Surface-Mount Glass Passivated Ultrafast Rectifier

Superectifier®

GF1 (DO-214BA)

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
- Avalanche surge energy capability
- Meets environmental standard MIL-S-19500
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
V_{RRM}	1300 V
I_{FSM}	20 A
t_{rr}	75 ns
E_{AS}	15 mJ
V_F at I_F = 1.0 A	3.0 V
T_J max.	150 °C
Package	GF1 (DO-214BA)
Circuit configurations	Single

TYPICAL APPLICATIONS

For use in high voltage rectification of photoflash application.

MECHANICAL DATA

Case: GF1 (DO-214BA), molded plastic 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**	**EGF1T**	**UNIT**
Device marking code		ET	
Maximum repetitive peak reverse voltage	V_{RRM}	1300	V
Maximum RMS voltage	V_{RMS}	910	V
Maximum DC blocking	V_{DC}	1300	V
Maximum average forward rectified current	$I_{F(AV)}$	1.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I_{FSM}	20	A
Non-repetitive avalanche energy at T_A = 25 °C, I_{AS} = 1 A, L = 30 mH	E_{AS}	15	mJ
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)					
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**EGF1T**	**UNIT**
Maximum instantaneous forward voltage	1.0 A	T_J = 25 °C	V_F (1)	3.0	V
Maximum DC reverse current	V_{RM}	T_J = 25 °C	I_R (2)	5.0	μA
		T_J = 125 °C		50	
Typical reverse recovery time	I_F = 0.5 A, I_R =1.0 A, I_{rr} = 0.25 A		t_{rr}	75	ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	8.0	pF

Notes

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

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**EGF1T**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	50	°C/W
	$R_{\theta JL}$ (1)	20	

Note

(1) Thermal resistance from junction to ambient and from junction to lead, PCB mounted on 0.95" x 0.95" (24 mm x 24 mm) copper pad areas

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
EGF1T-E3/67A	0.104	67A	1500	7" diameter plastic tape and reel
EGF1T-E3/5CA	0.104	5CA	6500	13" diameter plastic tape and reel
EGF1THE3/67A (1)	0.104	67A	1500	7" diameter plastic tape and reel
EGF1THE3/5CA (1)	0.104	5CA	6500	13" diameter plastic tape and reel

