

## Surface Mount Glass Passivated Ultrafast Rectifier

**Superrectifier®**

**GL41 (DO-213AB)**

### FEATURES

- Superrectifier structure for high reliability condition
- Cavity-free glass-passivated junction
- Ideal for automated placement
- Ultrafast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- AEC-Q101 qualified
  - Automotive ordering code: base P/NHE3
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**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.

### MECHANICAL DATA

**Case:** GL41 (DO-213AB), 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\_X - RoHS-compliant and AEC-Q101 qualified ("X" denotes revision code e.g. A, B, ...)

**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

PRIMARY CHARACTERISTICS	
I <sub>F(AV)</sub>	1.0 A
V <sub>RRM</sub>	50 V to 400 V
I <sub>FSM</sub>	30 A
t <sub>rr</sub>	50 ns
V <sub>F</sub>	1.0 V, 1.25 V
T <sub>J</sub> max.	175 °C
Package	GL41 (DO-213AB)
Diode variations	Single

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)								UNIT
PARAMETER	SYMBOL	BYM12-50	BYM12-100	BYM12-150	BYM12-200	BYM12-300	BYM12-400	
FAST EFFICIENT DEVICE: 1 <sup>ST</sup> BAND IS GREEN		EGL41A	EGL41B	EGL41C	EGL41D	EGL41F	EGL41G	
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 <sub>T</sub> = 75 °C	I <sub>F(AV)</sub>	1.0						A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	30						A
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +175						°C

ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)									
PARAMETER	TEST CONDITIONS	SYMBOL	BYM12-50	BYM12-100	BYM12-150	BYM12-200	BYM12-300	BYM12-400	UNIT
			EGL41A	EGL41B	EGL41C	EGL41D	EGL41F	EGL41G	
Max. instantaneous forward voltage	1.0 A	$V_F$ <sup>(1)</sup>			1.0		1.25		V
Max. DC reverse current at rated DC blocking voltage	$T_A = 25^\circ\text{C}$	$I_R$ <sup>(1)</sup>			5.0				$\mu\text{A}$
	$T_A = 125^\circ\text{C}$				50				
Max. reverse recovery time	$I_F = 0.5 \text{ A}$ , $I_R = 1.0 \text{ A}$ , $I_{rr} = 0.25 \text{ A}$	$t_{rr}$			50				ns
Typical junction capacitance	4.0 V, 1 MHz	$C_J$			20		14		pF

**Note**

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

THERMAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)								
PARAMETER	SYMBOL	BYM12-50	BYM12-100	BYM12-150	BYM12-200	BYM12-300	BYM12-400	UNIT
		EGL41A	EGL41B	EGL41C	EGL41D	EGL41F	EGL41G	
Maximum thermal resistance	$R_{\theta JA}$ <sup>(1)</sup>			60				$^\circ\text{C/W}$
	$R_{\theta JT}$ <sup>(2)</sup>			30				

**Notes**

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

(2) 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
EGL41D-E3/96	0.114	96	1500	7" diameter plastic tape and reel
EGL41D-E3/97	0.114	97	5000	13" diameter plastic tape and reel
EGL41DHE3_A/I <sup>(1)</sup>	0.114	I	5000	13" diameter plastic tape and reel

**Note**

(1) AEC-Q101 qualified

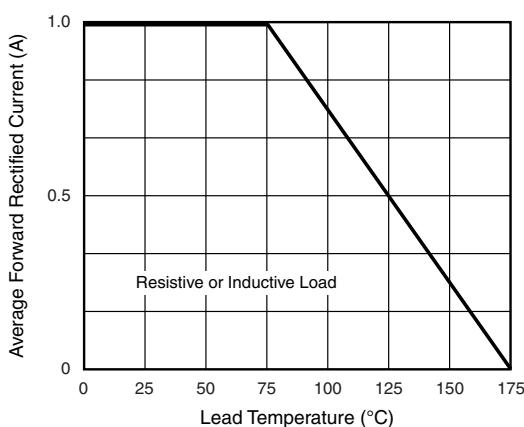
**RATINGS AND CHARACTERISTICS CURVES ( $T_A = 25^\circ\text{C}$  unless otherwise noted)**


