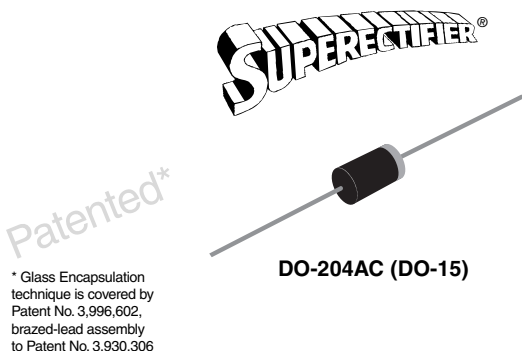


Glass Passivated Ultrafast Rectifier



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 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC


RoHS
COMPLIANT

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: GP20, molded epoxy over glass body

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

Polarity: Color band denotes cathode end

PRIMARY 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

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)					
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 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	FGP30B	FGP30C	FGP30D	UNIT
Maximum instantaneous forward voltage ⁽¹⁾	3.0 A		V _F	0.95			V
Maximum DC reverse current at rated DC blocking voltage		T _A = 25 °C T _A = 100 °C	I _R	5.0 50			μA
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	70			pF

Note:(1) Pulse test: 300 μs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	FGP30B	FGP30C	FGP30D	UNIT
Typical thermal resistance ⁽¹⁾⁽²⁾	R _{θJA} R _{θJL}	55 20			°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

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
FGP30D-E3/54	0.452	54	4000	13" diameter paper tape and reel
FGP30D-E3/73	0.452	73	2000	Ammo pack packaging
FGP30DHE3/54 ⁽¹⁾	0.452	54	4000	13" diameter paper tape and reel
FGP30DHE3/73 ⁽¹⁾	0.452	73	2000	Ammo pack packaging

Note:

(1) Automotive grade AEC Q101 qualified

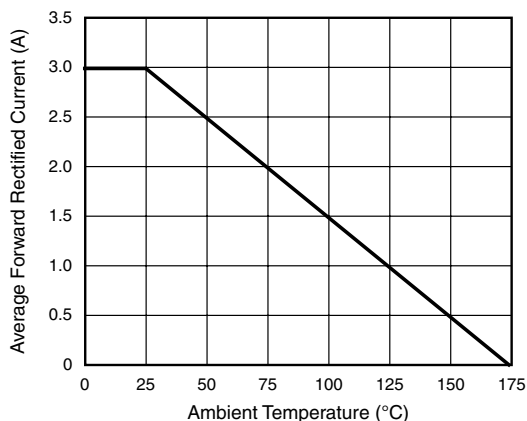
RATINGS AND CHARACTERISTICS CURVES($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Figure 1. Maximum Forward Current Derating Curve

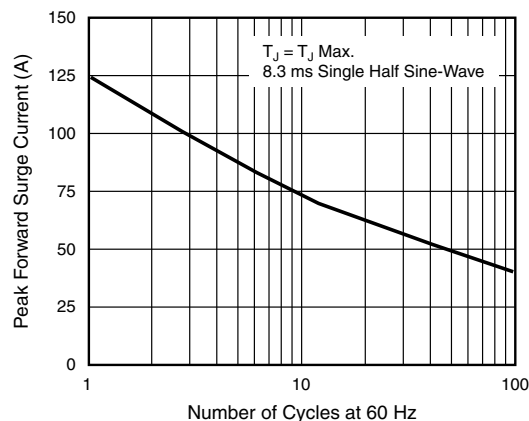


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

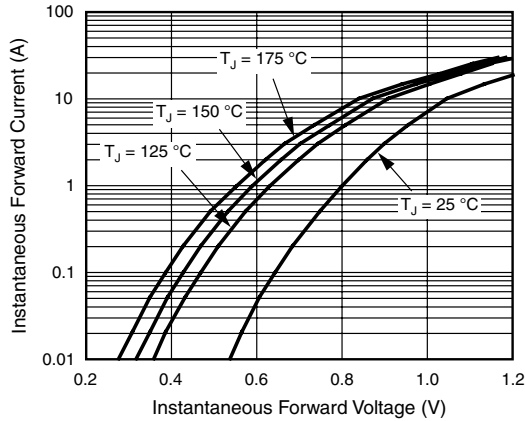


Figure 3. Typical Instantaneous Forward Characteristics

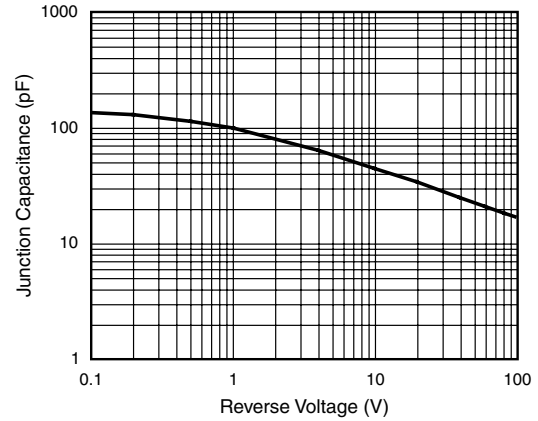


Figure 5. Typical Junction Capacitance

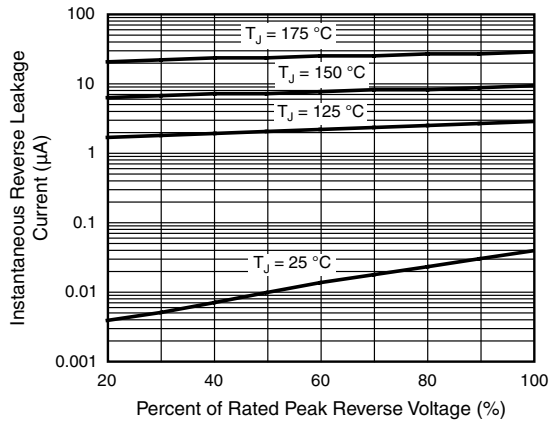


Figure 4. Typical Reverse Leakage Characteristics

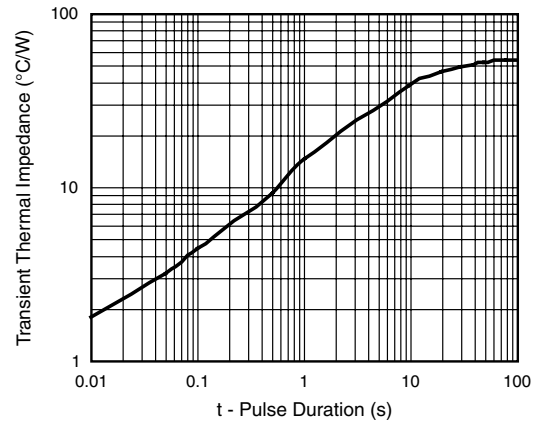
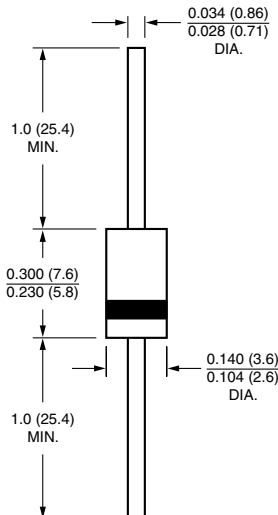


Figure 6. Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)





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