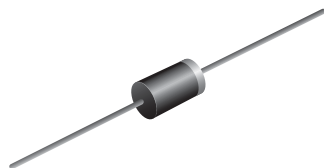




## Glass Passivated Ultrafast Rectifier

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

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 $\mu$ A
$T_J$ 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

# FGP20B thru FGP20D

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (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 <sub>F</sub>		0.95		V
Maximum DC reverse current at rated DC blocking voltage	T <sub>A</sub> = 25 °C	I <sub>R</sub>		2.0		μA
	T <sub>A</sub> = 100 °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>		35		ns
Typical junction capacitance	4.0 V, 1 MHz	C <sub>J</sub>		45		pF

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	FGP20B	FGP20C	FGP20D	UNIT	
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)</sup>		60		°C/W	
	R <sub>θJL</sub> <sup>(2)</sup>		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 <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**

- (1) AEC-Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

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

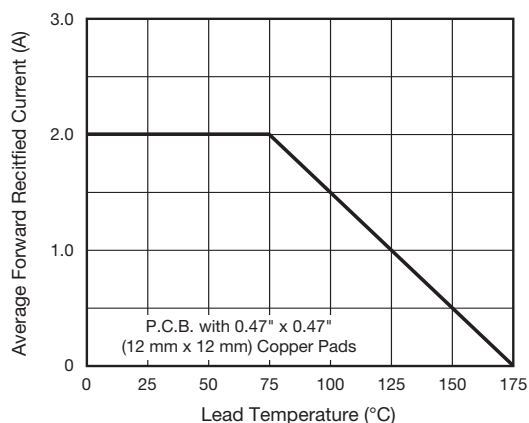


Fig. 1 - Maximum Forward Current Derating Curve

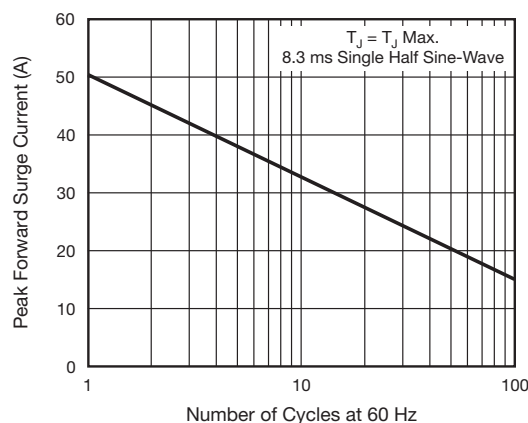


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

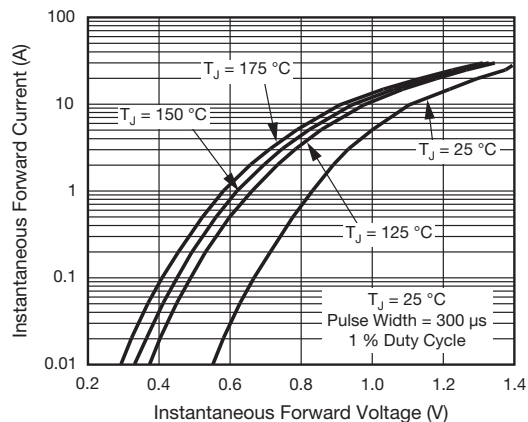


Fig. 3 - Typical Instantaneous Forward Characteristics

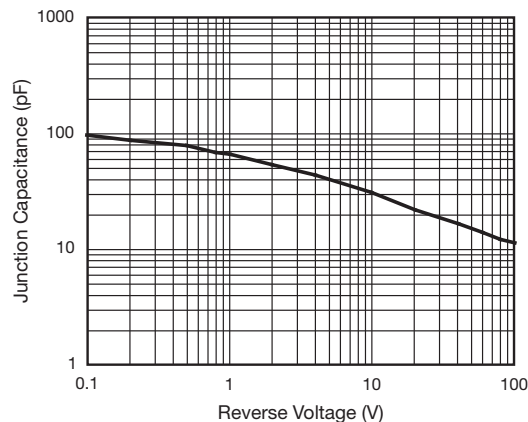


Fig. 5 - Typical Junction Capacitance

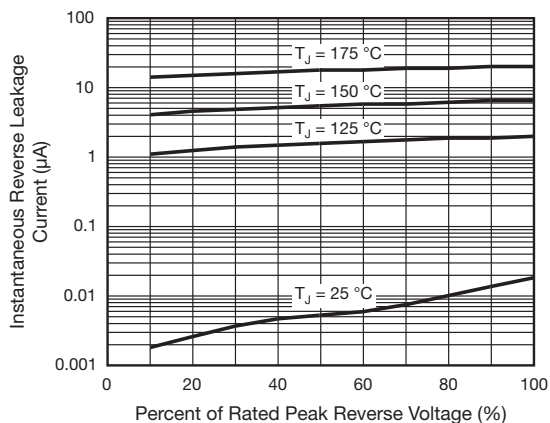
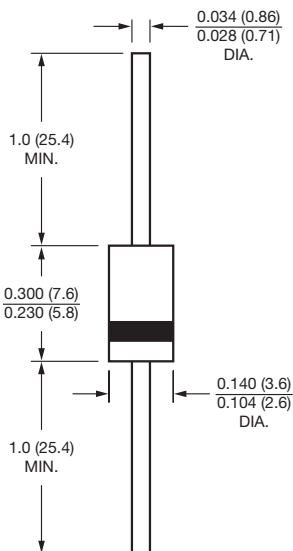


Fig. 4 - Typical Reverse Leakage Characteristics

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)

**DO-204AC (DO-15)**





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