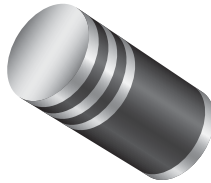


## Surface Mount Schottky Barrier Rectifier


**DO-213AB**

**RoHS**  
COMPLIANT

### 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)

### 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
$T_J \text{ max.}$	125 °C, 150 °C
Package	DO-213AB
Diode variations	Single

MAXIMUM RATINGS ( $T_A = 25 \text{ }^\circ\text{C}$ unless otherwise noted)							
PARAMETER	SYMBOL	BYM13-20	BYM13-30	BYM13-40	BYM13-50	BYM13-60	UNIT
<b>DENOTES SCHOTTKY DEVICES: 1<sup>st</sup> BAND IS ORANGE</b>		<b>SGL41-20</b>	<b>SGL41-30</b>	<b>SGL41-40</b>	<b>SGL41-50</b>	<b>SGL41-60</b>	
Polarity color bands (2 <sup>nd</sup> band) voltage type		Gray	Red	Orange	Yellow	Green	
Maximum repetitive peak reverse voltage	$V_{RRM}$	20	30	40	50	60	V
Maximum RMS voltage	$V_{RMS}$	14	21	28	35	42	V
Maximum DC blocking voltage	$V_{DC}$	20	30	40	50	60	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	1.0					A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	30					A
Voltage rate of change (rated $V_R$ )	dV/dt	10 000					V/ $\mu$ s
Operating junction temperature range	$T_J$	- 55 to + 125			- 55 to + 150		°C
Storage temperature range	$T_{STG}$	- 55 to + 150					°C



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ 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	$V_F$	0.50	0.50	0.50	0.70	0.70	V
Maximum reverse current at rated DC blocking voltage <sup>(1)</sup>	$T_A = 25\text{ }^\circ\text{C}$	$I_R$	0.5					mA
	$T_A = 100\text{ }^\circ\text{C}$		10		5.0			
Typical junction capacitance	4.0 V, 1.0 MHz	$C_J$	110			80		pF

**Note**

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

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ 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>	$R_{\theta JA}$	75					$^\circ\text{C/W}$
	$R_{\theta JT}$	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

<b>ORDERING INFORMATION</b> (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**

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

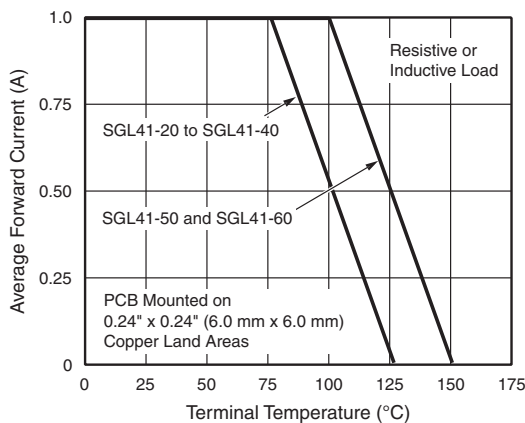


Fig. 1 - Forward Current Derating Curve

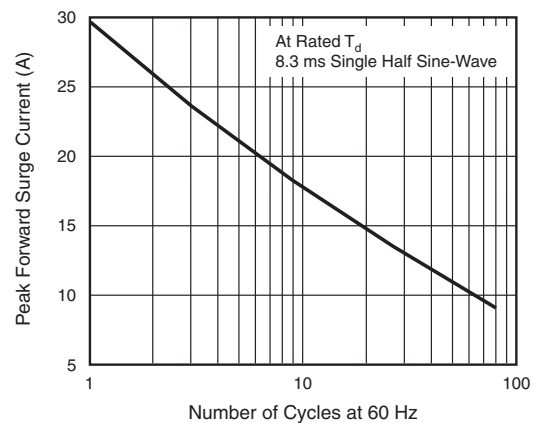


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

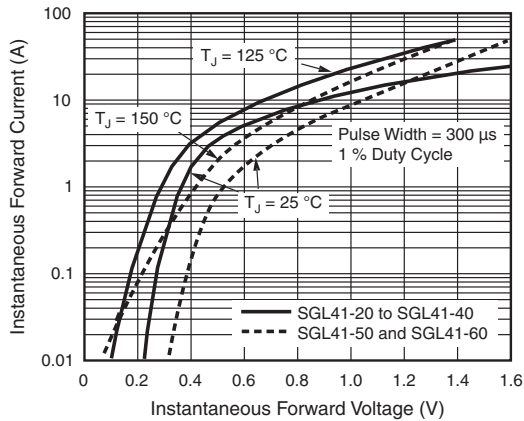


Fig. 3 - Typical Instantaneous Forward Characteristics

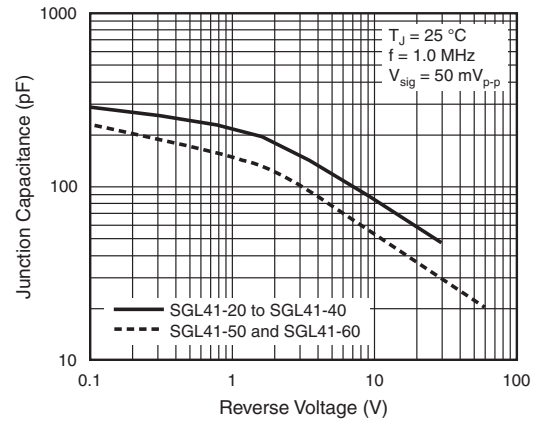


Fig. 5 - Typical Junction Capacitance

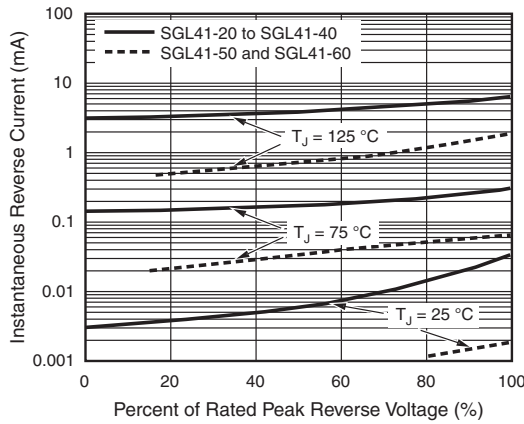
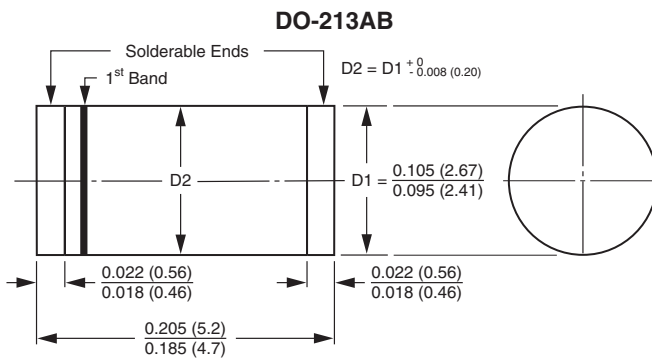


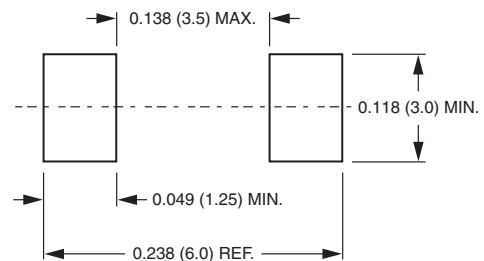
Fig. 4 - Typical Reverse Characteristics

**PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)



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

**Mounting Pad Layout**





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