# FGP20B, FGP20C, FGP20D

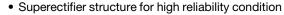
Vishay General Semiconductor

## **Glass Passivated Ultrafast Plastic Rectifier**



PRIMARY CHARACTERISTICS					
$I_{F(AV)}$	2.0 A				
$V_{RRM}$	100 V, 150 V, 200 V				
I <sub>FSM</sub>	50 A				
t <sub>rr</sub>	35 ns				
$V_{F}$	0.95 V				
I <sub>R</sub>	2.0 μΑ				
$T_J$ max.	175 °C				
Package	DO-204AC (DO-15)				
Diode variations	Single die				

### **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
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see <a href="https://www.vishav.com/doc?99912"><u>www.vishav.com/doc?99912</u></a>

### **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 <sub>A</sub> = 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 <sub>RMS</sub>	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 $T_L = 75\ ^{\circ}\text{C}$	I <sub>F(AV)</sub>	2.0			А	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	50			А	
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	- 65 to + 175			°C	



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 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	T <sub>A</sub> = 25 °C	7	2.0		μА		
at rated DC blocking voltage	T <sub>A</sub> = 100 °C	I <sub>R</sub>	50				
Maximum reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1.0 \text{ A}, I_{rr} = 0.25 \text{ A}$	t <sub>rr</sub> 35			ns		
Typical junction capacitance	4.0 V, 1 MHz	CJ	45		pF		

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	FGP20B FGP20C FGP20D		UNIT	
Typical thermal resistance	R <sub>0JA</sub> (1)	60			°C/W
	R <sub>0JL</sub> (2)		20		C/VV

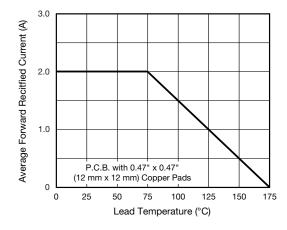
### Notes

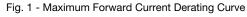
<sup>(2)</sup> Thermal resistance from junction to lead at 0.375" (9.5 mm) lead length with both leads attached to heatsinks

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 <sup>(1)</sup>	0.424	54	4000	13" diameter paper tape and reel		
FGP20DHE3/73 <sup>(1)</sup>	0.424	73	2000	Ammo pack packaging		

### Note

## RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)





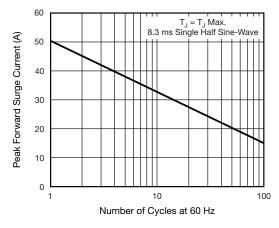


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

<sup>(1)</sup> 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

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



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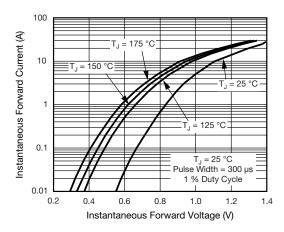


Fig. 3 - Typical Instantaneous Forward Characteristics

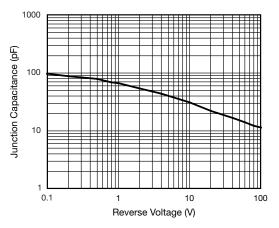


Fig. 5 - Typical Junction Capacitance

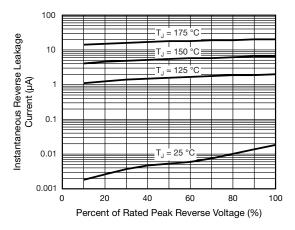
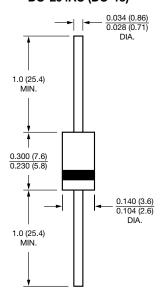


Fig. 4 - Typical Reverse Leakage Characteristics

### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

## DO-204AC (DO-15)





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