Fig. 1 - Maximum Forward Current Derating Curve

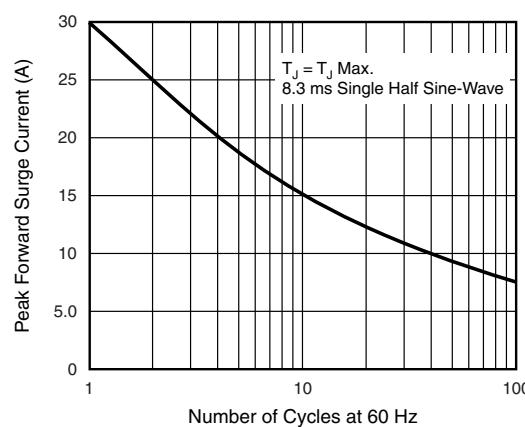


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

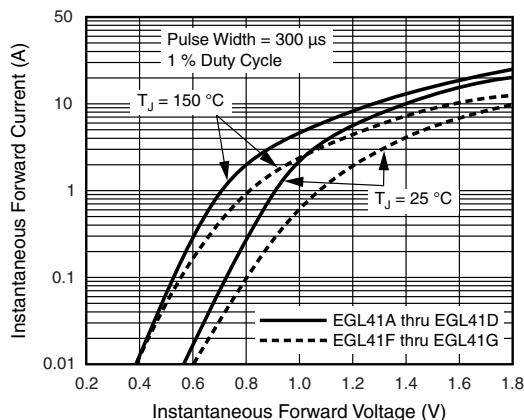


Fig. 3 - Typical Instantaneous Forward Characteristics

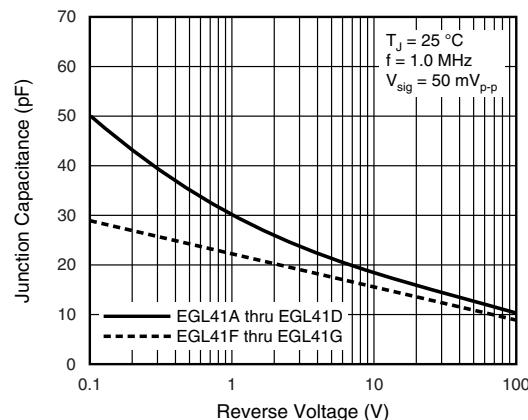


Fig. 5 - Typical Junction Capacitance

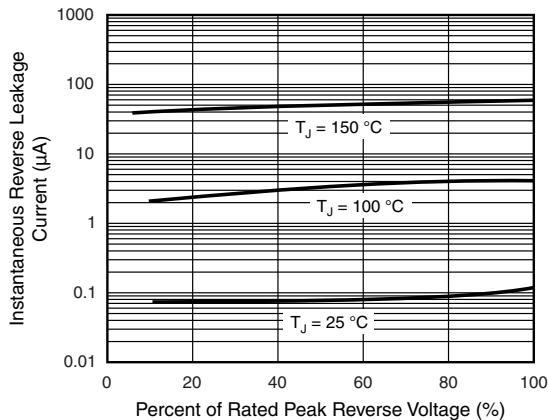


Fig. 4 - Typical Reverse Leakage Characteristics

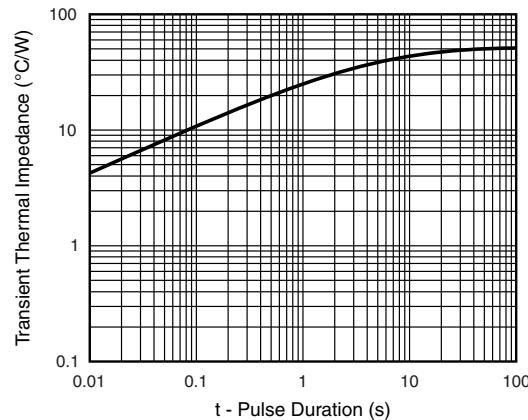
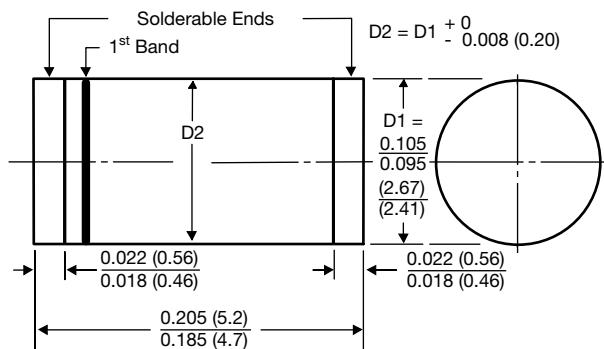


Fig. 6 - Typical Transient Thermal Impedance

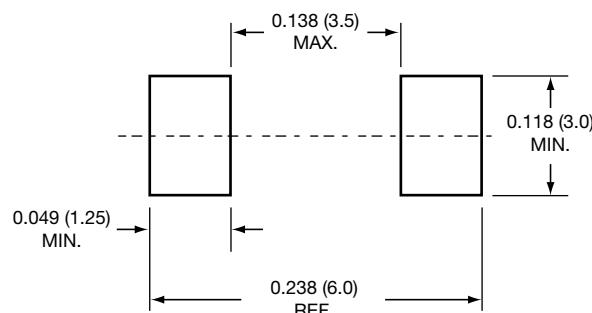
## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### GL41 (DO-213AB)



1<sup>st</sup> band denotes type and positive end (cathode)

### Mounting Pad Layout



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