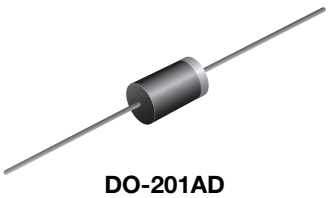
EGP31A, EGP31B, EGP31C, EGP31D, EGP31F, EGP31G

Glass Passivated Ultrafast Plastic Rectifier



DO-201AD

FEATURES

- Superectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Ultrafast reverse recovery time
- Low forward voltage drop
- Low leakage current
- Low switching losses, high efficiency
- High forward surge capability
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
V_{RRM}	50 V, 100 V, 150 V, 200 V, 300 V, 400 V
I_{FSM}	125 A
t_{rr}	50 ns
V_F	0.95 V, 1.25 V
T_J max.	175 °C
Package	DO-201AD
Diode variations	Single die

TYPICAL APPLICATIONS

For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, and telecommunication.

MECHANICAL DATA

Case: DO-201AD
Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
E3 suffix meets JESD 201 class 1A whisker test

Polarity: Color band denotes cathode end

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

PARAMETER	SYMBOL	EGP31A	EGP31B	EGP31C	EGP31D	EGP31F	EGP31G	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	V
Maximum RMS voltage	V_{RMS}	35	70	105	140	210	280	V
Maximum DC blocking voltage	V_{DC}	50	100	150	200	300	400	V
Maximum average forward rectified current 0.375" (9.5 mm) lead length at T_L = 150 °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 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**	**EGP31A**	**EGP31B**	**EGP31C**	**EGP31D**	**EGP31F**	**EGP31G**	**UNIT**
Maximum instantaneous forward voltage	3.0 A		V_F (1)	0.95				1.25		V
Maximum DC reverse current at rated DC blocking voltage		T_A = 25 °C	I_R (2)	5.0						μA
		T_A = 125 °C		100						
Maximum reverse recovery time	I_F = 0.5 A, I_R = 1.0 A, I_{rr} = 0.25 A		t_{rr}	50						ns
Typical junction capacitance	4.0 V, 1 MHz		C_J	117				48		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**	**EGP31A**	**EGP31B**	**EGP31C**	**EGP31D**	**EGP31F**	**EGP31G**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)(2)	55						°C/W
	$R_{\theta JL}$ (2)(3)	8.5						

Notes

(1) The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/ R_{\theta JA}$

(2) Thermal resistance $R_{\theta JA}$ - junction to ambient, $R_{\theta JL}$ - junction to lead at 0.375" (9.5 mm) lead length (use DC test method)

(3) Device mounted on 30 mm x 30 mm PCB pad size areas.

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
EGP31G-E3/C	1.21	C	1400	13" diameter paper tape and reel
EGP31G-E3/D	1.21	D	1000	Ammo pack packaging

