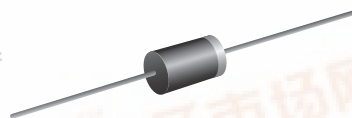


Glass Passivated Ultrafast Rectifier

SUPERECTIFIER®



DO-204AL (DO-41)

* 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 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

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-204AL, 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

PRIMARY CHARACTERISTICS

$I_{F(AV)}$	1.0 A
V_{RRM}	100 V to 200 V
I_{FSM}	30 A
t_{rr}	35 ns
V_F	0.95 V
I_R	2.0 μ A
T_J max.	175 °C

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	FGP10B	FGP10C	FGP10D	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 $T_A = 55$ °C	$I_{F(AV)}$	1.0			A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	30			A
Operating junction and storage temperature range	T_J, T_{STG}	- 65 to + 175			°C

FGP10B thru FGP10D

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)							
PARAMETER	TEST CONDITIONS		SYMBOL	FGP10B	FGP10C	FGP10D	UNIT
Maximum instantaneous forward voltage	1.0 A		V _F ⁽¹⁾	0.95			V
Maximum DC reverse current at rated DC blocking voltage		T _A = 25 °C	I _R ⁽¹⁾	2.0			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	25			pF

Note

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	FGP10B	FGP10C	FGP10D	UNIT
Maximum thermal resistance	R _{θJA} ⁽¹⁾	70			°C/W
	R _{θJL} ⁽¹⁾	20			

Note

(1) Units mounted on P.C.B. 10 mm x 10 mm copper pads

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
FGP10D-E3/54	0.30	54	5500	13" diameter paper tape and reel
FGP10D-E3/73	0.30	73	3000	Ammo pack packaging
FGP10DHE3/54 ⁽¹⁾	0.30	54	5500	13" diameter paper tape and reel
FGP10DHE3/73 ⁽¹⁾	0.30	73	3000	Ammo pack packaging

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

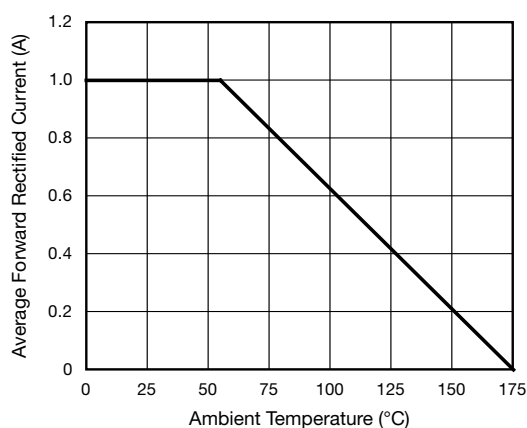
($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

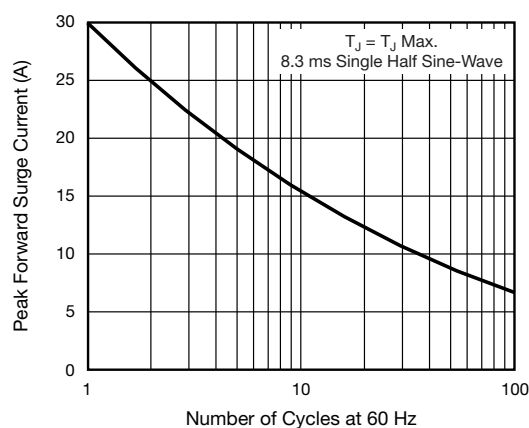


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

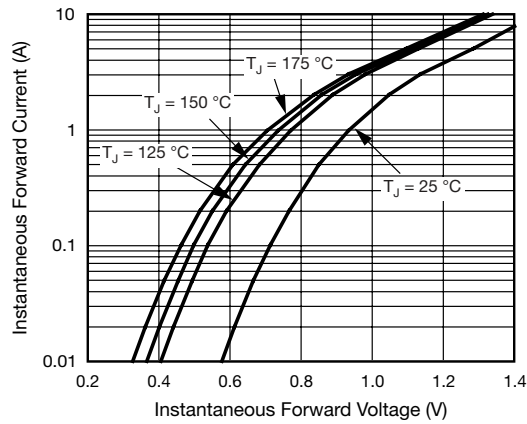


Fig. 3 - Typical Instantaneous Forward Characteristics

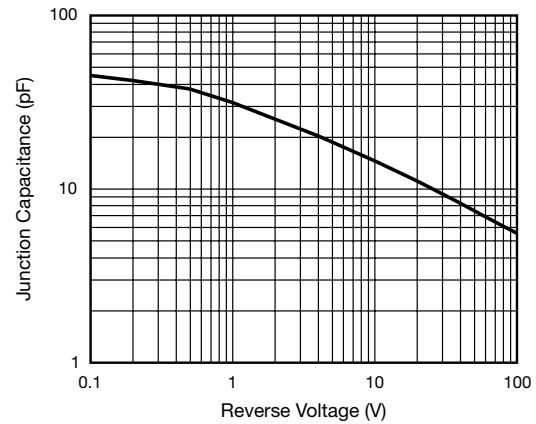


Fig. 5 - Typical Junction Capacitance

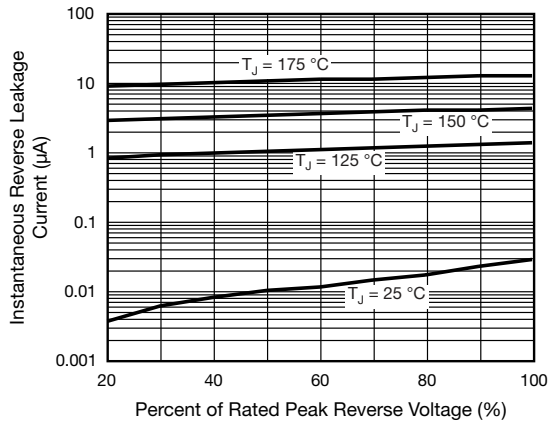


Fig. 4 - Typical Reverse Leakage Characteristics

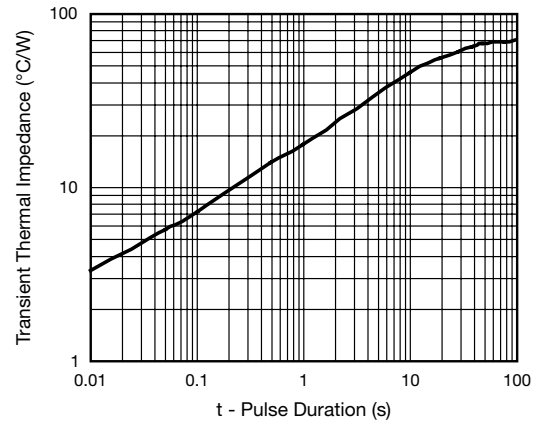
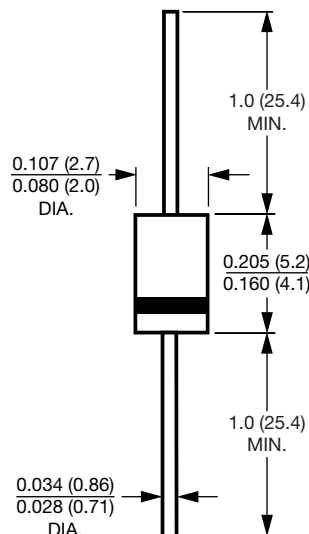


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

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