

## Surface Mount Glass Passivated Ultrafast Rectifier

**SUPERRECTIFIER®**



**DO-214BA (GF1)**

Patented\*

\* Glass-plastic encapsulation technique is covered by patent No. 3,996,602, brazed-lead assembly by Patent No. 3,930,306 and lead forming by Patent No. 5,151,846

### FEATURES

- Cavity-free glass-passivated junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- Avalanche surge energy capability
- Meets environmental standard MIL-S-19500
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high voltage rectification of photoflash application.

### MECHANICAL DATA

**Case:** DO-214BA, molded plastic over glass body

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** Color band denotes cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	1300 V
$I_{FSM}$	20 A
$t_{rr}$	75 ns
$E_{AS}$	15 mJ
$T_J$ max.	150 °C

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	EGF1T	UNIT
Device marking code		ET	
Maximum repetitive peak reverse voltage	$V_{RRM}$	1300	V
Maximum RMS voltage	$V_{RMS}$	910	V
Maximum DC blocking	$V_{DC}$	1300	V
Maximum average forward rectified current	$I_{F(AV)}$	1.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	20	A
Non-repetitive avalanche energy at $T_A = 25\text{ °C}$ , $I_{AS} = 1\text{ A}$ , $L = 30\text{ mH}$	$E_{AS}$	15	mJ
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to + 150	°C



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	EGF1T	UNIT
Maximum instantaneous forward voltage <sup>(1)</sup>	1.0 A	$T_J = 25\text{ }^\circ\text{C}$	$V_F$	3.0	V
Maximum DC reverse current <sup>(2)</sup>	$V_{RM}$	$T_J = 25\text{ }^\circ\text{C}$ $T_J = 125\text{ }^\circ\text{C}$	$I_R$	5.0 50	$\mu\text{A}$
Typical reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$		$t_{rr}$	75	ns
Typical junction capacitance	4.0 V, 1 MHz		$C_J$	8.0	pF

**Notes:**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	EGF1T	UNIT
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$ $R_{\theta JL}$	50 20	$^\circ\text{C/W}$

**Note:**

- (1) Thermal resistance from junction to ambient and from junction to lead, P.C.B. mounted on 0.95 x 0.95" (24 x 24 mm) copper pad areas

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
EGF1T-E3/67A	0.104	67A	1500	7" diameter plastic tape and reel
EGF1T-E3/5CA	0.104	5CA	6500	13" diameter plastic tape and reel
EGF1THE3/67A <sup>(1)</sup>	0.104	67A	1500	7" diameter plastic tape and reel
EGF1THE3/5CA <sup>(1)</sup>	0.104	5CA	6500	13" diameter plastic tape and reel

