

## Surface Mount Glass Passivated Ultrafast Rectifier

### SUPERECTIFIER®



DO-213AA (GL34)

### 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 environmental standard MIL-S-19500
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- 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.

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	0.5 A
$V_{RRM}$	50 V to 400 V
$I_{FSM}$	10 A
$t_{rr}$	50 ns
$V_F$	1.25 V, 1.35 V
$T_J \text{ max.}$	175 °C

### MECHANICAL DATA

**Case:** DO-213AA, 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:** Two bands indicate cathode end - 1<sup>st</sup> band denotes device type and 2<sup>nd</sup> band denotes repetitive peak reverse voltage rating

### MAXIMUM RATINGS ( $T_A = 25$ °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	$V_{RRM}$	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 at $T_T = 75$ °C	$I_{F(AV)}$	0.5						A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	10						A
Maximum full load reverse current, full cycle average at $T_A = 55$ °C	$I_{R(AV)}$	50						μA
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175						°C

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONS	SYMBOL	BYM07-50	BYM07-100	BYM07-150	BYM07-200	BYM07-300	BYM07-400	UNIT
			EGL34A	EGL34B	EGL34C	EGL34D	EGL34F	EGL34G	
Maximum DC reverse current at rated DC blocking voltage	T <sub>A</sub> = 25 °C	I <sub>R</sub> <sup>(1)</sup>	5.0						μA
	T <sub>A</sub> = 125 °C		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 <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>	7.0						pF

**Note**

<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °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>θJA</sub> <sup>(1)</sup>	150						°C/W
	R <sub>θJT</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
EGL34DHE3/98 <sup>(1)</sup>	0.036	98	2500	7" diameter plastic tape and reel
EGL34DHE3/83 <sup>(1)</sup>	0.036	83	9000	13" diameter plastic tape and reel

