



## 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-020C, LF max peak of 250 °C
- Solder Dip 260 °C, 40 seconds
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### TYPICAL APPLICATIONS

For use in low voltage high frequency inverters, free-wheeling, dc-to-dc converters, and polarity protection applications

### MECHANICAL DATA

**Case:** DO-213AB

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002B and JESD22-B102D

E3 suffix for commercial grade, HE3 suffix for high reliability grade (AEC Q101 qualified)

**Polarity:** Two bands indicate cathode end 1st band denotes device type 2nd band denotes voltage type

MAJOR RATINGS AND 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

MAXIMUM RATINGS ( $T_A = 25 \text{ °C}$ unless otherwise noted)							
PARAMETER	SYMBOL	BYM13-20	BYM13-30	BYM13-40	BYM13-50	BYM13-60	UNIT
Denotes Schottky devices: 1st band is orange		<b>SGL41-20</b>	<b>SGL41-30</b>	<b>SGL41-40</b>	<b>SGL41-50</b>	<b>SGL41-60</b>	
Polarity color bands (2nd 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 (see Fig.)	$I_{F(AV)}$	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 $V_R$ )	$dv/dt$	10000					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

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>	at 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 T <sub>A</sub> = 100 °C	I <sub>R</sub>	0.5					mA
			10		5.0			
Typical junction capacitance	at 4.0 V, 1.0 MHz	C <sub>J</sub>	110			80		pF

**Note:**

(1) Pulse test: 300 μs 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:**

(1) Thermal resistance junction to terminal, 0.24 x 0.24" (6.0 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	0.114	96	1500	7" Diameter Plastic Tape & Reel
SGL41-40-E3/97	0.114	97	5000	13" Diameter Plastic Tape & Reel
BYM13-40-E3/96	0.114	96	1500	7" Diameter Plastic Tape & Reel
BYM13-40-E3/97	0.114	97	5000	13" Diameter Plastic Tape & Reel
SGL41-40HE3/96 <sup>(1)</sup>	0.114	96	1500	7" Diameter Plastic Tape & Reel
SGL41-40HE3/97 <sup>(1)</sup>	0.114	97	5000	13" Diameter Plastic Tape & Reel
BYM13-40HE3/96 <sup>(1)</sup>	0.114	96	1500	7" Diameter Plastic Tape & Reel
BYM13-40HE3/97 <sup>(1)</sup>	0.114	97	5000	13" Diameter Plastic Tape & Reel

**Note:**

(1) Automotive grade AEC Q101 qualified

## RATINGS AND CHARACTERISTICS CURVES

(T<sub>A</sub> = 25 °C unless otherwise noted)

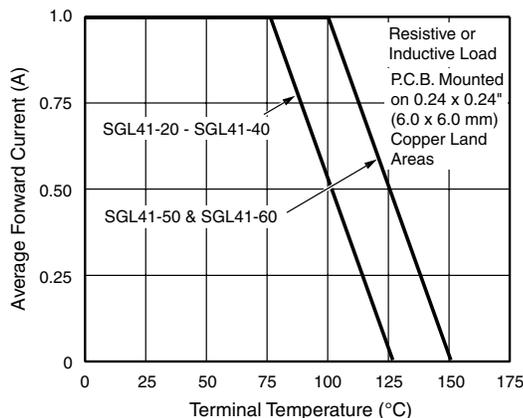


Figure 1. Forward Current Derating Curve

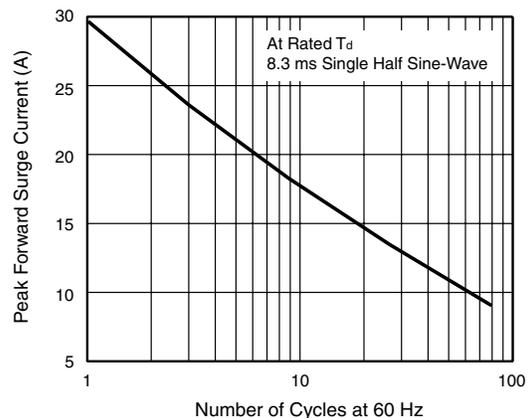


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

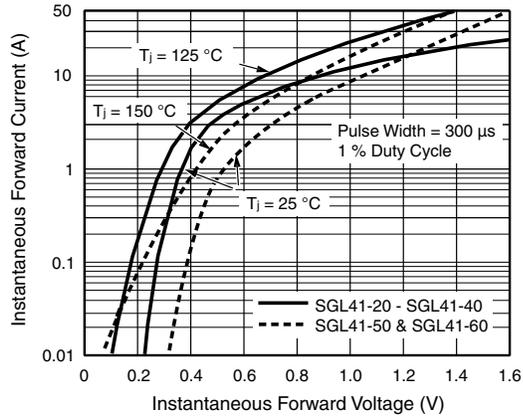


Figure 3. Typical Instantaneous Forward Characteristics

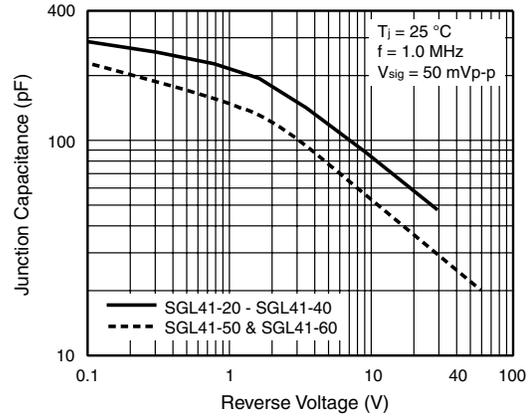


Figure 5. Typical Junction Capacitance

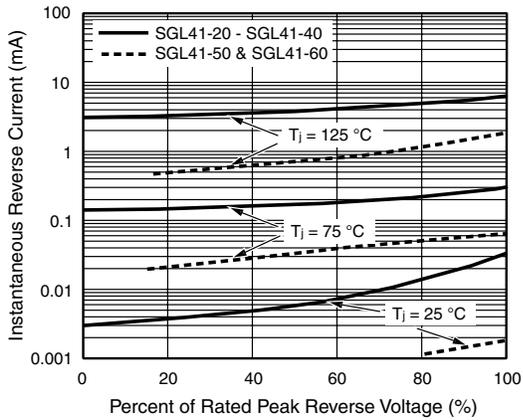
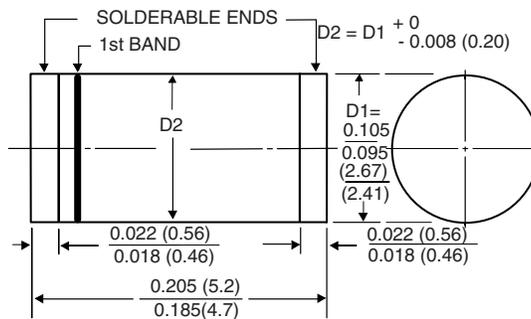


Figure 4. Typical Reverse Characteristics

## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

### DO-213AB



1st band denotes type and positive end (cathode)



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