Note

(1) AEC-Q101 qualified

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

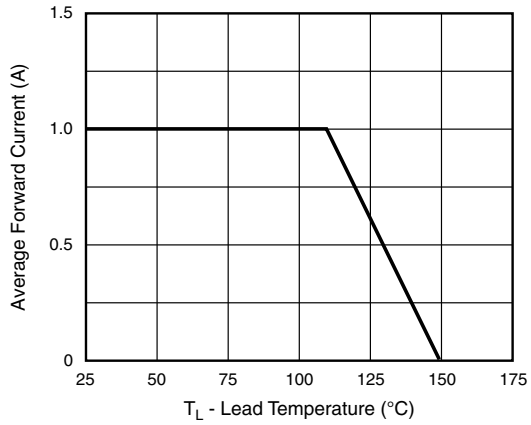


Fig. 1 - Maximum Forward Current Derating Curve

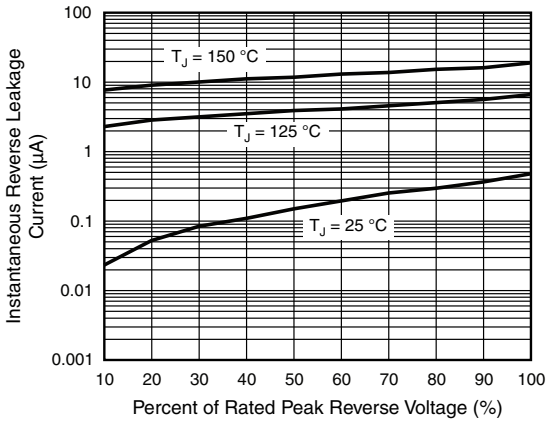


Fig. 4 - Typical Reverse Leakage Characteristics

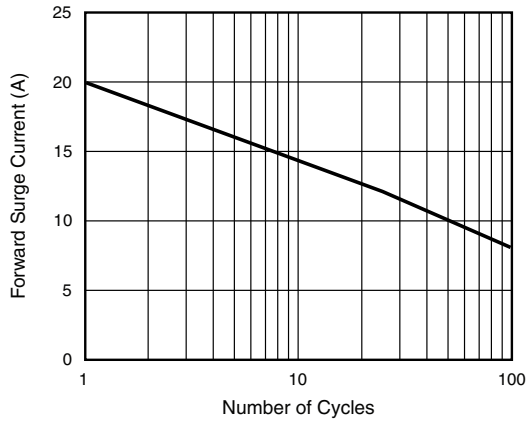


Fig. 2 - Maximum Non-Repetitive Forward Surge Current

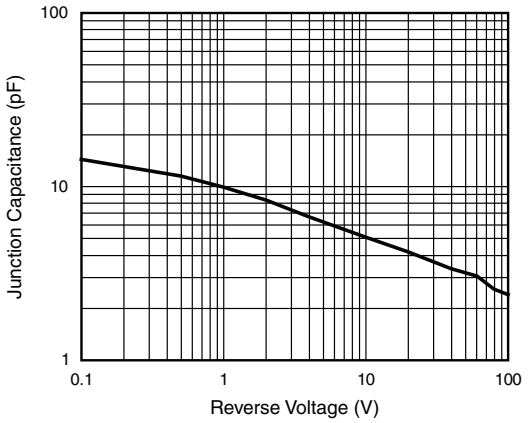


Fig. 5 - Typical Junction Capacitance Per Leg

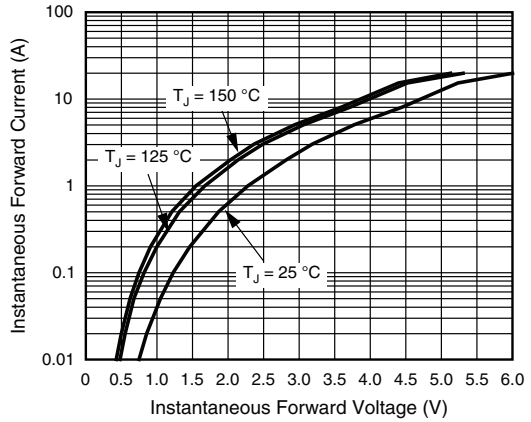


Fig. 3 - Typical Instantaneous Forward Characteristics

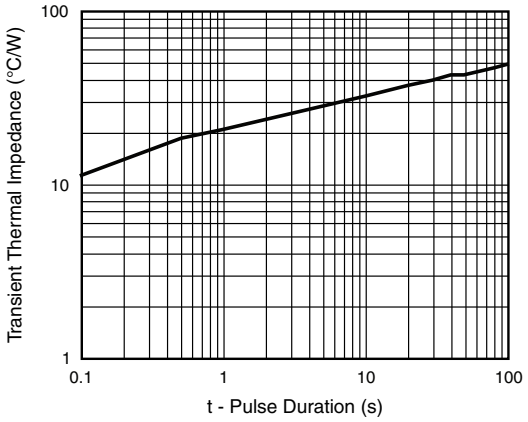
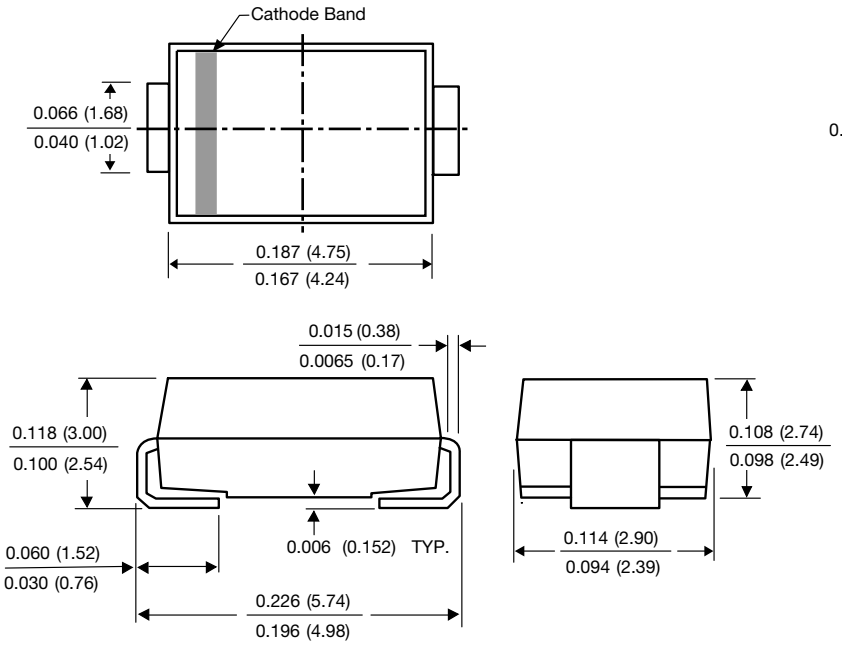


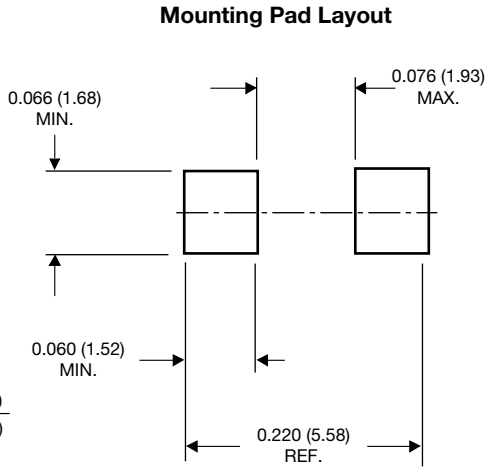
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

GF1 (DO-214BA)



Mounting Pad Layout



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