

# Surface Mount Glass Passivated Ultrafast Rectifier

## SUPERECTIFIER®



DO-214BA (GF1)

## 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
- Avalanche surge energy capability
- Meets environmental standard MIL-S-19500
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



**RoHS**  
COMPLIANT

## PRIMARY CHARACTERISTICS

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

## TYPICAL APPLICATIONS

For use in high voltage rectification of photoflash application.

## MECHANICAL DATA

**Case:** DO-214BA, molded plastic over glass body  
Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS compliant, commercial grade  
Base P/NHE3 - RoHS compliant, AEC-Q101 qualified

**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

## 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	1.0 A	$T_J = 25\text{ }^{\circ}\text{C}$	$V_F^{(1)}$	3.0	V
Maximum DC reverse current	$V_{RM}$	$T_J = 25\text{ }^{\circ}\text{C}$	$I_R^{(2)}$	5.0	$\mu\text{A}$
		$T_J = 125\text{ }^{\circ}\text{C}$		50	
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	$R_{\theta JA}^{(1)}$	50	$^{\circ}\text{C/W}$
	$R_{\theta JL}^{(1)}$	20	

**Note**

(1) Thermal resistance from junction to ambient and from junction to lead, PCB mounted on 0.95" x 0.95" (24 mm 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) AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

