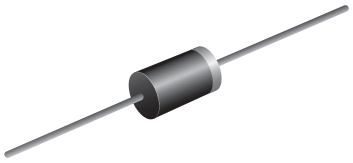
Glass Passivated Ultrafast Rectifier

SUPERECTIFIER®



GP20

FEATURES

- Superectifier 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.

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 max.	150 °C

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

MAXIMUM RATINGS (T_A = 25 °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 °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

For technical questions within your region, please contact one of the following:
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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)										
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**EGP50A**	**EGP50B**	**EGP50C**	**EGP50D**	**EGP50F**	**EGP50G**	**UNIT**
Maximum instantaneous forward voltage	5.0 A		V_F	0.95				1.25		V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R	5.0						μA
		T_A = 125 °C		50						
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	50						ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	95				75		pF

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)									
PARAMETER	**SYMBOL**	**EGP50A**	**EGP50B**	**EGP50C**	**EGP50D**	**EGP50F**	**EGP50G**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	20						°C/W
	$R_{\theta JL}$ (1)	5.0						

Note

(1) 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 (1)	1.01	54	1400	13" diameter paper tape and reel
EGP50GHE3/73 (1)	1.01	73	1000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

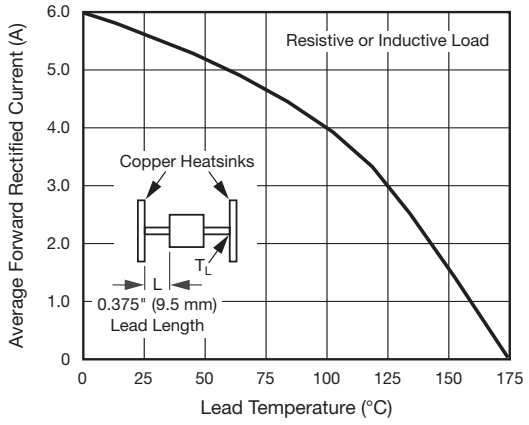

Fig. 1 - Maximum Forward Current Derating Curve

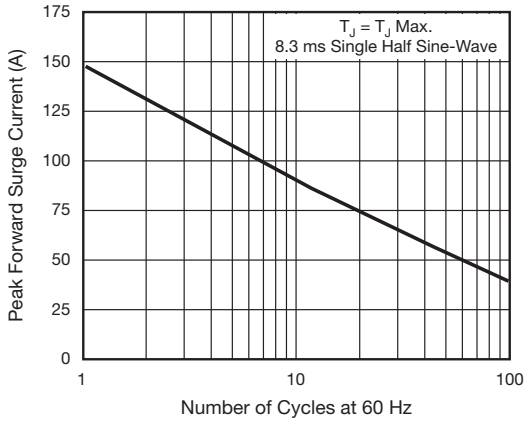

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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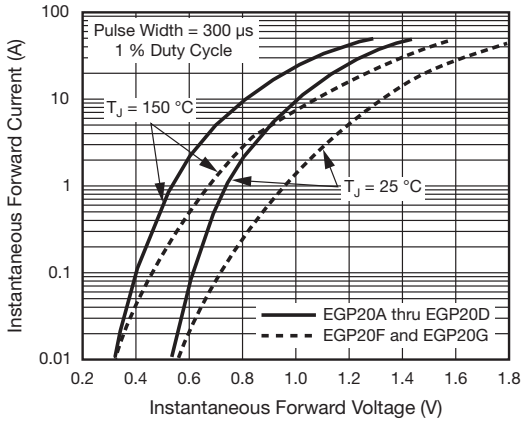


Fig. 3 - Typical Instantaneous Forward Characteristics

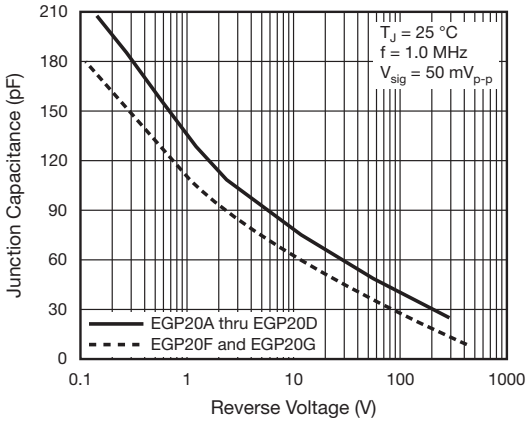


Fig. 5 - Typical Junction Capacitance

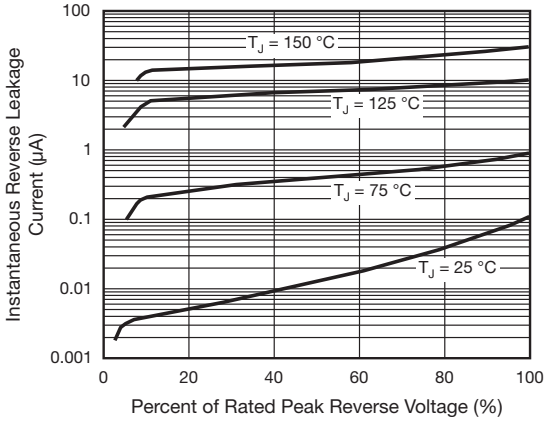


Fig. 4 - Typical Reverse Leakage Characteristics

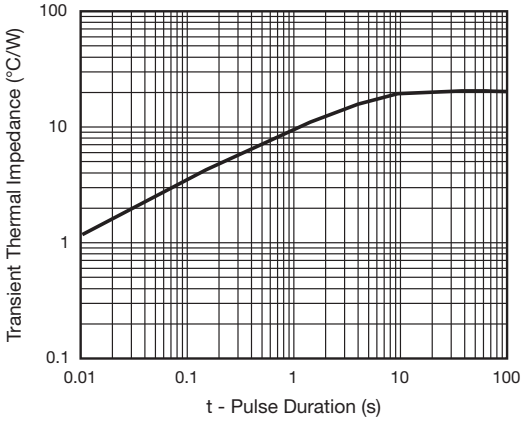
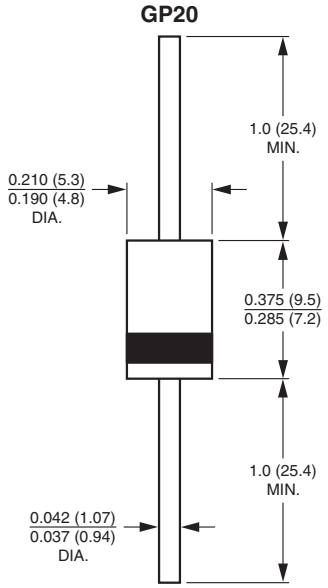


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



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