

## Surface Mount Glass Passivated Ultrafast Rectifier

Superectifier®


**GF1 (DO-214BA)**

**RoHS**  
COMPLIANT

### FEATURES

- Superrectifier 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](http://www.vishay.com/doc?99912)

### 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/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:** color band denotes cathode end

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
$T_J \text{ max.}$	175 °C
Package	GF1 (DO-214BA)
Diode variations	Single

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ 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 $T_L = 125\text{ °C}$	$I_{F(AV)}$	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 <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS	SYMBOL	EGF1A	EGF1B	EGF1C	EGF1D	UNIT
Maximum instantaneous forward voltage	1.0 A	V <sub>F</sub> <sup>(1)</sup>	1.0				V
Maximum DC reverse current at rated DC blocking voltage	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(1)</sup>	5.0				μA
	T <sub>A</sub> = 125 °C		50				
Typical reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A	t <sub>rr</sub>	50				ns
Typical junction capacitance	4.0 V, 1 MHz	C <sub>J</sub>	15				pF

**Note**

<sup>(1)</sup> Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	EGF1A	EGF1B	EGF1C	EGF1D	UNIT	
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>	85				°C/W	
	R <sub>θJL</sub> <sup>(1)</sup>	30					

**Note**

<sup>(1)</sup> 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
EGF1D-E3/67A	0.104	67A	1500	7" diameter plastic tape and reel
EGF1D-E3/5CA	0.104	5CA	6500	13" diameter plastic tape and reel
EGF1DHE3_A/I <sup>(1)</sup>	0.104	I	6500	13" diameter plastic tape and reel

**Note**

<sup>(1)</sup> AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise specified)**

