

## Glass Passivated Ultrafast Rectifier



### FEATURES

- Superrectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- Low switching losses, high efficiency
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

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

### MECHANICAL DATA

**Case:** GP20, 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 - 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

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	5.0 A
$V_{RRM}$	50 V to 400 V
$I_{FSM}$	150 A
$t_{rr}$	50 ns
$V_F$	0.95 V, 1.25 V
$T_J \text{ max.}$	150 °C

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)								
PARAMETER	SYMBOL	EGP50A	EGP50B	EGP50C	EGP50D	EGP50F	EGP50G	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	150	200	300	400	V
Maximum RMS voltage	$V_{RMS}$	35	70	105	140	210	280	V
Maximum DC blocking voltage	$V_{DC}$	50	100	150	200	300	400	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at $T_L = 55\text{ °C}$	$I_{F(AV)}$	5						A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	150						A
Operating and storage temperature range	$T_J, T_{STG}$	- 65 to + 150						°C

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONS	SYMBOL	EGP50A	EGP50B	EGP50C	EGP50D	EGP50F	EGP50G	UNIT
Maximum instantaneous forward voltage	5.0 A	V <sub>F</sub>	0.95				1.25		V
Maximum DC reverse current at rated DC blocking voltage	T <sub>A</sub> = 25 °C	I <sub>R</sub>	5.0						μA
	T <sub>A</sub> = 125 °C		50						
Maximum 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>	95				75		pF

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	EGP50A	EGP50B	EGP50C	EGP50D	EGP50F	EGP50G	UNIT	
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>	20						°C/W	
	R <sub>θJL</sub> <sup>(1)</sup>	5.0							

**Note**

<sup>(1)</sup> Thermal resistance from junction to ambient, and from junction to lead at 0.375" (9.5 mm) lead length, PCB mounted

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
EGP50G-E3/54	1.01	54	1400	13" diameter paper tape and reel
EGP50G-E3/73	1.01	73	1000	Ammo pack packaging
EGP50GHE3/54 <sup>(1)</sup>	1.01	54	1400	13" diameter paper tape and reel
EGP50GHE3/73 <sup>(1)</sup>	1.01	73	1000	Ammo pack packaging

