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Vishay General Semiconductor

# Surface-Mount Glass Passivated Ultrafast Rectifier

## Superectifier<sup>®</sup>



GL34 (DO-213AA)

0.5 A

50 V to 400 V

10 A

50 ns

1.25 V, 1.35 V

175 °C

GL34 (DO-213AA)

Single

**PRIMARY CHARACTERISTICS** 

I<sub>F(AV)</sub>

V<sub>RRM</sub>

I<sub>FSM</sub>

t<sub>rr</sub>

 $V_{\mathsf{F}}$ 

TJ max.

Package

Circuit configuration

## **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
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

## **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: GL34 (DO-213AA), molded epoxy over glass body 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: two bands indicate cathode end - 1st band denotes device type and 2<sup>nd</sup> band denotes repetitive peak reverse voltage rating

<b>MAXIMUM RATINGS RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)								
PARAMETER	SYMBOL	BYM07-50	BYM07-100	BYM07-150	BYM07-200	BYM07-300	BYM07-400	UNIT
Fast efficient device: 1 <sup>st</sup> band is green		EGL34A	EGL34B	EGL34C	EGL34D	EGL34F	EGL34G	
Polarity color bands (2 <sup>nd</sup> band)		Gray	Red	Pink	Orange	Brown	Yellow	
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	50	100	150	200	300	400	V
Maximum RMS voltage	V <sub>RMS</sub>	35	70	105	140	210	280	V
Maximum DC blocking voltage	V <sub>DC</sub>	50	100	150	200	300	400	V
Maximum average forward rectified current at $T_T$ = 75 °C	I <sub>F(AV)</sub>	0.5						А
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	10						А
Maximum full load reverse current, full cycle average at $T_A = 55 \ ^\circ C$	I <sub>R(AV)</sub>	50					μA	
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +175					°C	

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<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)									
DADAMETED	TEST	SYMBOL	BYM07-50	BYM07-50 BYM07-100 BYM07-150 BYM07-200			BYM07-300 BYM07-40		
	CONDITIONS		EGL34A	EGL34B	EGL34C	EGL34D	EGL34F	EGL34G	UNIT
Maximum DC reverse current at rated DC	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(1)</sup>	5.0						- μA
blocking voltage	T <sub>A</sub> = 125 °C	'R ''	50						
Maximum instantaneous forward voltage	0.5 A	V <sub>F</sub> <sup>(1)</sup>	1.25 1.35					v	
Max. reverse recovery time	$I_{\rm F} = 0.5$ A, $I_{\rm R} = 1.0$ A, $I_{\rm rr} = 0.25$ A	t <sub>rr</sub>	50					ns	
Typical junction capacitance	4.0 V, 1 MHz	CJ	7.0					pF	

#### Note

 $^{(1)}\,$  Pulse test: 300  $\mu s$  pulse width, 1 % duty cycle

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25 \text{ °C}$ unless otherwise noted)								
PARAMETER	SYMBOL	BYM07-50	BYM07-100	BYM07-150	BYM07-200	BYM07-300	BYM07-400	UNIT
		EGL34A	EGL34B	EGL34C	EGL34D	EGL34F	EGL34G	
Maximum thermal resistance	R <sub>0JA</sub> <sup>(1)</sup>	150						°C/W
	R <sub>0JT</sub> <sup>(2)</sup>	70						

#### Notes

<sup>(1)</sup> Thermal resistance from junction to ambient, 0.24" x 0.24" (6.0 mm x 6.0 mm) copper pads to each terminal

<sup>(2)</sup> Thermal resistance from junction to terminal, 0.24" x 0.24" (6.0 mm x 6.0 mm) copper pads to each terminal

ORDERING INFORMATION (Example)								
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE				
EGL34D-E3/98	0.036	98	2500	7" diameter plastic tape and reel				
EGL34D-E3/83	0.036	83	9000	13" diameter plastic tape and reel				

### RATINGS AND CHARACTERISTICS CURVES (T<sub>A</sub> = 25 °C unless otherwise noted)

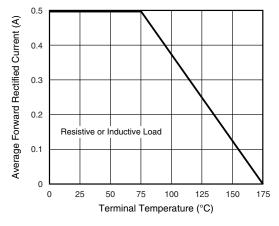


Fig. 1 - Forward Current Derating Curve

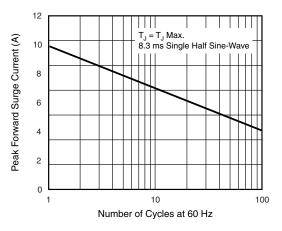


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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T, = 25 °C

= 1.0 MHz

V<sub>sig</sub> = 50 mV

100

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10

35

30

25 20

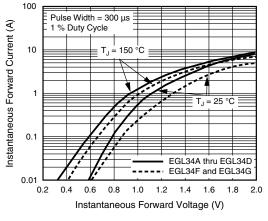
15 10

5

0

0.1

Junction Capacitance (pF)



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Fig. 3 - Typical Instantaneous Forward Characteristics

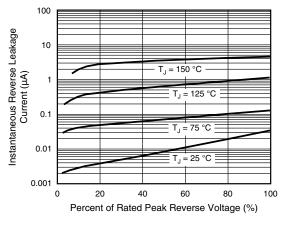
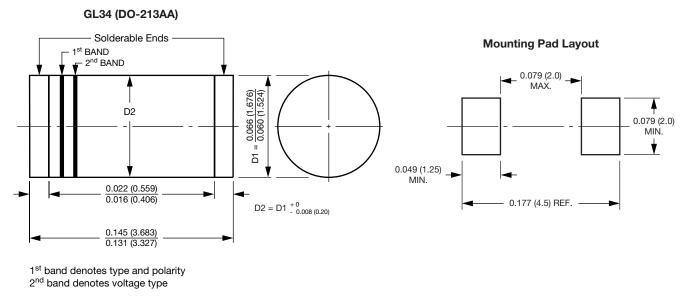


Fig. 4 - Typical Reverse Characteristics



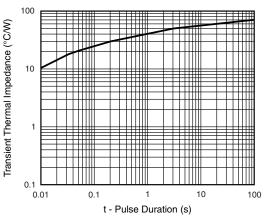


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Reverse Voltage (V)

Fig. 5 - Typical Junction Capacitance

Fig. 6 - Typical Transient Thermal Impedance



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