**Note**

<sup>(1)</sup> AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

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

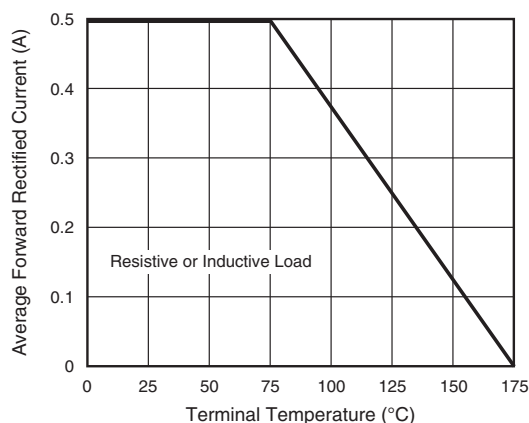


Fig. 1 - Forward Current Derating Curve

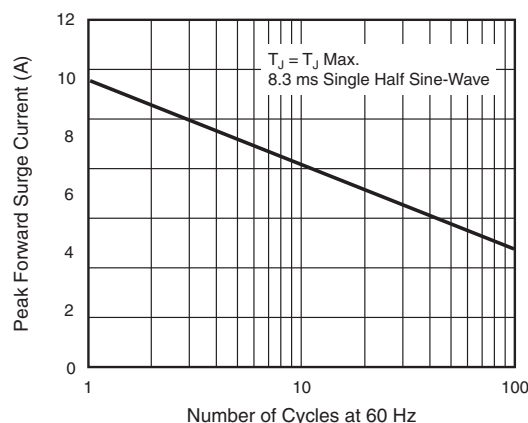


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

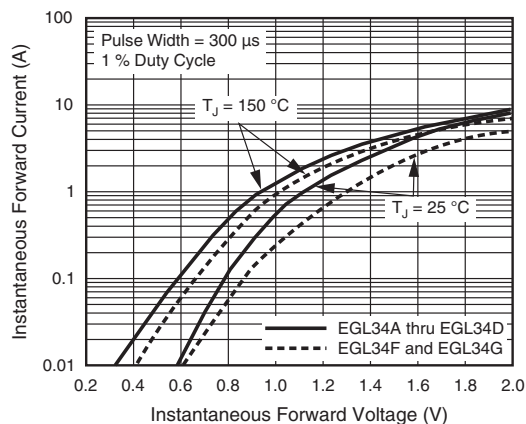


Fig. 3 - Typical Instantaneous Forward Characteristics

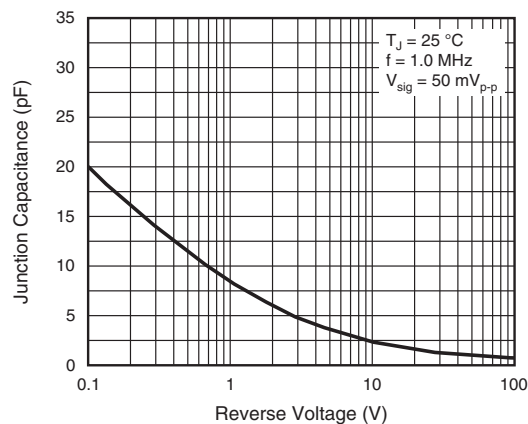


Fig. 5 - Typical Junction Capacitance

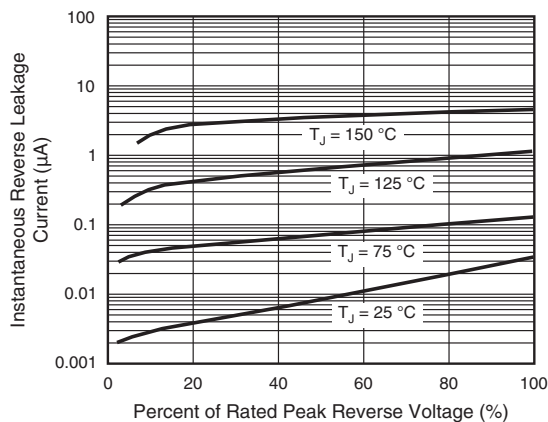


Fig. 4 - Typical Reverse Characteristics

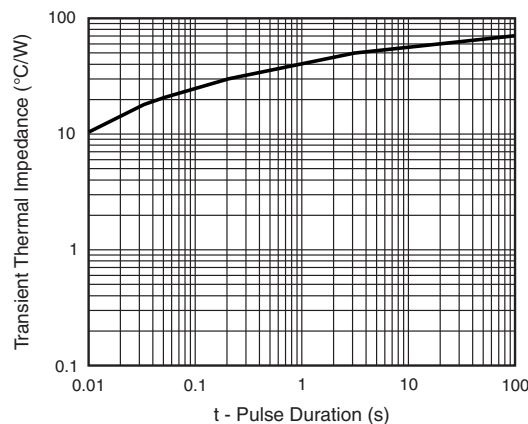
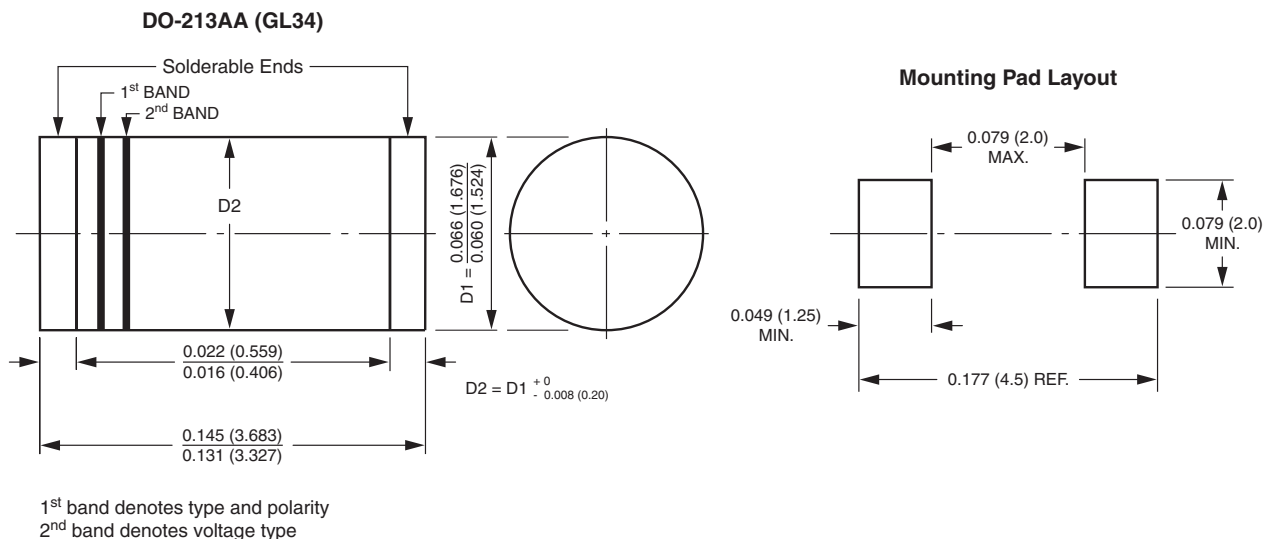


Fig. 6 - Typical Transient Thermal Impedance

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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