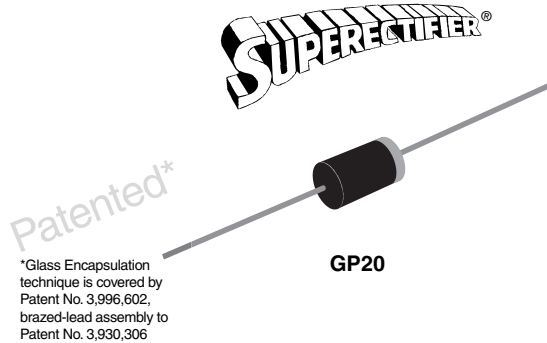


Glass Passivated Ultrafast Rectifier



FEATURES

- 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
- Meets environmental standard MIL-S-19500
- 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 frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive and telecommunication.

MECHANICAL DATA

Case: GP20, molded epoxy 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	
$I_{F(AV)}$	5.0 A
V_{RRM}	100 V to 200 V
I_{FSM}	135 A
t_{rr}	35 ns
V_F	0.95 V
I_R	5.0 μ A
T_J max.	175 °C

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)					
PARAMETER	SYMBOL	FGP50B	FGP50C	FGP50D	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	100	150	200	V
Maximum RMS voltage	V_{RMS}	70	105	140	V
Maximum DC blocking voltage	V_{DC}	100	150	200	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length (Fig. 1)	$I_{F(AV)}$	5.0			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	135			A
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175			°C



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	FGP50B	FGP50C	FGP50D	UNIT
Maximum instantaneous forward voltage ⁽¹⁾	5.0 A	V _F		0.95		V
Maximum DC reverse current at rated DC blocking voltage	T _A = 25 °C T _A = 100 °C	I _R		5.0 50		μA
Maximum reverse recovery time	I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A	t _{rr}		35		ns
Typical junction capacitance	4.0 V, 1 MHz	C _J		100		pF

Note:

(1) Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	FGP50B	FGP50C	FGP50D	UNIT	
Typical thermal resistance ^(1,2)	R _{θJA} R _{θJL}		60 20		°C/W	

Notes:

- (1) Thermal resistance from junction to lead at 0.375" (9.5 mm) lead length with both leads attached to heatsinks.
- (2) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length and mounted on P.C.B..

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
FGP50D-E3/54	1.01	54	1400	13" diameter paper tape and reel
FGP50D-E3/73	1.01	73	2000	Ammo pack packaging
FGP50DHE3/54 ⁽¹⁾	1.01	54	1400	13" diameter paper tape and reel
FGP50DHE3/73 ⁽¹⁾	1.01	73	2000	Ammo pack packaging

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

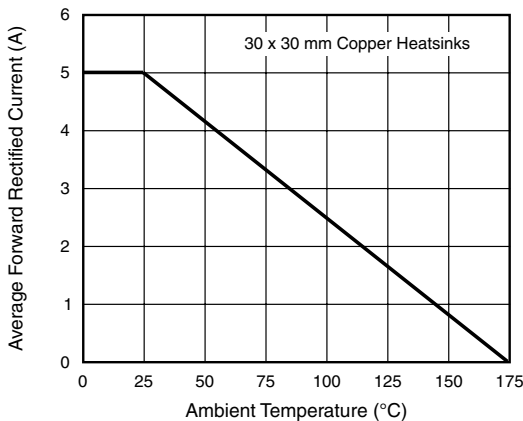


Figure 1. Maximum Forward Current Derating Curve

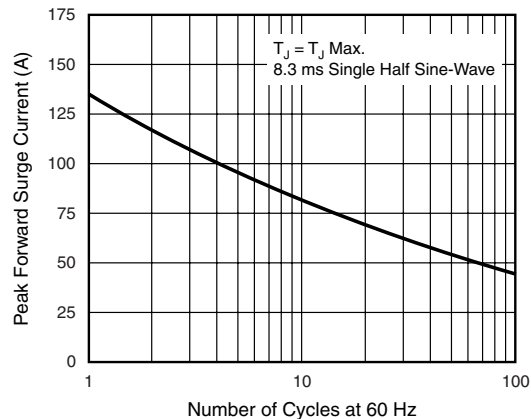


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

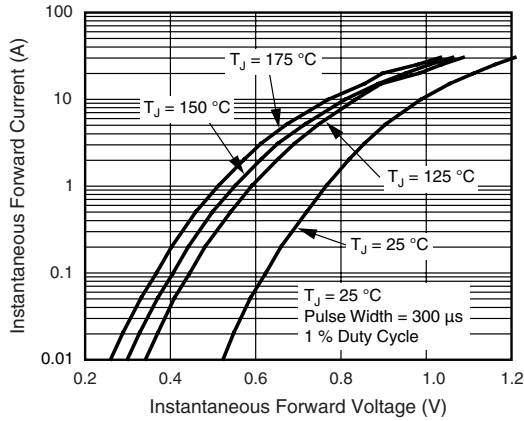


Figure 3. Typical Instantaneous Forward Characteristics

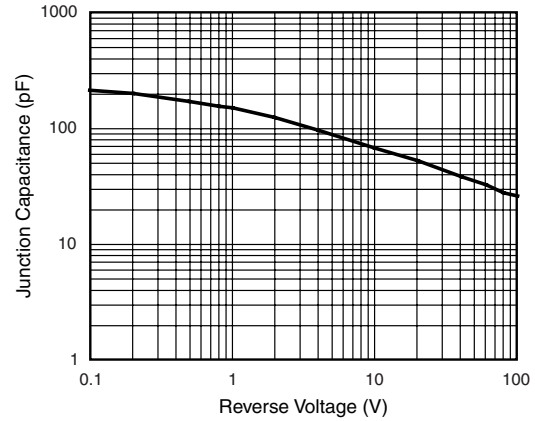


Figure 5. Typical Junction Capacitance

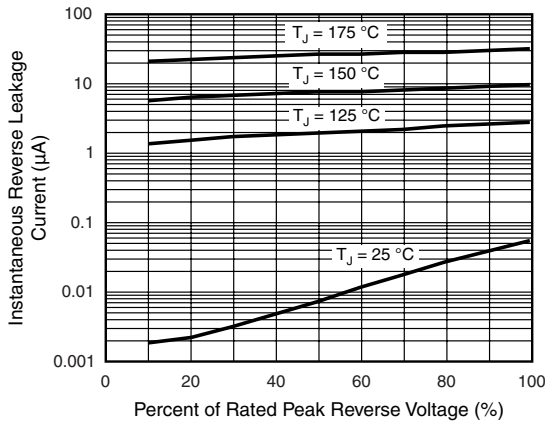
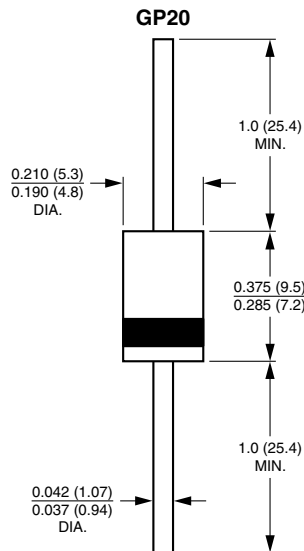


Figure 4. Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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