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

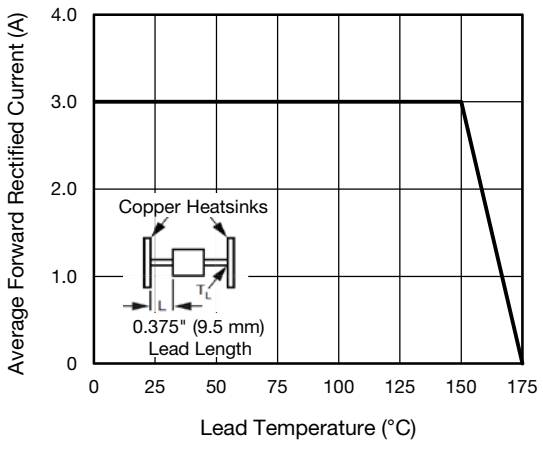


Fig. 1 - Maximum Forward Current Derating Curve

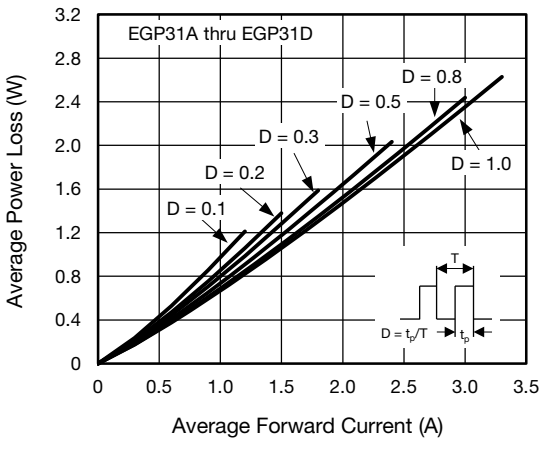


Fig. 2 - Forward Power Loss Characteristics

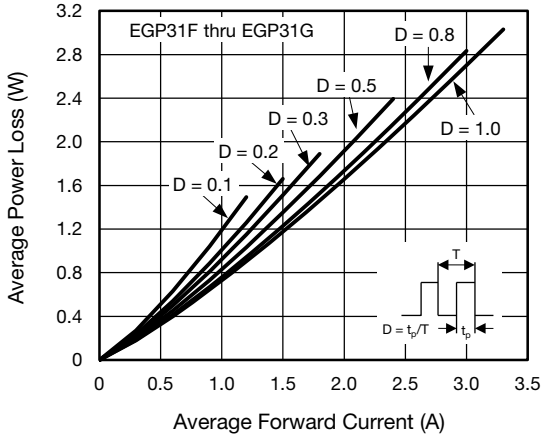


Fig. 3 - Forward Power Loss Characteristics

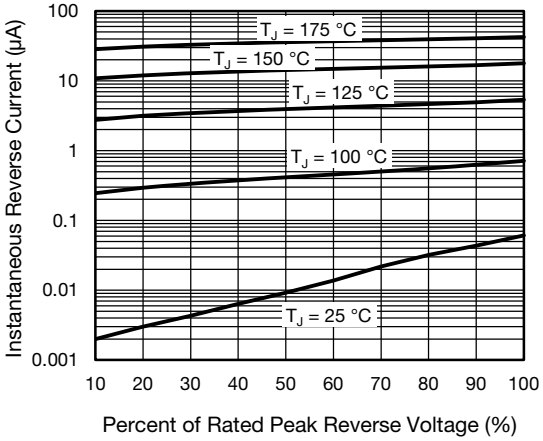


Fig. 6 - Typical Reverse Leakage Characteristics

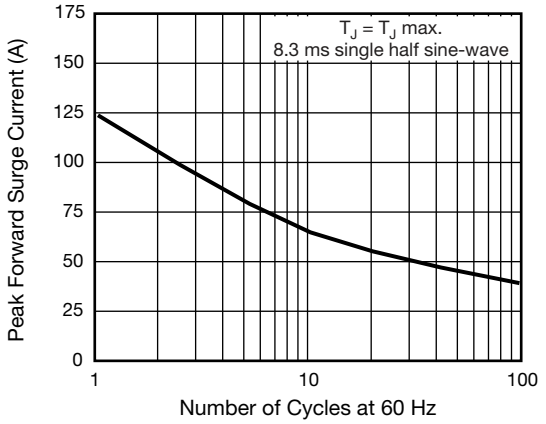


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current

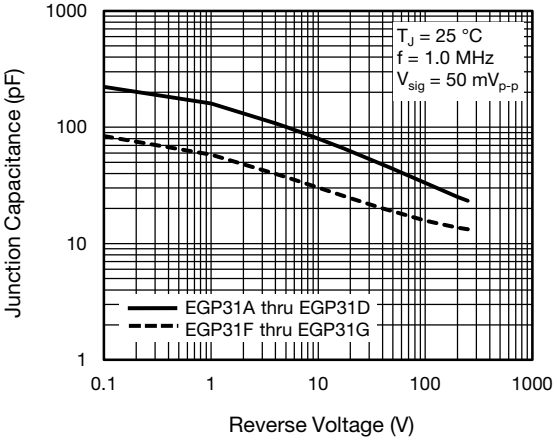


Fig. 7 - Typical Junction Capacitance

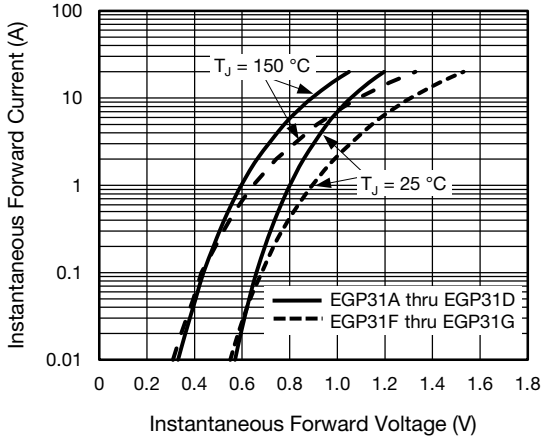


Fig. 5 - Typical Instantaneous Forward Characteristics

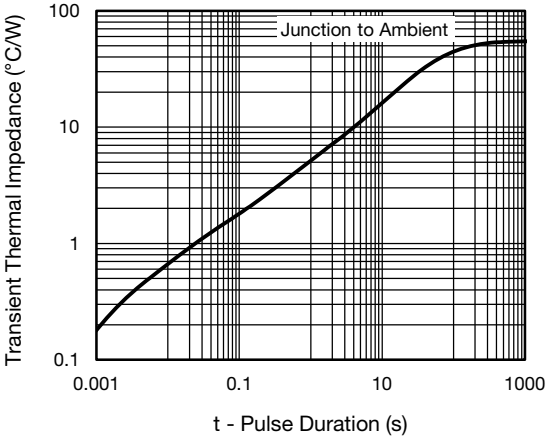
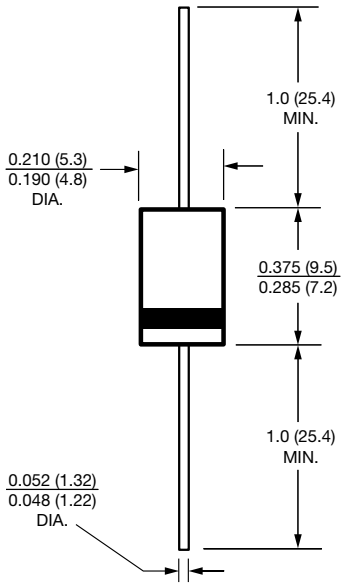


Fig. 8 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-201AD



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