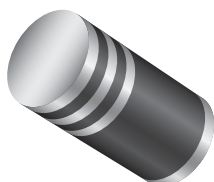


## Surface Mount Schottky Barrier Rectifier



DO-213AB

### FEATURES

- MELF Schottky rectifier
- Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- AEC-Q101 qualified
- 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 low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications

### MECHANICAL DATA

**Case:** DO-213AB

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 2<sup>nd</sup> band denotes voltage type

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	1.0 A
$V_{RRM}$	20 V to 60 V
$I_{FSM}$	30 A
$V_F$	0.50 V, 0.70 V
$T_J$ max.	125 °C, 150 °C

MAXIMUM RATINGS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	BYM13-20	BYM13-30	BYM13-40	BYM13-50	BYM13-60	UNIT
DENOTES SCHOTTKY DEVICES: 1 <sup>st</sup> BAND IS ORANGE		SGL41-20	SGL41-30	SGL41-40	SGL41-50	SGL41-60	
Polarity color bands (2 <sup>nd</sup> band) voltage type		Gray	Red	Orange	Yellow	Green	
Maximum repetitive peak reverse voltage	V <sub>RRM</sub>	20	30	40	50	60	V
Maximum RMS voltage	V <sub>RMS</sub>	14	21	28	35	42	V
Maximum DC blocking voltage	V <sub>DC</sub>	20	30	40	50	60	V
Maximum average forward rectified current (fig. 1)	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
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000					V/μs
Operating junction temperature range	T <sub>J</sub>	- 55 to + 125			- 55 to + 150		°C
Storage temperature range	T <sub>STG</sub>	- 55 to + 150					°C



ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONS		SYMBOL	BYM13-20	BYM13-30	BYM13-40	BYM13-50	BYM13-60	UNIT
				SGL41-20	SGL41-30	SGL41-40	SGL41-50	SGL41-60	
Maximum instantaneous forward voltage <sup>(1)</sup>	1.0 A		V <sub>F</sub>	0.50			0.70		V
Maximum reverse current at rated DC blocking voltage <sup>(1)</sup>		T <sub>A</sub> = 25 °C	I <sub>R</sub>	0.5					mA
		T <sub>A</sub> = 100 °C		10			5.0		
Typical junction capacitance	4.0 V, 1.0 MHz		C <sub>J</sub>	110			80		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	BYM13-20	BYM13-30	BYM13-40	BYM13-50	BYM13-60	UNIT	
		SGL41-20	SGL41-30	SGL41-40	SGL41-50	SGL41-60		
Maximum thermal resistance <sup>(1)</sup>	R <sub>θJA</sub>	75					°C/W	
	R <sub>θJT</sub>	30						

**Note**

<sup>(1)</sup> Thermal resistance 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
SGL41-40-E3/96	0.137	96	1500	7" diameter plastic tape and reel
SGL41-40-E3/97	0.137	97	5000	13" diameter plastic tape and reel
BYM13-40-E3/96	0.137	96	1500	7" diameter plastic tape and reel
BYM13-40-E3/97	0.137	97	5000	13" diameter plastic tape and reel
SGL41-40HE3/96 <sup>(1)</sup>	0.137	96	1500	7" diameter plastic tape and reel
SGL41-40HE3/97 <sup>(1)</sup>	0.137	97	5000	13" diameter plastic tape and reel
BYM13-40HE3/96 <sup>(1)</sup>	0.137	96	1500	7" diameter plastic tape and reel
BYM13-40HE3/97 <sup>(1)</sup>	0.137	97	5000	13" diameter plastic tape and reel

