



## Surface Mount Glass Passivated Ultrafast Rectifier

### Major Ratings and Characteristics

$I_{F(AV)}$	1.0 A
$V_{RRM}$	50 V to 200 V
$I_{FSM}$	30 A
$t_{rr}$	50 ns
$V_F$	1.0 V
$T_j \text{ max.}$	175 °C



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

DO-214BA (GF1)

### Features

- Cavity-free glass-passivated junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Meets MSL level 1, per J-STD-020C
- Solder Dip 260 °C, 40 seconds



### Mechanical Data

**Case:** DO-214BA, molded epoxy over glass body  
Epoxy meets UL-94V-0 Flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

**Polarity:** Color band denotes cathode end

### Typical Applications

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive and Telecommunication

### Maximum Ratings

$T_A = 25\text{ °C}$  unless otherwise specified

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

$T_A = 25\text{ }^\circ\text{C}$  unless otherwise specified

Parameter	Test condition	Symbol	EGF1A	EGF1B	EGF1C	EGF1D	Unit
Maximum instantaneous forward voltage <sup>(1)</sup>	at 1.0 A	$V_F$			1.0		V
Maximum DC reverse current at rated DC blocking voltage <sup>(1)</sup>	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 125\text{ }^\circ\text{C}$	$I_R$			5.0 50		$\mu\text{A}$
Typical reverse recovery time	at $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$			50		ns
Typical junction capacitance	at 4.0 V, 1 MHz	$C_J$			15		pF

Notes:

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

### Thermal Characteristics

$T_A = 25\text{ }^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	EGF1A	EGF1B	EGF1C	EGF1D	Unit
Typical thermal resistance <sup>(1)</sup>	$R_{\theta JA}$ $R_{\theta JL}$			85 30		$^\circ\text{C/W}$

Notes:

(1) Thermal resistance from junction to ambient and from junction to lead, P.C.B. mounted on 0.2 x 0.2" (5.0 x 5.0 mm) copper pad areas