**Note:**

- (1) Automotive grade AEC Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

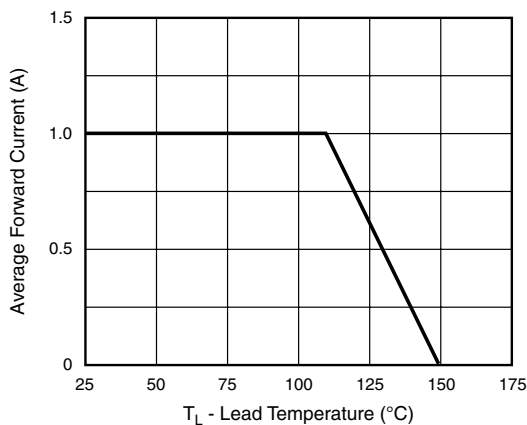


Figure 1. Maximum Forward Current Derating Curve

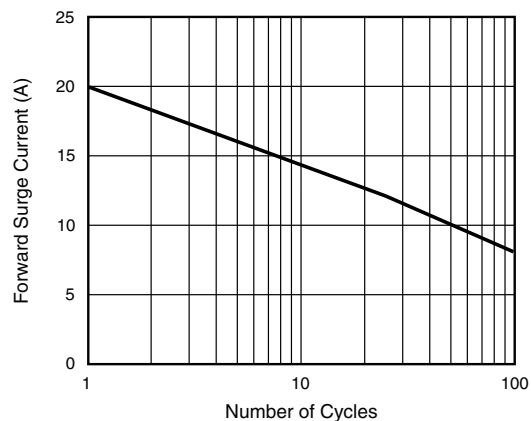


Figure 2. Maximum Non-Repetitive Forward Surge Current

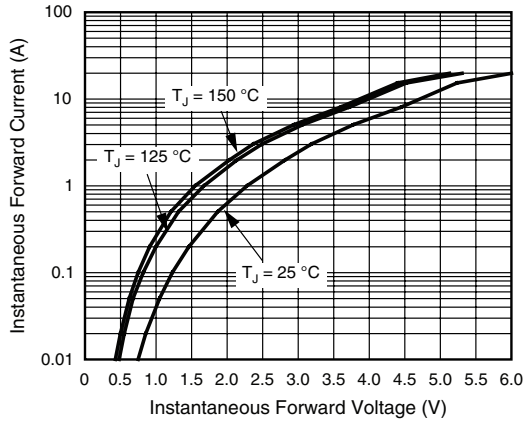


Figure 3. Typical Instantaneous Forward Characteristics

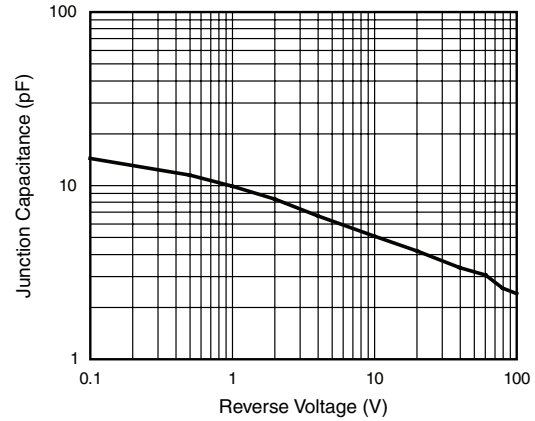


Figure 5. Typical Junction Capacitance Per Leg

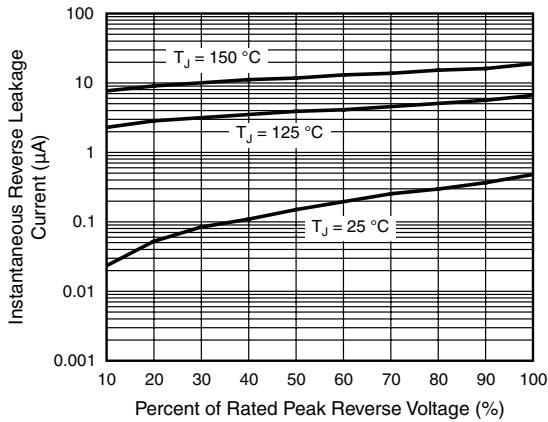


Figure 4. Typical Reverse Leakage Characteristics

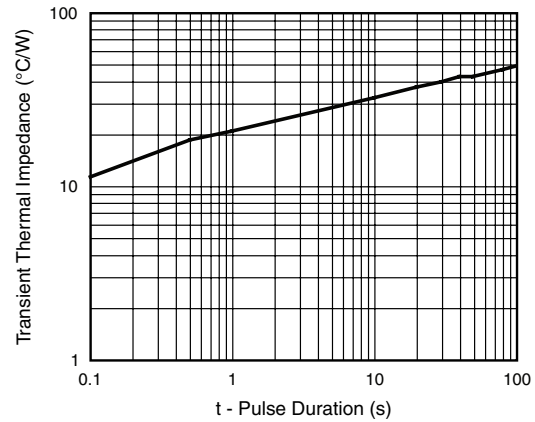
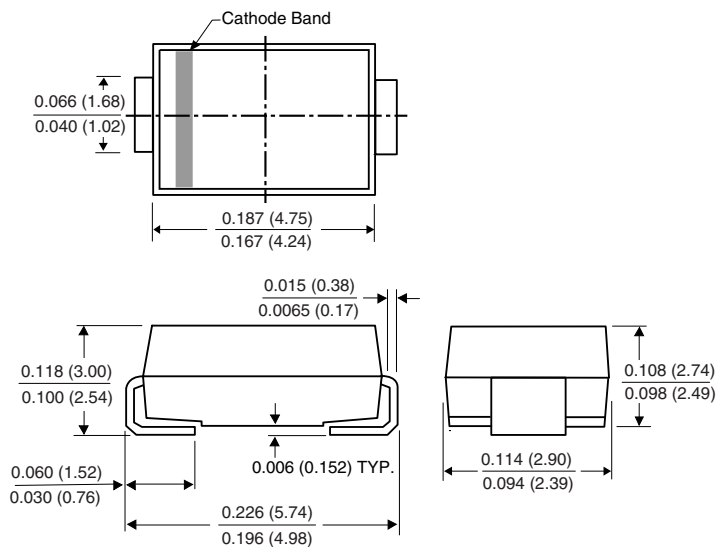


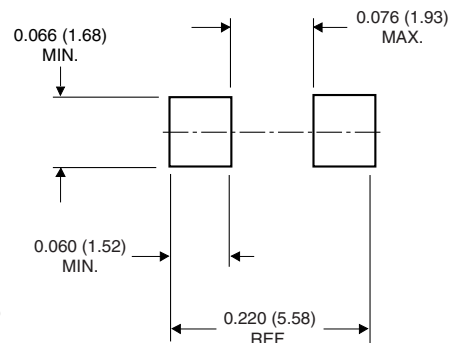
Figure 6. Typical Transient Thermal Impedance

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-214BA (GF1)**



**Mounting Pad Layout**





## Disclaimer

All product specifications and data are subject to change without notice.

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