Surface-Mount TMBS® (Trench MOS Barrier Schottky) Rectifier

SMC (DO-214AB)

Cathode ○—▶|—○ Anode

FEATURES

- Low profile package
- Ideal for automated placement
- Trench MOS Schottky technology
- Low power losses, high efficiency
- Low forward voltage drop
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT
HALOGEN FREE

LINKS TO ADDITIONAL RESOURCES

3D Models

TYPICAL APPLICATIONS

For use in high frequency converters, freewheeling diodes, DC/DC converters and polarity protection applications.

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	8.0 A
V_{RRM}	45 V
I_{FSM}	140 A
V_F at I_F = 8.0 A (T_A = 125 °C)	0.39 V
T_J max.	150 °C
Package	SMC (DO-214AB)
Circuit configuration	Single

MECHANICAL DATA

Case: SMC (DO-214AB)
Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free and RoHS-compliant, commercial grade

Terminals: matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
M3 suffix meets JESD 201 class 2 whisker test

Polarity: color band denotes the cathode end

MAXIMUM RATINGS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VSSC8L45**	**UNIT**
Device marking code		8L45	
Maximum repetitive peak reverse voltage	V_{RRM}	45	V
Maximum DC forward current	I_F (1)	8.0	A
	I_F (2)	4.9	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	140	A
Operating junction and storage temperature range	T_J, T_{STG}	-40 to +150	°C

Notes
(1) Units mounted on 3 cm x 3 cm Aluminum, 2 oz. PCB
(2) Free air, mounted on recommended copper pad area

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)						
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Instantaneous forward voltage	I_F = 4.0 A	T_A = 25 °C	V_F (1)	0.42	-	V
	I_F = 8.0 A			0.48	0.56	
	I_F = 4.0 A	T_A = 125 °C		0.32	-	
	I_F = 8.0 A			0.39	0.48	
Reverse current	V_R = 45 V	T_A = 25 °C	I_R (2)	-	1.85	mA
		T_A = 125 °C		13	40	
Typical junction capacitance	4.0 V, 1 MHz		C_J	1216	-	pF

Notes

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

(2) Pulse test: Pulse width ≤ 5 ms

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)			
PARAMETER	**SYMBOL**	**VSSC8L45**	**UNIT**
Typical thermal resistance	$R_{\theta JA}$ (1)	70	°C/W
	$R_{\theta JM}$ (2)	8	

Notes

(1) Free air, mounted on recommended PCB 2 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient

(2) Units mounted on 3 cm x 3 cm Aluminum, 2 oz. pad area; thermal resistance $R_{\theta JM}$ - junction to mount

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
VSSC8L45-M3/57T	0.235	57T	850	7" diameter plastic tape and reel
VSSC8L45-M3/9AT	0.235	9AT	3500	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