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

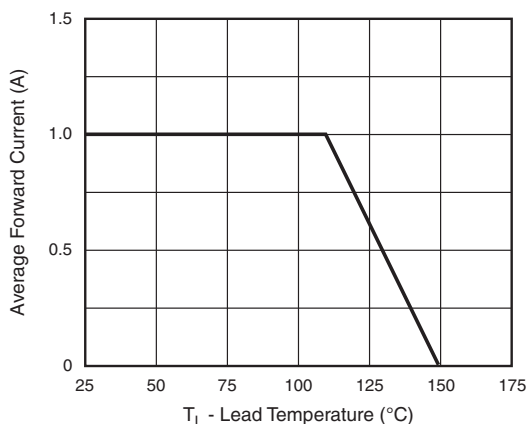


Fig. 1 - Maximum Forward Current Derating Curve

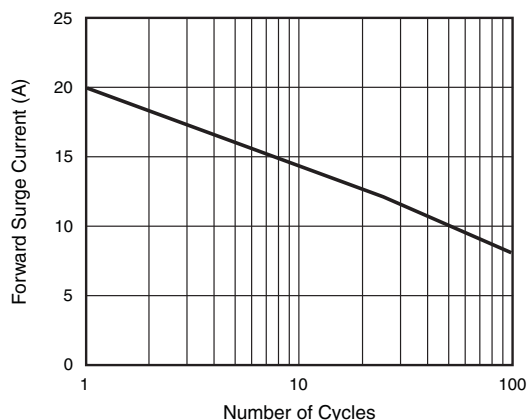


Fig. 2 - Maximum Non-Repetitive Forward Surge Current

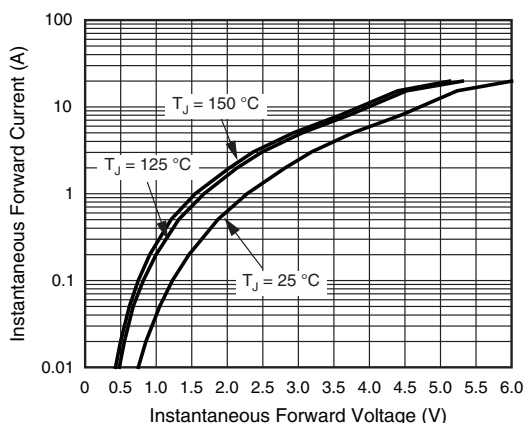


Fig. 3 - Typical Instantaneous Forward Characteristics

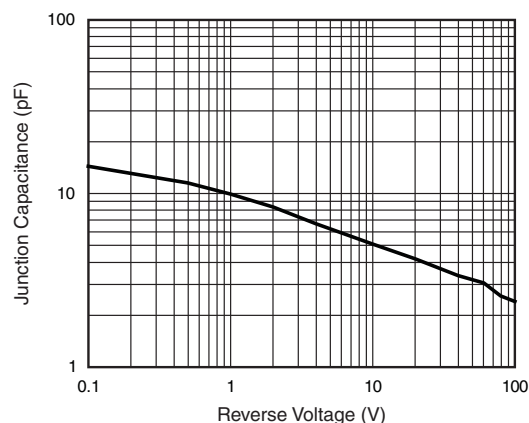


Fig. 5 - Typical Junction Capacitance Per Leg

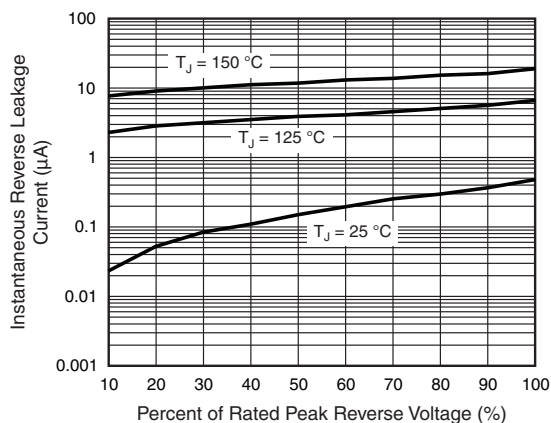


Fig. 4 - Typical Reverse Leakage Characteristics

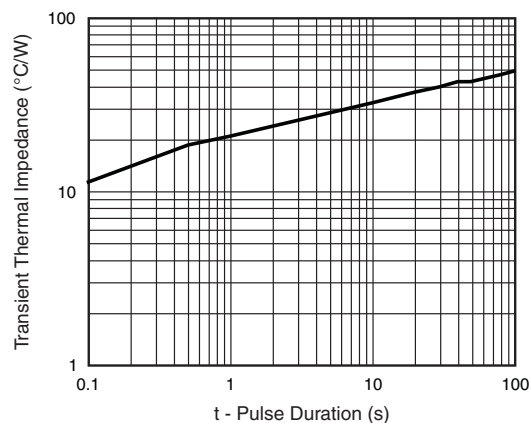
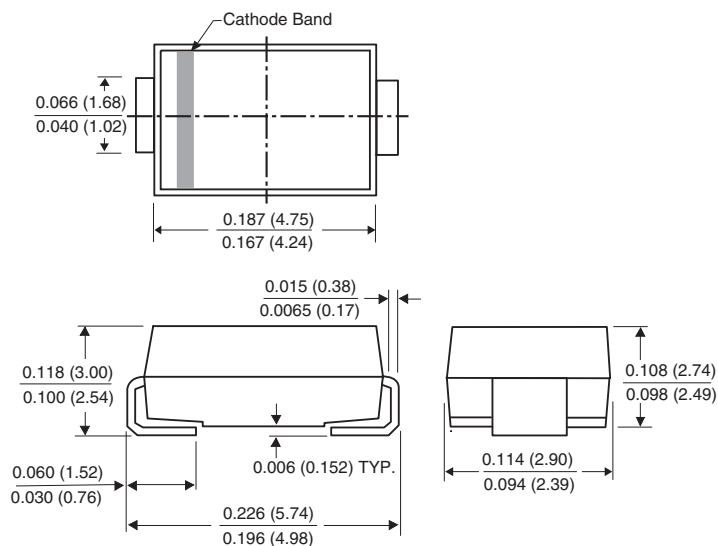


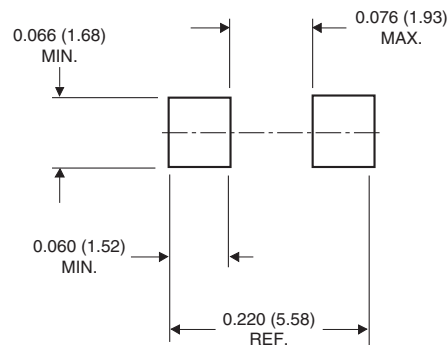
Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-214BA (GF1)



### Mounting Pad Layout





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