Surface-Mount Glass Passivated Ultrafast Rectifier

Superectifier®

GF1 (DO-214BA)

Cathode ○—|◀|—○ Anode

LINKS TO ADDITIONAL RESOURCES

3D Models

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	50 V, 100 V, 150 V, 200 V
I_{FSM}	30 A
t_{rr}	50 ns
V_F	1.0 V
T_J max.	175 °C
Package	GF1 (DO-214BA)
Circuit configuration	Single

FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- AEC-Q101 qualified
  - Automotive ordering code: base P/NHE3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, 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/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
HE3 suffix meet JESD 201 class 2 whisker test

Polarity: color band denotes cathode end

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	EGF1A	EGF1B	EGF1C	EGF1D	UNIT
Device marking code		EA	EB	EC	ED	
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	V
Maximum average forward rectified current at T_L = 125 °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
Operating junction and storage temperature range	T_J, T_{STG}	-65 to +175				°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	EGF1A	EGF1B	EGF1C	EGF1D	UNIT
Maximum instantaneous forward voltage	1.0 A		V_F (1)	1.0				V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R (1)	5.0				μA
		T_A = 125 °C		50				
Typical reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	50				ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	15				pF

Note

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	EGF1A	EGF1B	EGF1C	EGF1D	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	85				°C/W
	$R_{\theta JL}$ (1)	30				

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
EGF1DHE3_B/H (1)	0.104	H	1500	7" diameter plastic tape and reel
EGF1DHE3_B/I (1)	0.104	I	6500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