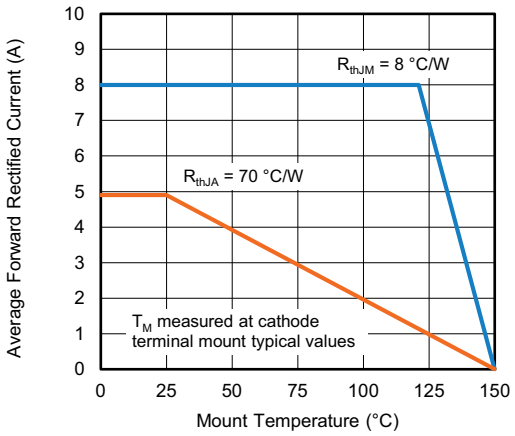


Fig. 1 - Maximum Forward Current Derating Curve

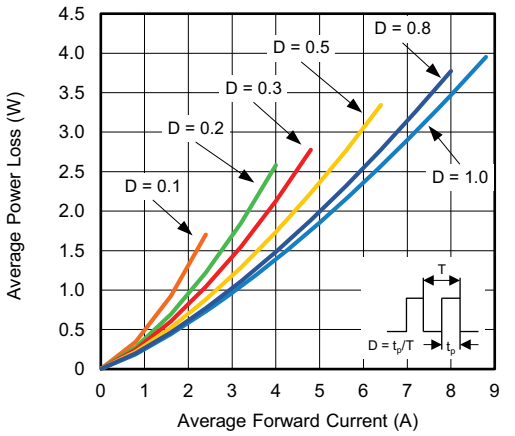


Fig. 2 - Forward Power Loss Characteristics

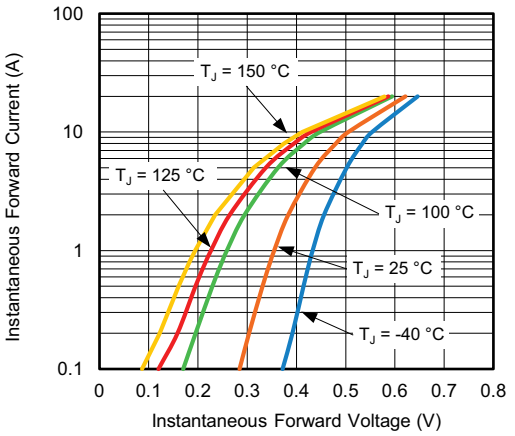


Fig. 3 - Typical Instantaneous Forward Characteristics

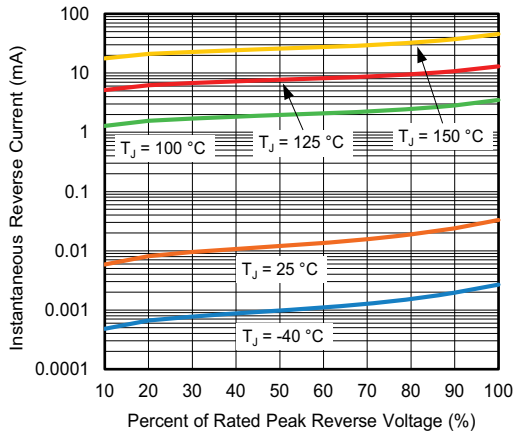


Fig. 4 - Typical Reverse Characteristics

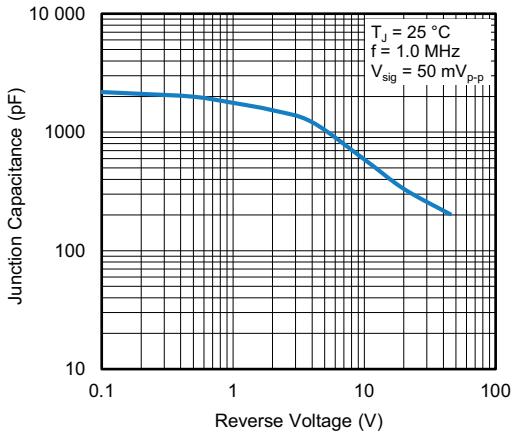


Fig. 5 - Typical Junction Capacitance

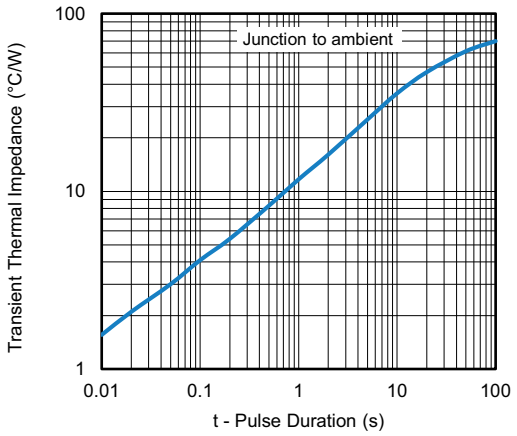
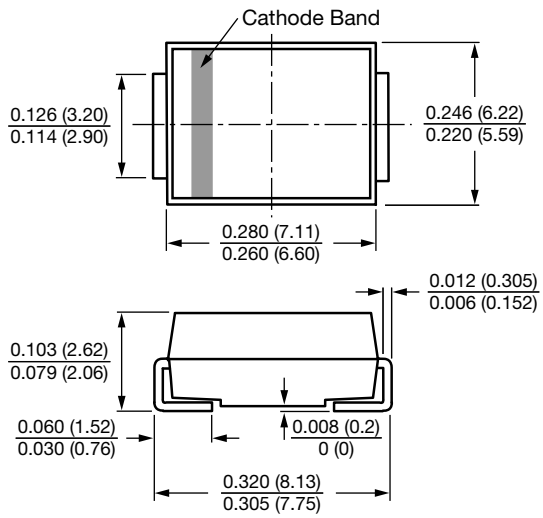


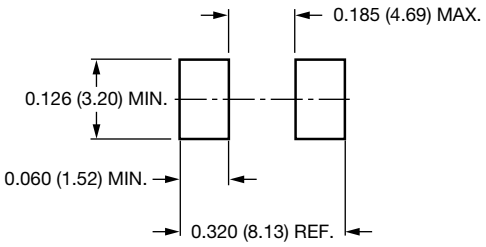
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

SMC (DO-214AB)



Mounting Pad Layout



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