**Note**

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

## RATINGS AND CHARACTERISTICS CURVES

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

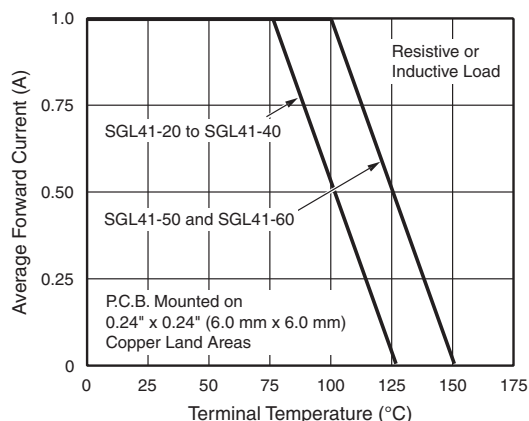


Fig. 1 - Forward Current Derating Curve

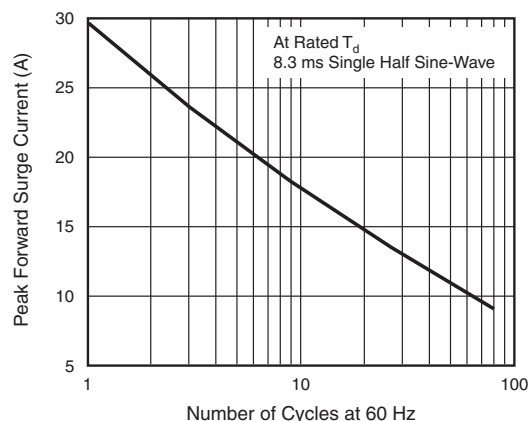


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

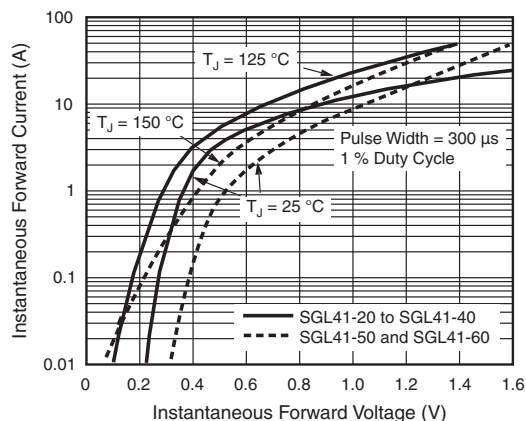


Fig. 3 - Typical Instantaneous Forward Characteristics

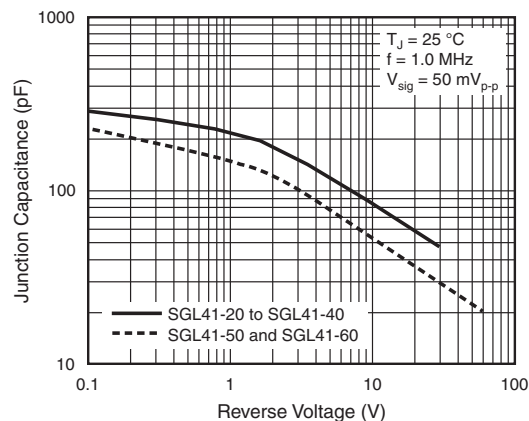


Fig. 4 - Typical Junction Capacitance

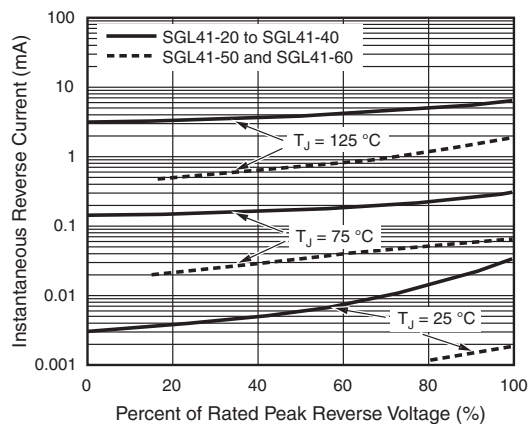
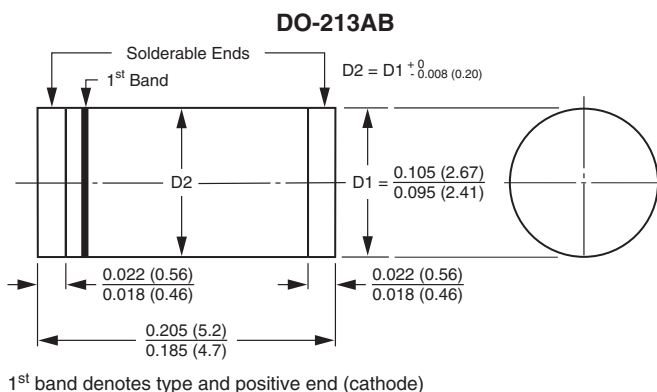
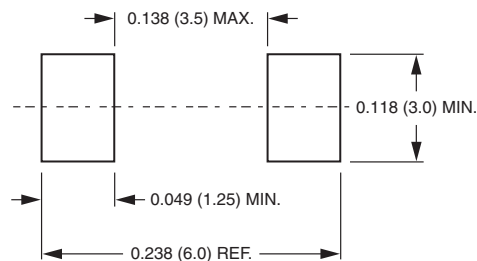


Fig. 2 - Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



## Mounting Pad Layout





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