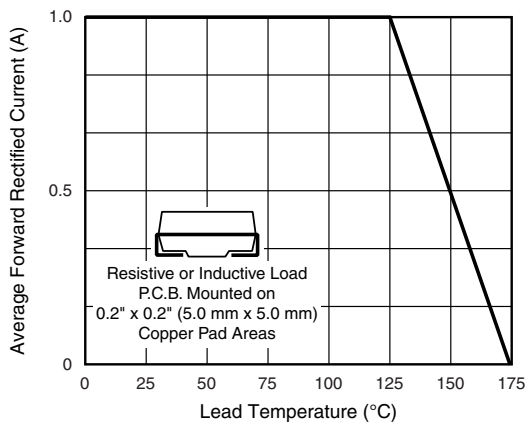


Fig. 1 - Maximum Forward Current Derating Curve

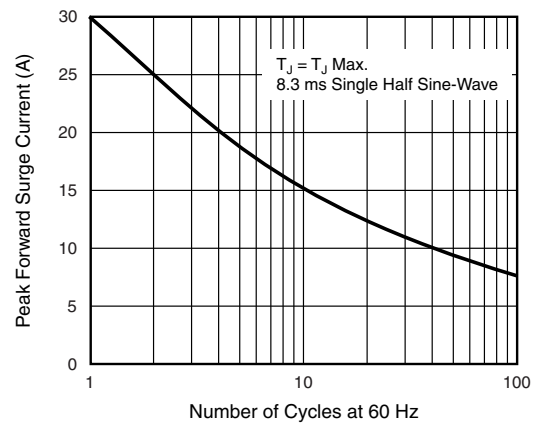


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

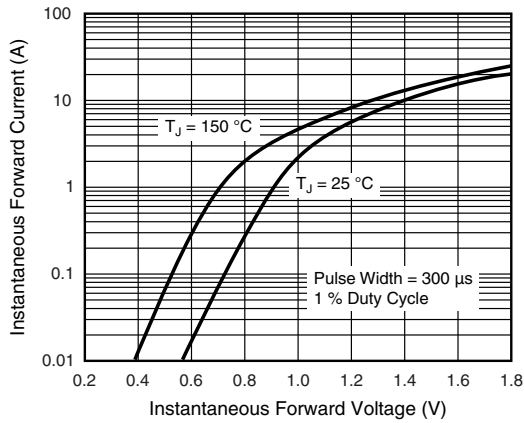


Fig. 3 - Typical Instantaneous Forward Characteristics

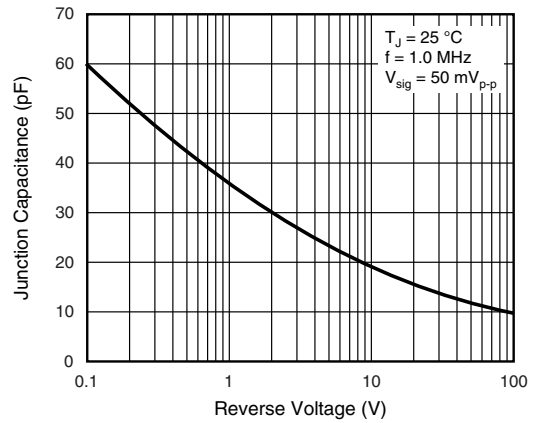


Fig. 5 - Typical Junction Capacitance

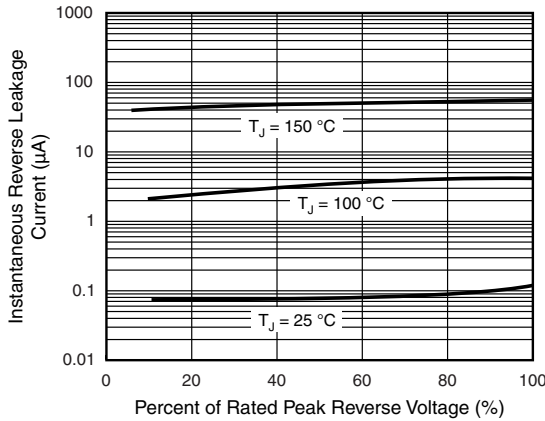


Fig. 4 - Typical Reverse Leakage Characteristics

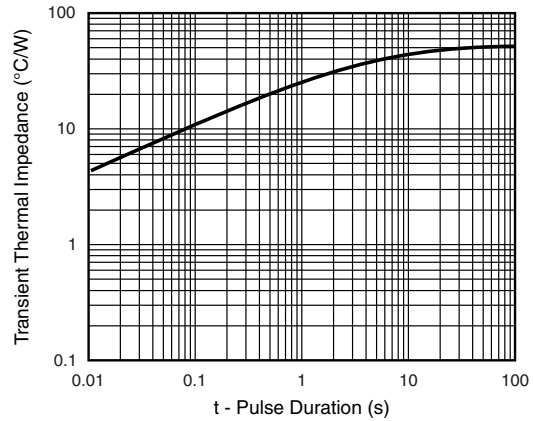
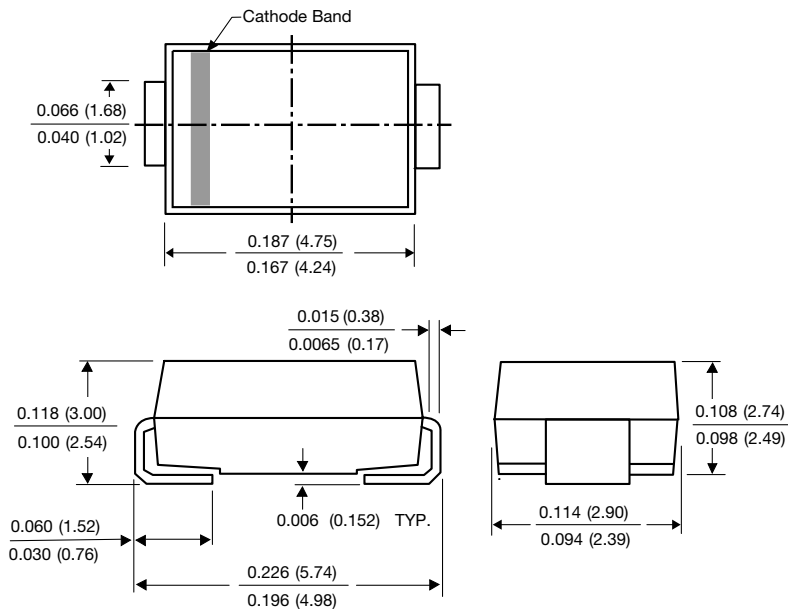


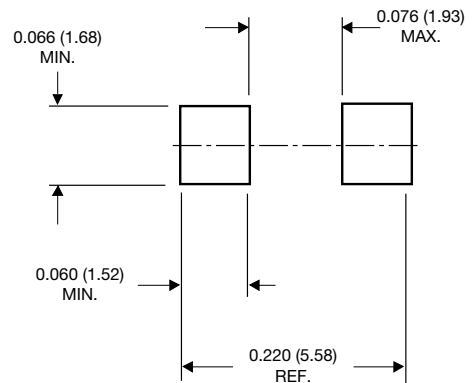
Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### GF1 (DO-214BA)



### Mounting Pad Layout





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