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

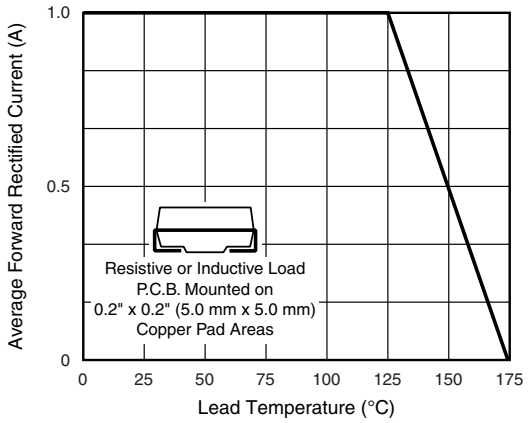


Fig. 1 - Maximum Forward Current Derating Curve

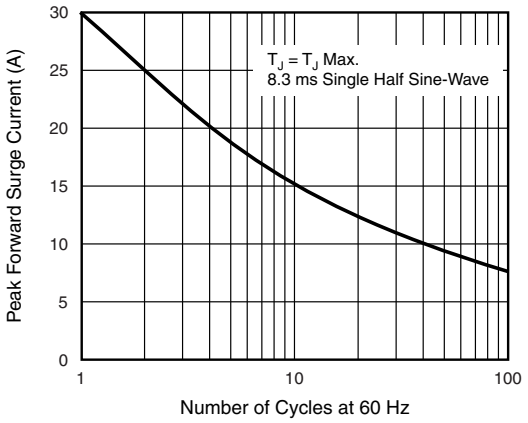


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

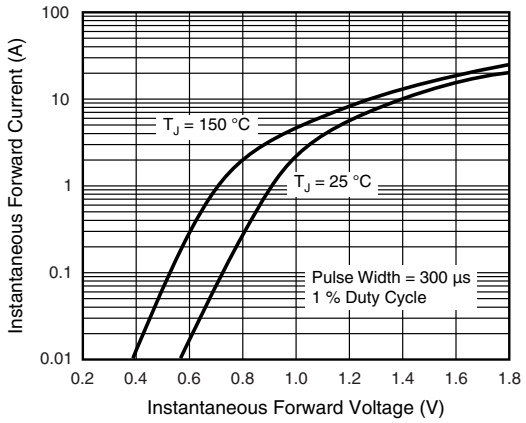


Fig. 3 - Typical Instantaneous Forward Characteristics

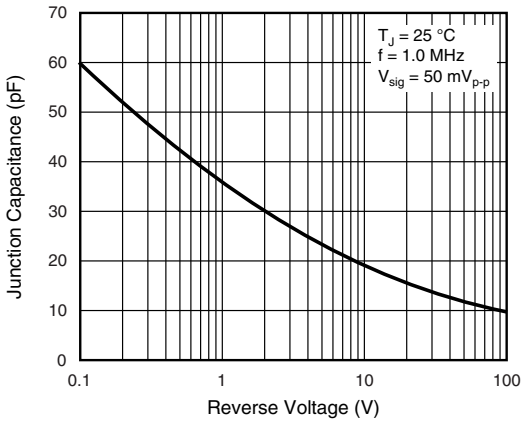


Fig. 5 - Typical Junction Capacitance

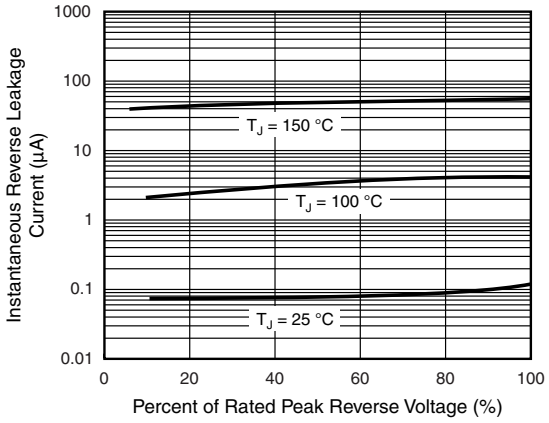


Fig. 4 - Typical Reverse Leakage Characteristics

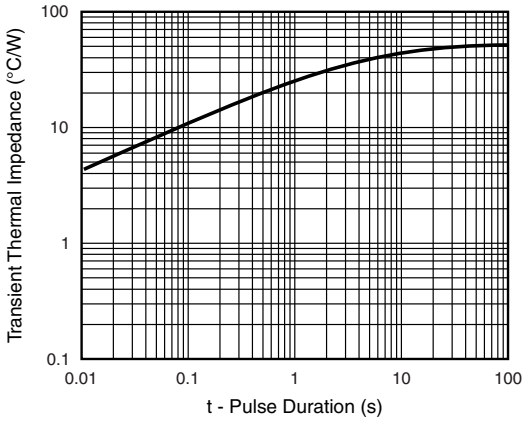
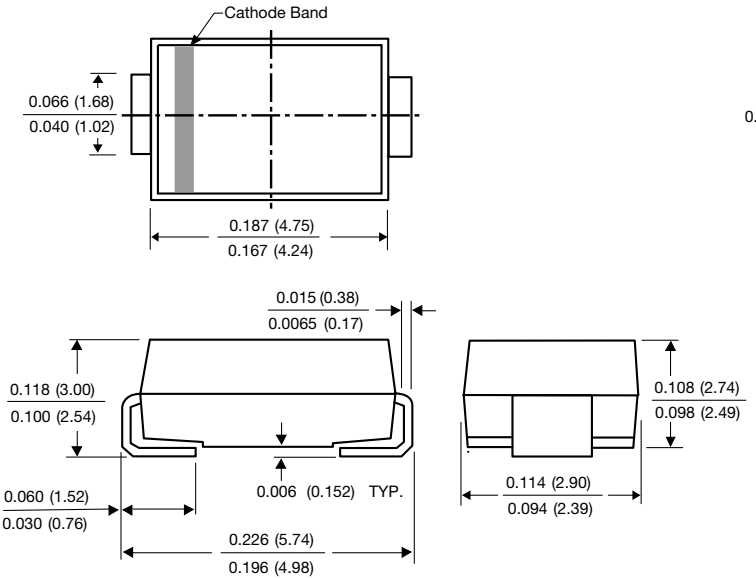


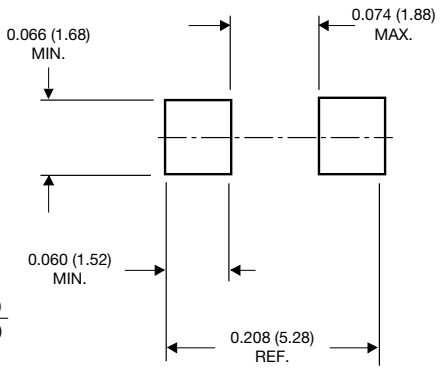
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

GF1 (DO-214BA)



Mounting Pad Layout



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