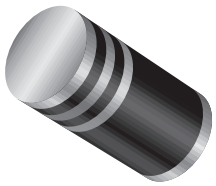
Surface Mount Schottky Barrier Rectifier



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
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS COMPLIANT

TYPICAL APPLICATIONS

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

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

MECHANICAL DATA

Case: DO-213AB

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

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

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	BYM13-20	BYM13-30	BYM13-40	BYM13-50	BYM13-60	UNIT
Denotes Schottky devices: 1st band is orange		SGL41-20	SGL41-30	SGL41-40	SGL41-50	SGL41-60	
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 (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/µs
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_A = 25 °C unless otherwise noted)									
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**BYM13-20** / **SGL41-20**	**BYM13-30** / **SGL41-30**	**BYM13-40** / **SGL41-40**	**BYM13-50** / **SGL41-50**	**BYM13-60** / **SGL41-60**	**UNIT**
Maximum instantaneous forward voltage (1)	1.0 A		V_F	0.50			0.70		V
Maximum reverse current at rated DC blocking voltage (1)		T_A = 25 °C	I_R	0.5					mA
		T_A = 100 °C		10			5.0		
Typical junction capacitance	4.0 V, 1.0 MHz		C_J	110			80		pF

Note:

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)								
PARAMETER	**SYMBOL**	**BYM13-20** / **SGL41-20**	**BYM13-30** / **SGL41-30**	**BYM13-40** / **SGL41-40**	**BYM13-50** / **SGL41-50**	**BYM13-60** / **SGL41-60**	**UNIT**
Maximum thermal resistance (1)	$R_{\theta JA}$ $R_{\theta JT}$	75 30					°C/W

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	0.137	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 (1)	0.137	96	1500	7" diameter plastic tape and reel
SGL41-40HE3/97 (1)	0.137	97	5000	13" diameter plastic tape and reel
BYM13-40HE3/96 (1)	0.137	96	1500	7" diameter plastic tape and reel
BYM13-40HE3/97 (1)	0.137	97	5000	13" diameter plastic tape and reel

Note:

(1) Automotive grade AEC Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

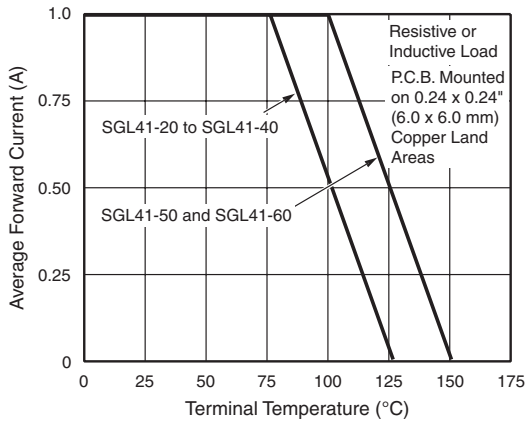


Figure 1. Forward Current Derating Curve

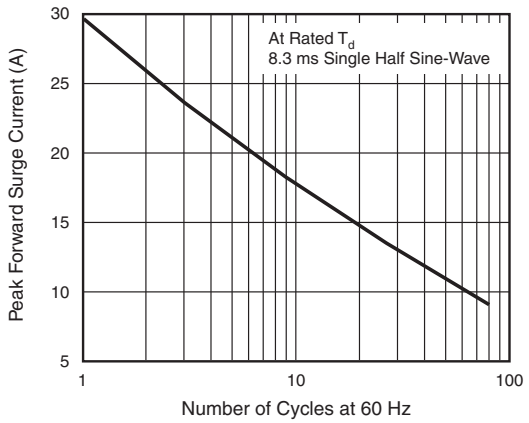


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

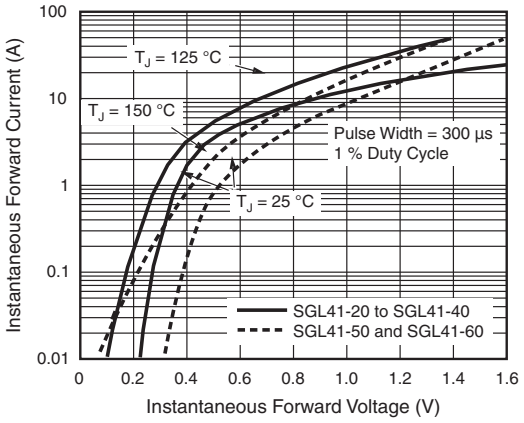


Figure 3. Typical Instantaneous Forward Characteristics

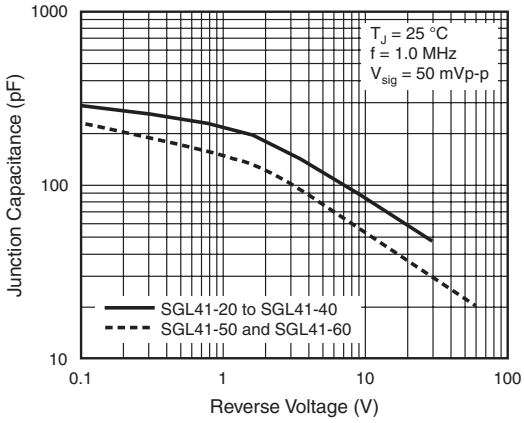


Figure 5. Typical Junction Capacitance

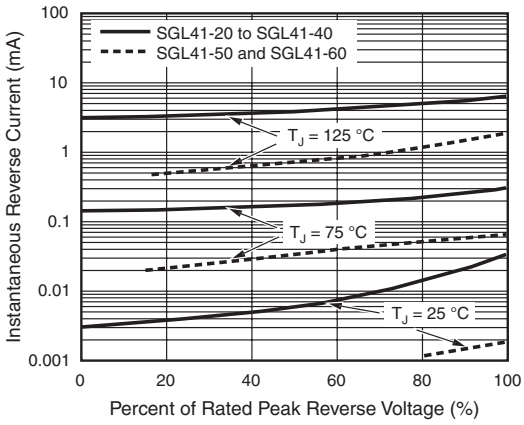
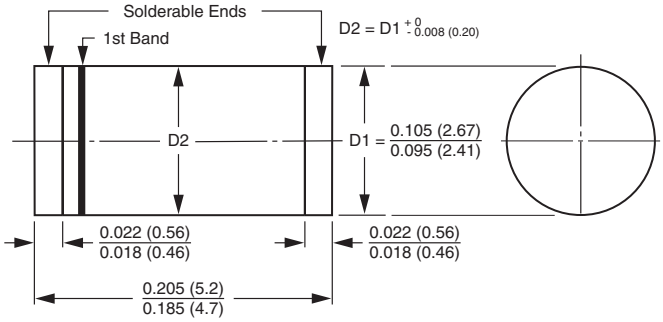


Figure 4. Typical Reverse Characteristics

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-213AB



1st band denotes type and positive end (cathode)

Mounting Pad Layout