### Ratings and Characteristics Curves

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

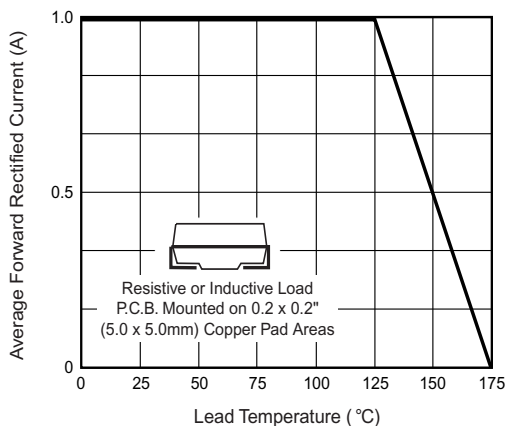


Figure 1. Maximum Forward Current Derating Curve

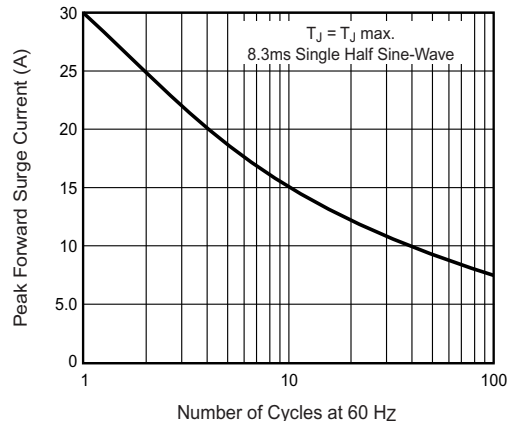


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

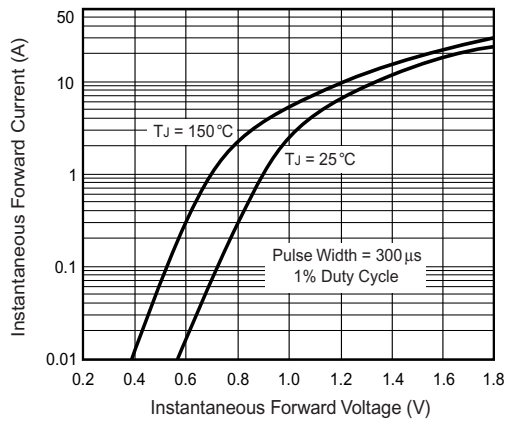


Figure 3. Typical Instantaneous Forward Characteristics

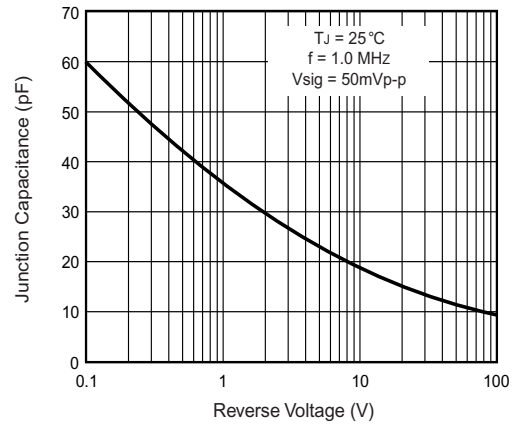


Figure 5. Typical Junction Capacitance

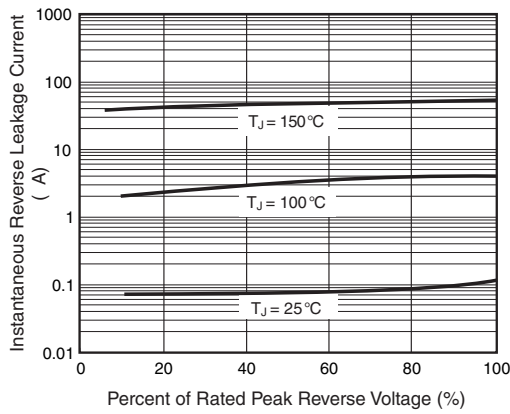


Figure 4. Typical Reverse Leakage Characteristics

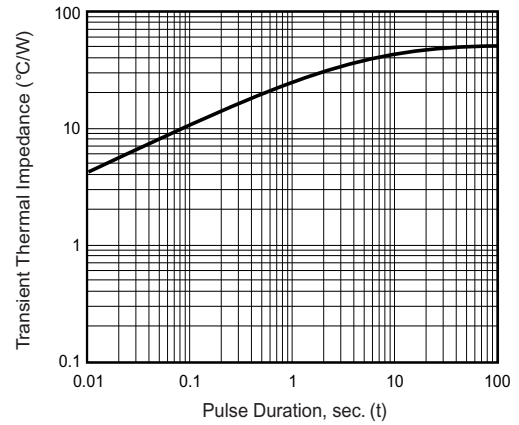
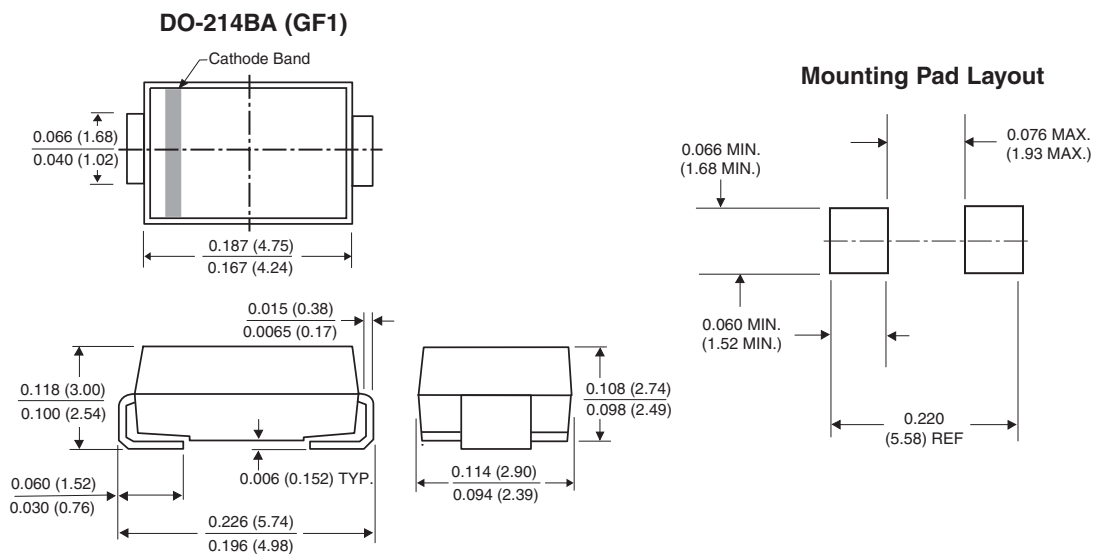


Figure 6. Typical Transient Thermal Impedance

## Package outline dimensions in inches (millimeters)





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