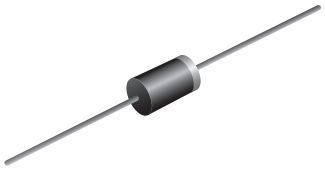
Glass Passivated Ultrafast Plastic Rectifier

SUPERECTIFIER®



DO-204AC (DO-15)

FEATURES

- Superectifier structure for high reliability condition
- 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 275 °C max. 10 s, per JESD 22-B106
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

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.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
V_{RRM}	100 V, 150 V, 200 V
I_{FSM}	125 A
t_{rr}	35 ns
V_F	0.95 V
I_R	5.0 µA
T_J max.	175 °C
Package	DO-204AC (DO-15)
Diode variations	Single die

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	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	3.0 A		V_F (1)	0.95			V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R	5.0			μA
		T_A = 100 °C		50			
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	$R_{\theta JA}$ (1)	55			°C/W
	$R_{\theta JL}$ (2)	20			

Notes

(1) Thermal resistance from junction to ambient at 0.375" (9.5 mm) lead length and mounted on PCB with 1.1" x 1.1" (30 mm 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) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

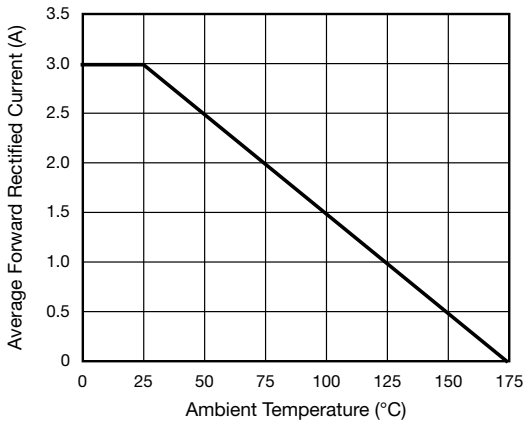


Fig. 1 - Maximum Forward Current Derating Curve

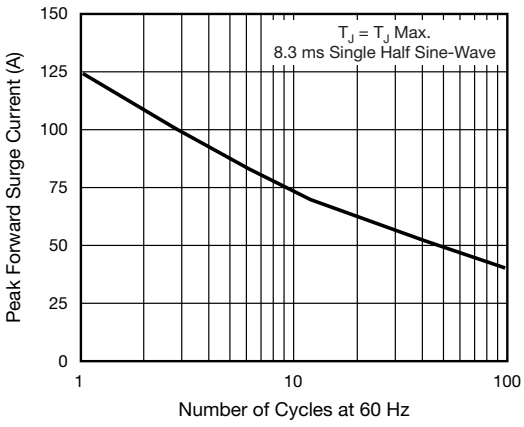


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

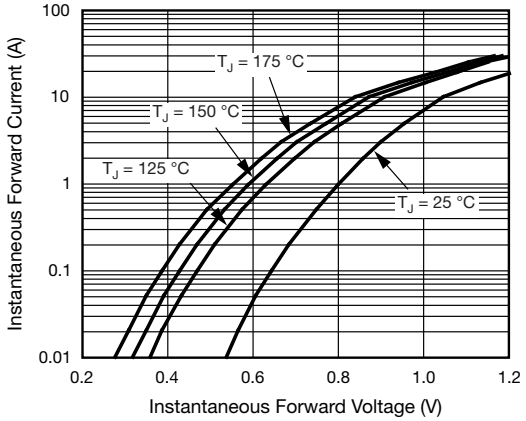


Fig. 3 - Typical Instantaneous Forward Characteristics

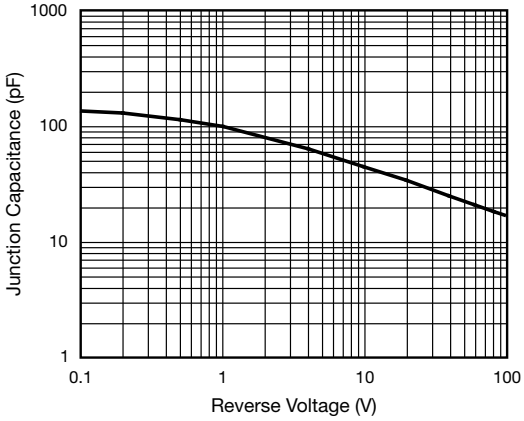


Fig. 5 - Typical Junction Capacitance

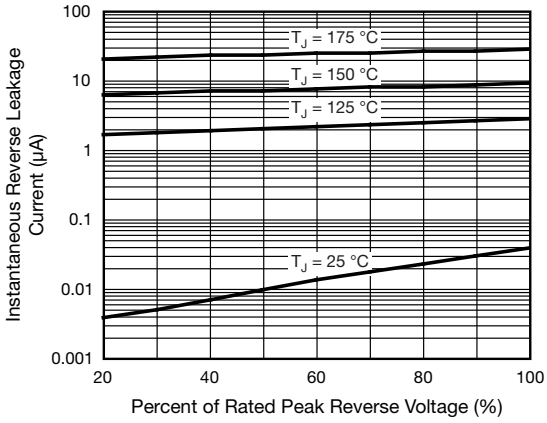


Fig. 4 - Typical Reverse Leakage Characteristics

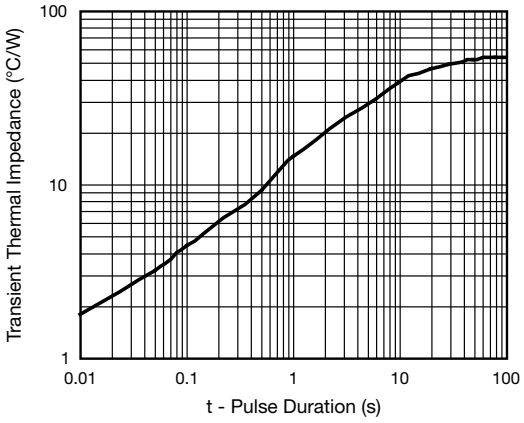
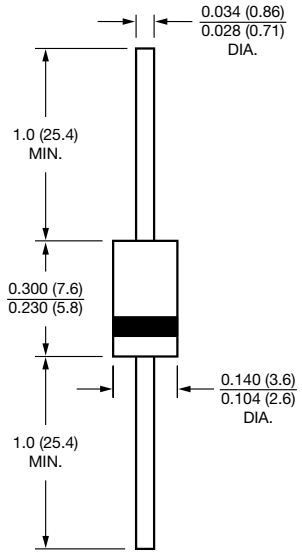


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-204AC (DO-15)



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