

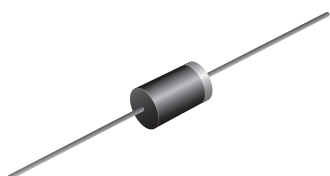


**THE DATASHEET OF  
EGP31B-E3/D**





## Glass Passivated Ultrafast Plastic Rectifier



DO-201AD

### FEATURES

- Superrectifier 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](http://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
$T_J \text{ max.}$	175 °C
Package	DO-201AD
Circuit configuration	Single

### 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



# EGP31A, EGP31B, EGP31C, EGP31D, EGP31F, EGP31G

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ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONS	SYMBOL	EGP31A	EGP31B	EGP31C	EGP31D	EGP31F	EGP31G	UNIT
Maximum instantaneous forward voltage	3.0 A	V <sub>F</sub> <sup>(1)</sup>	0.95				1.25		V
Maximum DC reverse current at rated DC blocking voltage	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(2)</sup>	5.0						μA
	T <sub>A</sub> = 125 °C		100						
Maximum reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1.0 A, I <sub>rr</sub> = 0.25 A	t <sub>rr</sub>	50						ns
Typical junction capacitance	4.0 V, 1 MHz	C <sub>J</sub>	117				48		pF

**Notes**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: pulse width, ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	SYMBOL	EGP31A	EGP31B	EGP31C	EGP31D	EGP31F	EGP31G	UNIT	
Typical thermal resistance	R <sub>θJA</sub> <sup>(1)(2)</sup>	55						°C/W	
	R <sub>θJL</sub> <sup>(2)(3)</sup>	8.5							

**Notes**

- (1) The heat generated must be less than the thermal conductivity from junction-to-ambient: dP<sub>D</sub>/dT<sub>J</sub> < 1/ R<sub>θJA</sub>
- (2) Thermal resistance R<sub>θJA</sub> - junction to ambient, R<sub>θJL</sub> - 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<sub>A</sub> = 25 °C unless otherwise noted)**

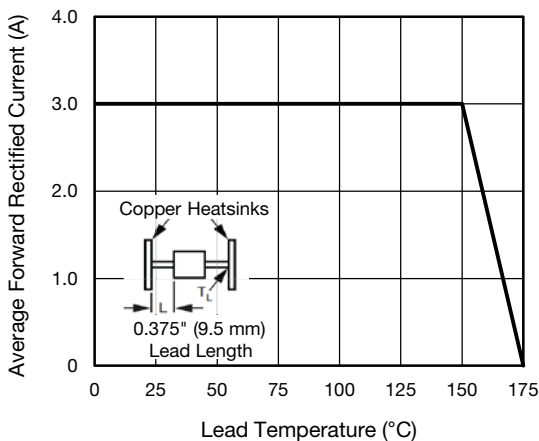


Fig. 1 - Maximum Forward Current Derating Curve

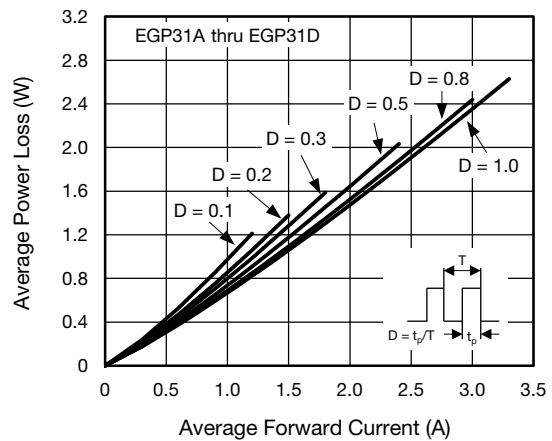


Fig. 2 - Forward Power Loss Characteristics



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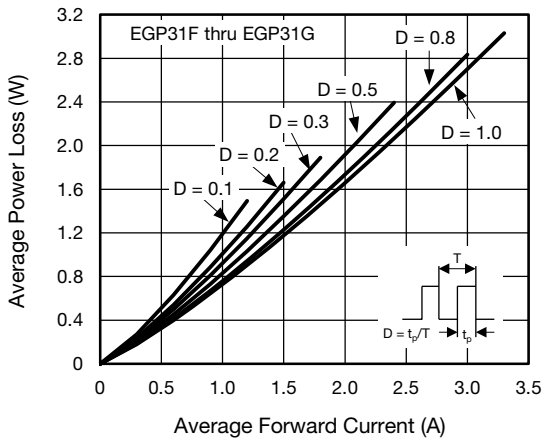