**Note**

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

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

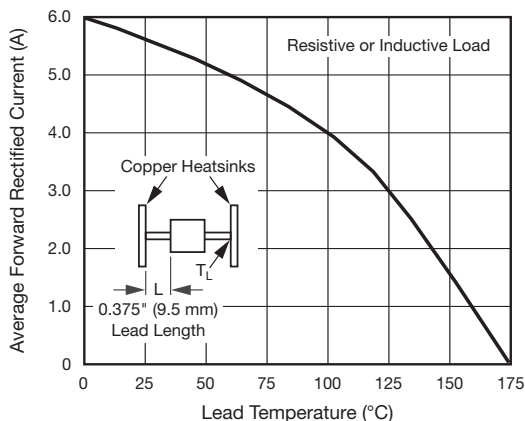


Fig. 1 - Maximum Forward Current Derating Curve

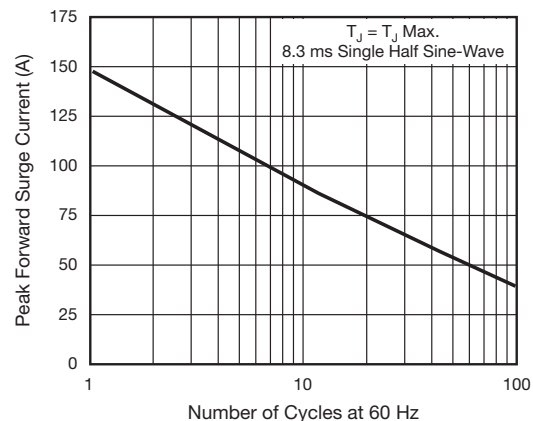


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

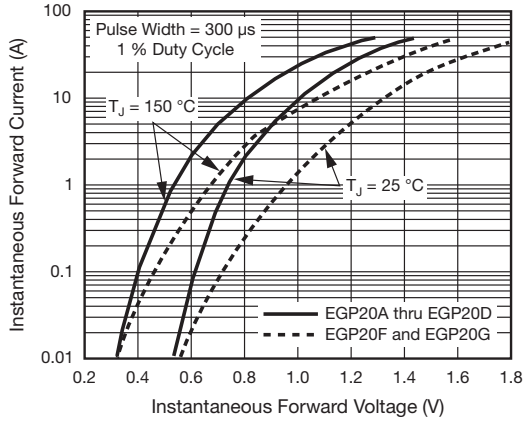


Fig. 3 - Typical Instantaneous Forward Characteristics

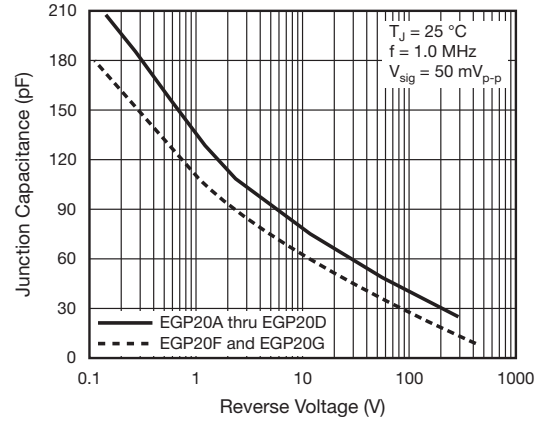


Fig. 5 - Typical Junction Capacitance

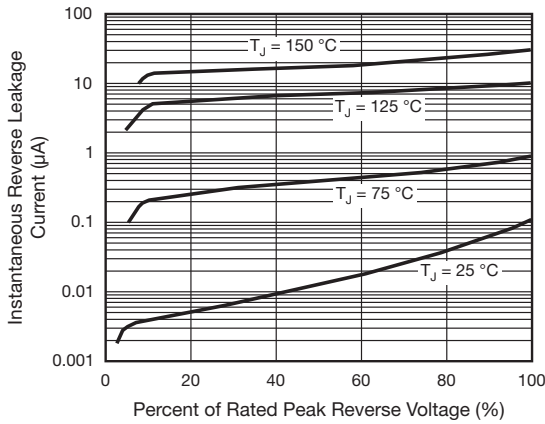


Fig. 4 - Typical Reverse Leakage Characteristics

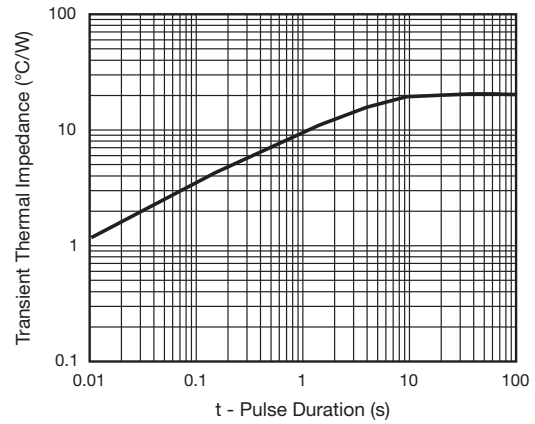
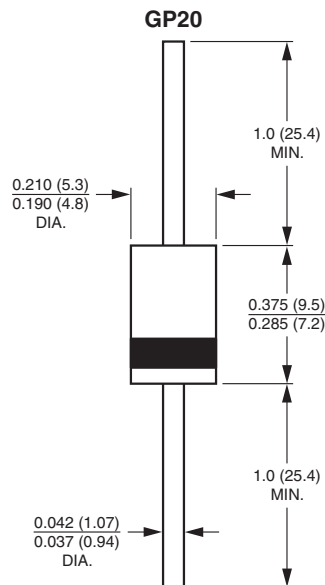


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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