

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 μ 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 ⁽¹⁾	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			μA
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 μs 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 ^(1,2)	$R_{\theta JA}$ $R_{\theta JL}$	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)

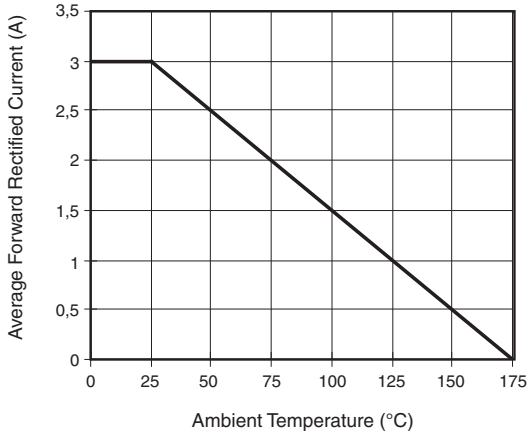


Figure 1. Maximum Forward Current Derating Curve

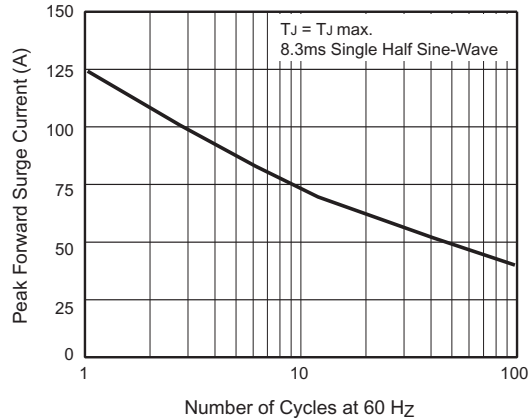


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

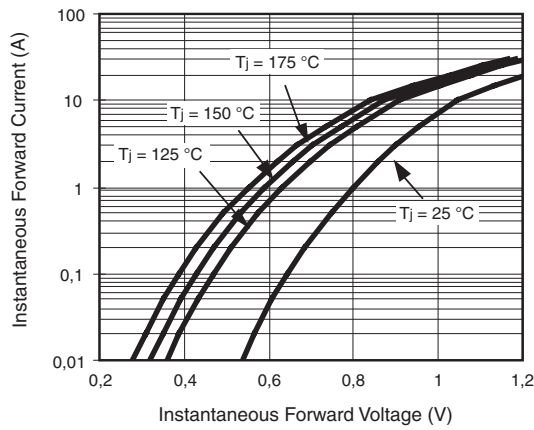


Figure 3. Typical Instantaneous Forward Characteristics

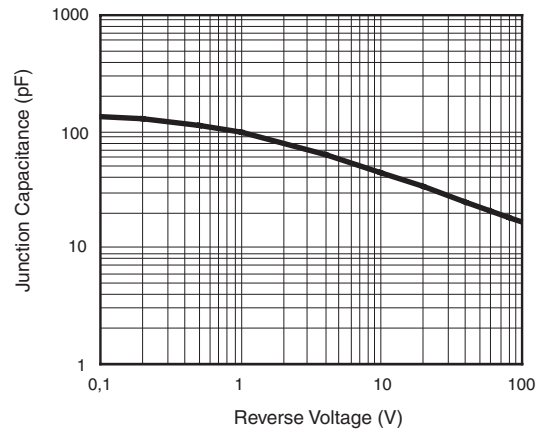


Figure 5. Typical Junction Capacitance

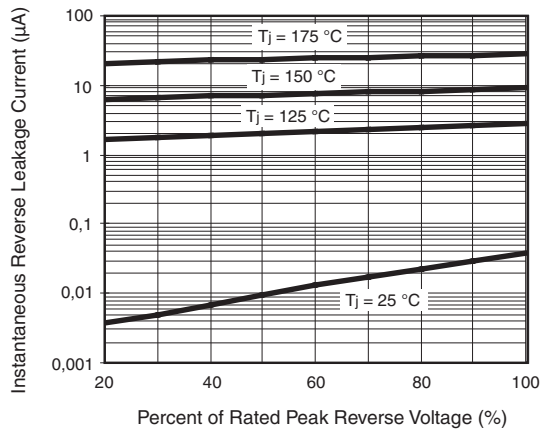


Figure 4. Typical Reverse Leakage Characteristics

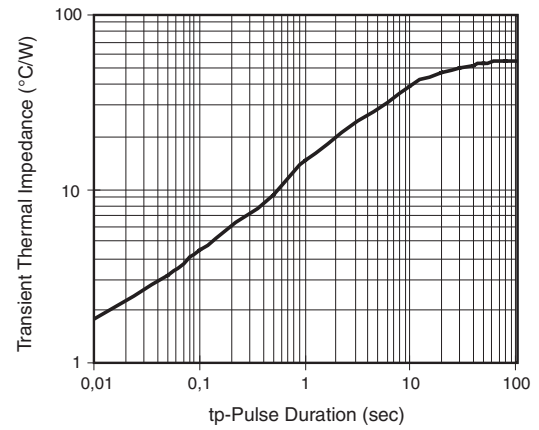


Figure 6. Typical Transient Thermal Impedance

Package outline dimensions in inches (millimeters)

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