Fig. 3 - Forward Power Loss Characteristics

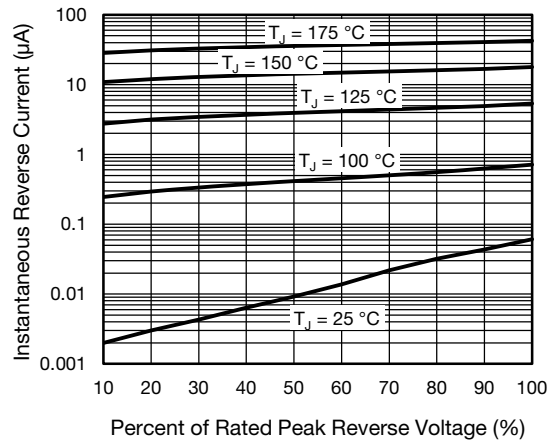


Fig. 6 - Typical Reverse Leakage Characteristics

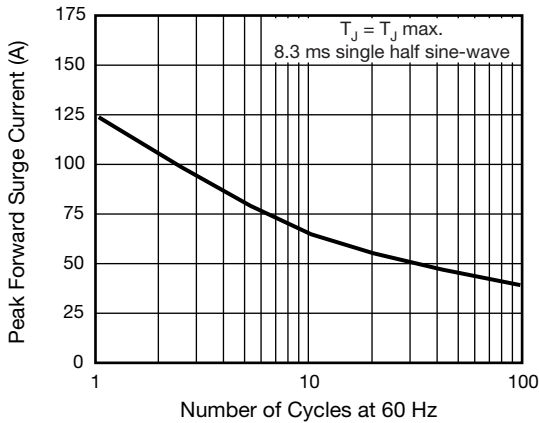


Fig. 4 - Maximum Non-Repetitive Peak Forward Surge Current

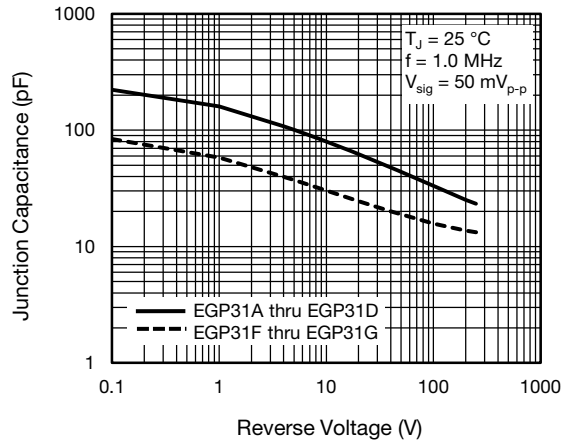


Fig. 7 - Typical Junction Capacitance

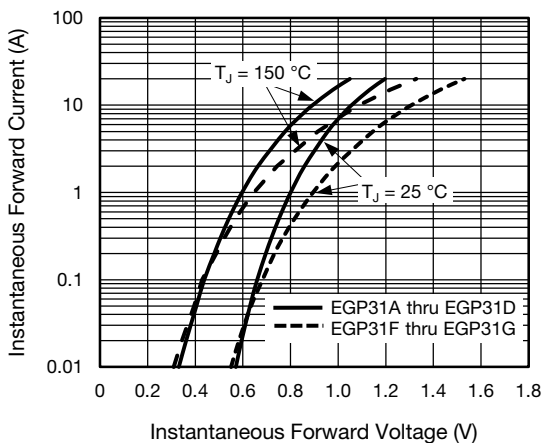


Fig. 5 - Typical Instantaneous Forward Characteristics

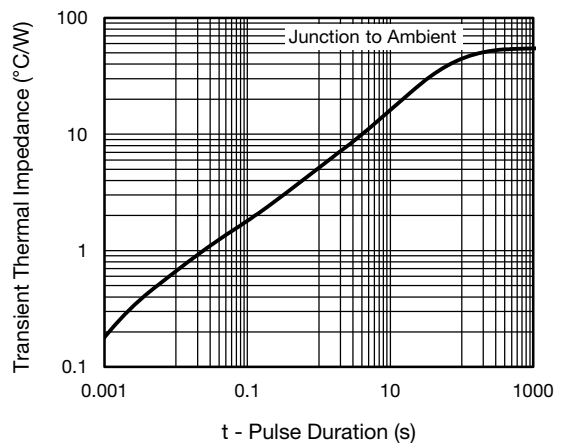


Fig. 8 - Typical Transient Thermal Impedance

Not for New Designs

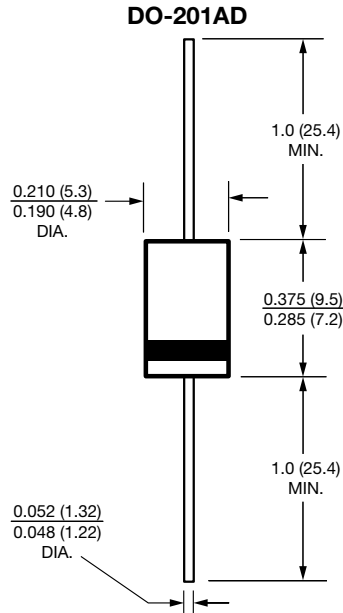


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# EGP31A, EGP31B, EGP31C, EGP31D, EGP31F, EGP31G

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## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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