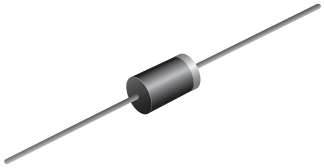
FGP20B thru FGP20D

Vishay General Semiconductor

Glass Passivated Ultrafast Rectifier

SUPERECTIFIER®



DO-204AC (DO-15)

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
- Meets environmental standard MIL-S-19500
- 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

Pb e3 RoHS COMPLIANT

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
V_{RRM}	100 V to 200 V
I_{FSM}	50 A
t_{rr}	35 ns
V_F	0.95 V
I_R	2.0 µA
T_J max.	175 °C

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: DO-204AC, 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	FGP20B	FGP20C	FGP20D	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 at T_L = 75 °C	$I_{F(AV)}$	2.0			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	50			A
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175			°C

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ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	FGP20B	FGP20C	FGP20D	UNIT
Maximum instantaneous forward voltage	2.0 A		V_F	0.95			V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R	2.0			μA
		T_A = 100 °C		50			
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	45			pF

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	FGP20B	FGP20C	FGP20D	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	60			°C/W
	$R_{\theta JL}$ (2)	20			

Notes

(1) Thermal resistance from junction to ambient 0.375" (9.5 mm) lead length mounted on PCB with 0.47" x 0.47" (12 mm x 12 mm) copper pads

(2) Thermal resistance from junction to lead at 0.375" (9.5 mm) lead length with both leads attached to heatsinks

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
FGP20D-E3/54	0.424	54	4000	13" diameter paper tape and reel
FGP20D-E3/73	0.424	73	2000	Ammo pack packaging
FGP20DHE3/54 (1)	0.424	54	4000	13" diameter paper tape and reel
FGP20DHE3/73 (1)	0.424	73	2000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

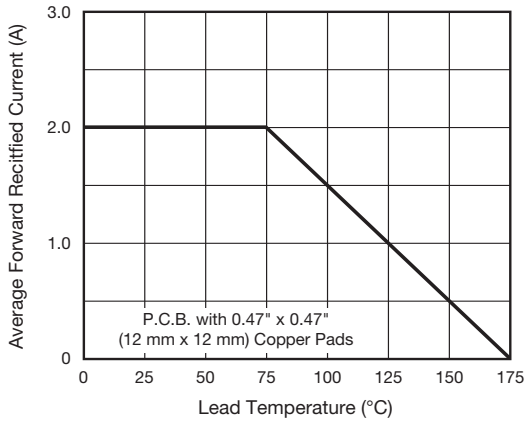

Fig. 1 - Maximum Forward Current Derating Curve

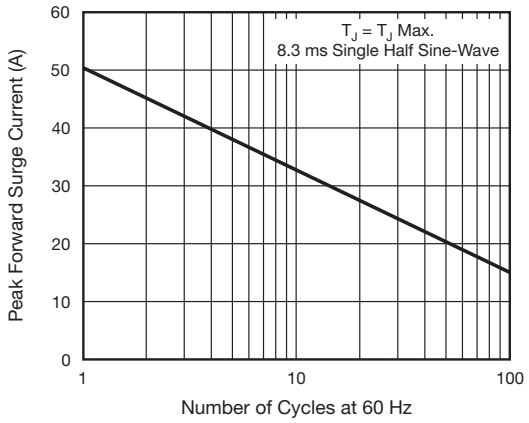

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

For technical questions within your region, please contact one of the following:
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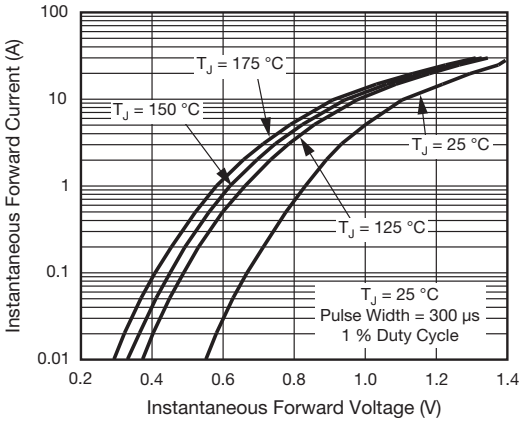


Fig. 3 - Typical Instantaneous Forward Characteristics

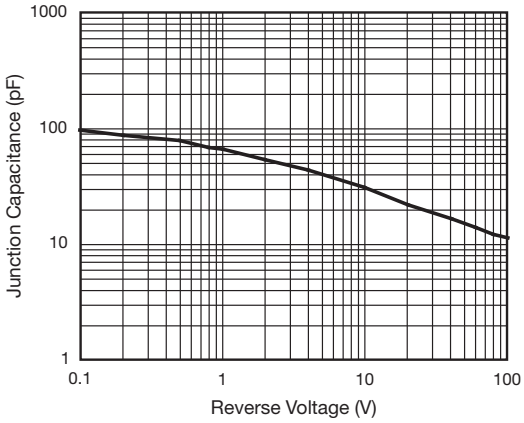


Fig. 5 - Typical Junction Capacitance

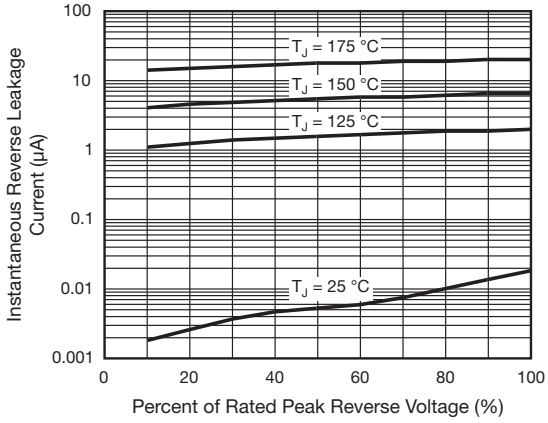
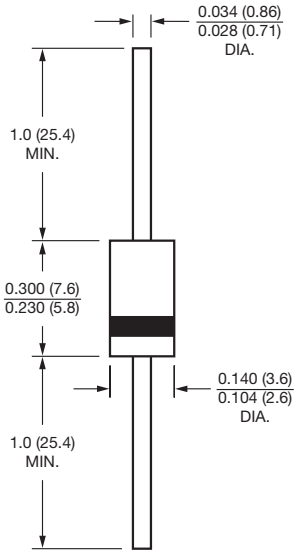


Fig. 4 - Typical Reverse Leakage Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)



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