Vishay General Semiconductor

Surface Mount Schottky Barrier Rectifier



DO-213AB

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					
Package	DO-213AB					
Diode variations	Single					

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 gualified
- · Material categorization: For definitions of compliance please see 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 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: 1 st BAND IS ORANGE		SGL41-20	SGL41-30	SGL41-40	SGL41-50	SGL41-60		
Polarity color bands (2 nd 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					Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I _{FSM}	30					А	
Voltage rate of change (rated V _R)	dV/dt	10 000 V/					V/µs	
Operating junction temperature range	TJ	- 55 to + 125 - 55 to + 150 °					°C	
Storage temperature range	T _{STG}	- 55 to + 150 °C					°C	

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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)									
DADAMETED			SYMBOL	BYM13-20	BYM13-30	BYM13-40	BYM13-50	BYM13-60	
PARAMETER TEST CONDITIONS		STNIBOL	SGL41-20	SGL41-30	SGL41-40	SGL41-50	SGL41-60	UNIT	
Maximum instantaneous forward voltage ⁽¹⁾	1.0 A		V _F	0.50	0.50	0.50	0.70	0.70	V
Maximum reverse	T _A = 25 °C		_	0.5					
current at rated DC blocking voltage ⁽¹⁾		T _A = 100 °C	I _R		10		5	.0	mA
Typical junction capacitance	4.0 V, 1.0) MHz	CJ	110		80		pF	

Note

 $^{(1)}\,$ Pulse test: 300 μs pulse width, 1 % duty cycle

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

Note

⁽¹⁾ 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 (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) AEC-Q101 gualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

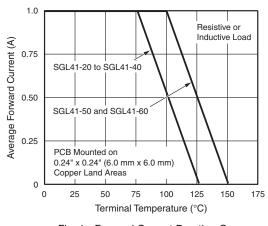


Fig. 1 - Forward Current Derating Curve

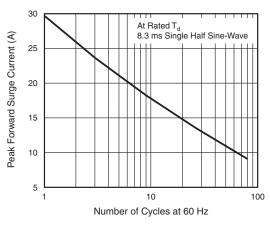


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

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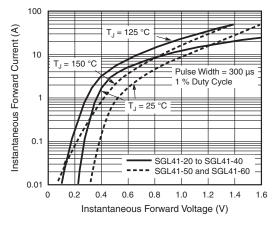


Fig. 3 - Typical Instantaneous Forward Characteristics

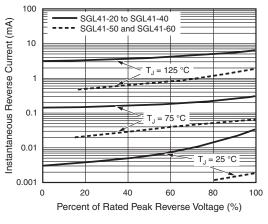
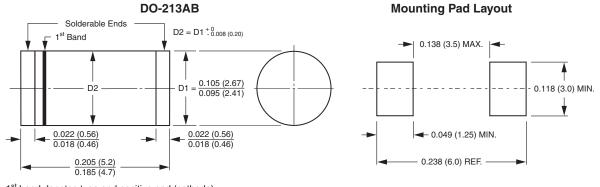


Fig. 4 - Typical Reverse Characteristics





1st band denotes type and positive end (cathode)

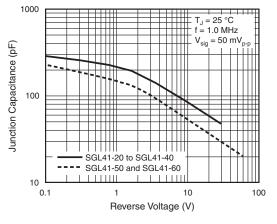


Fig. 5 - Typical Junction Capacitance

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