

## Glass Passivated Ultrafast Rectifier

### Major Ratings and Characteristics

$I_{F(AV)}$	3.0 A
$V_{RRM}$	100 V to 200 V
$I_{FSM}$	125 A
$t_{rr}$	35 ns
$V_F$	0.95 V
$I_R$	5.0 $\mu$ A
$T_j$ max.	175 °C



DO-204AC (DO-15)

Patented\*

\* Glass Encapsulation technique is covered by Patent No. 3,996,602, brazed-lead assembly to Patent No. 3,930,306

### Features

- Cavity-free glass-passivated junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability
- Meets environmental standard MIL-S-19500
- Solder Dip 260 °C, 40 seconds



### 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-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

**Polarity:** Color band denotes cathode end

### Typical Applications

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive and Telecommunication

### Maximum Ratings

$T_A = 25$  °C unless otherwise specified

Parameter	Symbol	FGP30B	FGP30C	FGP30D	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 $T_A = 25$ °C	$I_{F(AV)}$	3.0			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	125			A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175			°C

## Electrical Characteristics

$T_A = 25\text{ }^\circ\text{C}$  unless otherwise specified

Parameter	Test condition	Symbol	FGP30B	FGP30C	FGP30D	Unit
Maximum instantaneous forward voltage	at 3.0 A <sup>(1)</sup>	$V_F$	0.95			V
Maximum DC reverse current at rated DC blocking voltage	$T_A = 25\text{ }^\circ\text{C}$ $T_A = 100\text{ }^\circ\text{C}$	$I_R$	5.0 50			$\mu\text{A}$
Maximum reverse recovery time	at $I_F = 0.5\text{ A}$ , $I_R = 1.0\text{ A}$ , $I_{rr} = 0.25\text{ A}$	$t_{rr}$	35			ns
Typical junction capacitance	at 4.0 V, 1 MHz	$C_J$	70			pF

Notes:

(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

## Thermal Characteristics

$T_A = 25\text{ }^\circ\text{C}$  unless otherwise specified

Parameter	Symbol	FGP30B	FGP30C	FGP30D	Unit
Typical thermal resistance <sup>(1,2)</sup>	$R_{\theta JA}$ $R_{\theta JL}$	55 20			$^\circ\text{C/W}$

Notes:

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length and mounted on P.C.B. with 1.1 x 1.1 (30 x 30 mm) copper pads.

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

## Ratings and Characteristics Curves

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise specified)

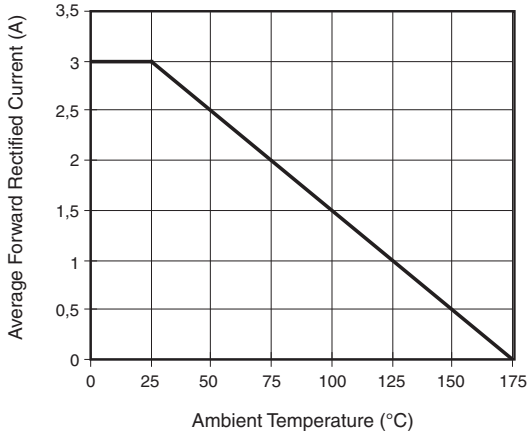


Figure 1. Maximum Forward Current Derating Curve

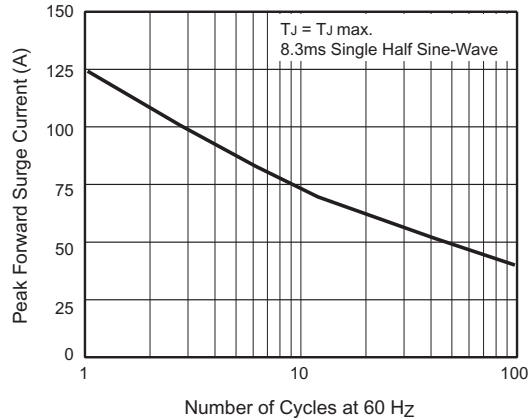


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

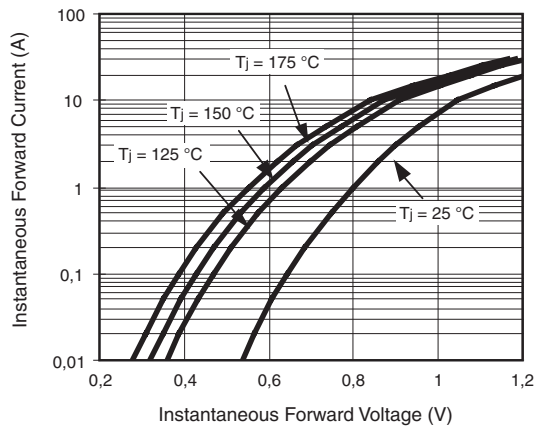


Figure 3. Typical Instantaneous Forward Characteristics

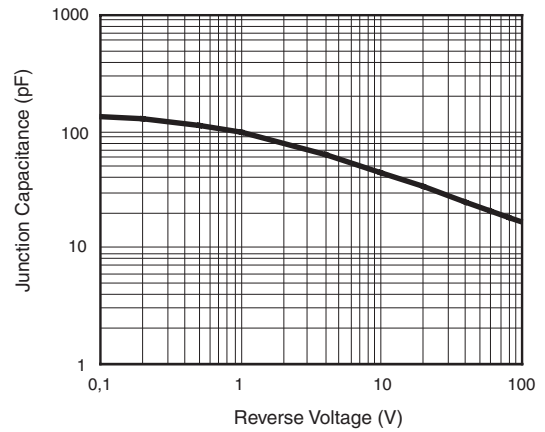


Figure 5. Typical Junction Capacitance

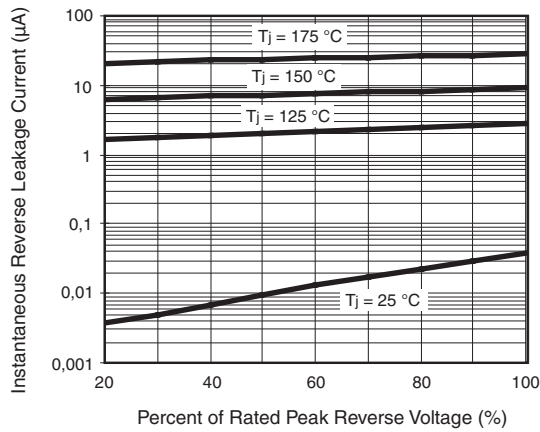


Figure 4. Typical Reverse Leakage Characteristics

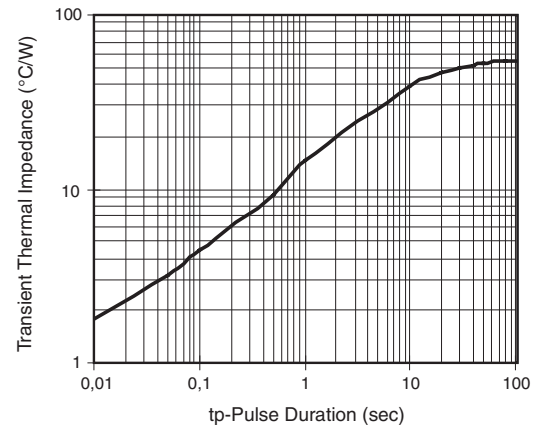


Figure 6. Typical Transient Thermal Impedance

## Package outline dimensions in inches (millimeters)

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