

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

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

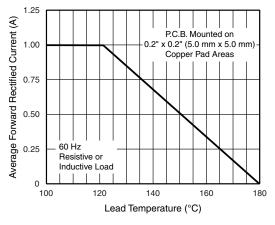


Fig. 1 - Forward Current Derating Curve

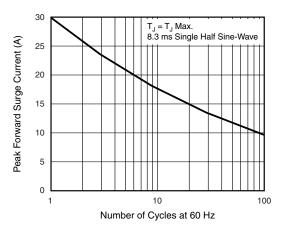


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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100

10

1

Junction Capacitance (pF)

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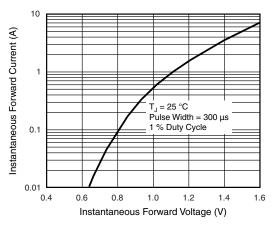
T_J = 25 °C

f = 1.0 MHz

 $V_{sig} = 50 \text{ mV}_{p}$

+

100



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Fig. 3 - Typical Instantaneous Forward Characteristics

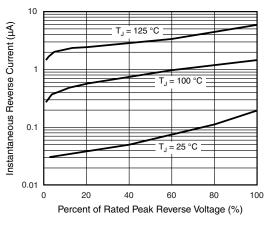
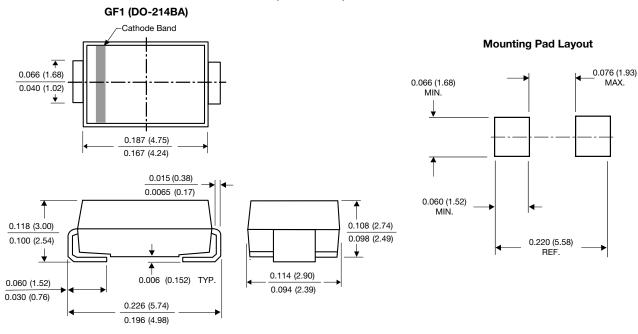


Fig. 4 - Typical Reverse Characteristics





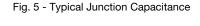
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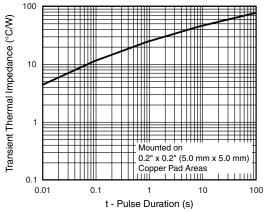
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Reverse Voltage (V)







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