

# Surface-Mount TMBS<sup>®</sup> (Trench MOS Barrier Schottky) Rectifier



SMC (DO-214AB)



## 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](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

## LINKS TO ADDITIONAL RESOURCES


[3D Models](#)

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

## TYPICAL APPLICATIONS

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

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

PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 4.0\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.42	-	V
	$I_F = 8.0\text{ A}$			0.48	0.56	
	$I_F = 4.0\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$	0.32	-		
	$I_F = 8.0\text{ A}$		0.39	0.48		
Reverse current	$V_R = 45\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	-	1.85	mA
		$T_A = 125\text{ }^\circ\text{C}$		13	40	
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	1216	-	pF	

**Notes**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle(2) Pulse test: Pulse width  $\leq 5\text{ ms}$ **THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

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

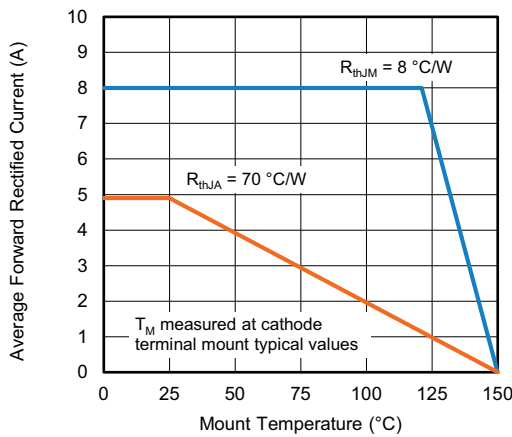


Fig. 1 - Maximum Forward Current Derating Curve

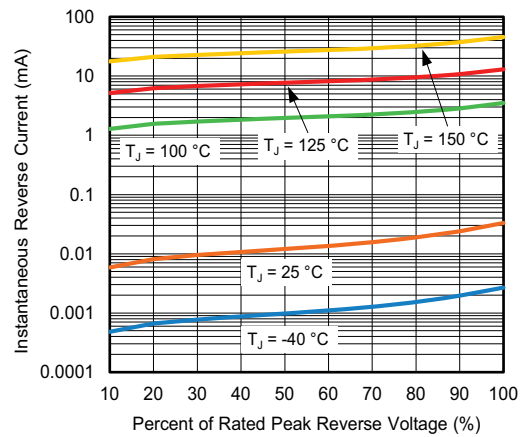


Fig. 4 - Typical Reverse Characteristics

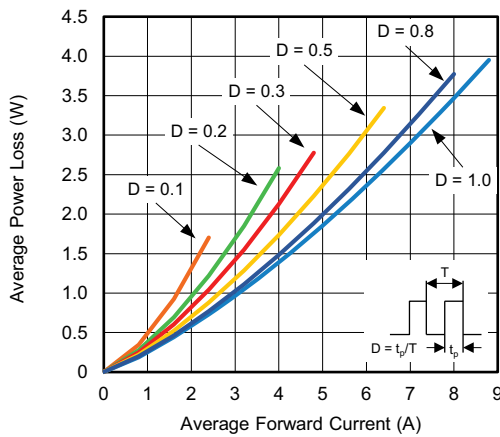


Fig. 2 - Forward Power Loss Characteristics

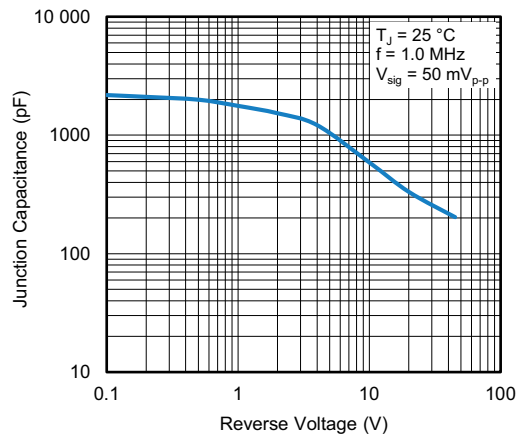


Fig. 5 - Typical Junction Capacitance

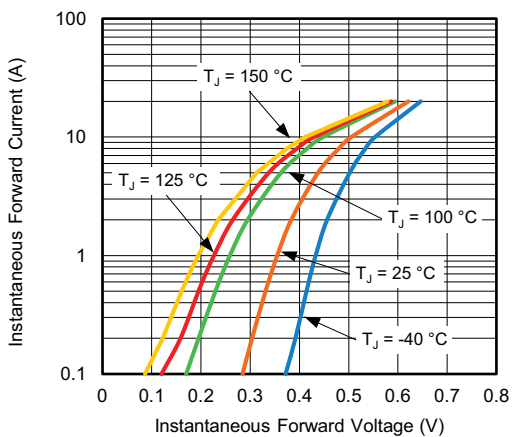


Fig. 3 - Typical Instantaneous Forward Characteristics

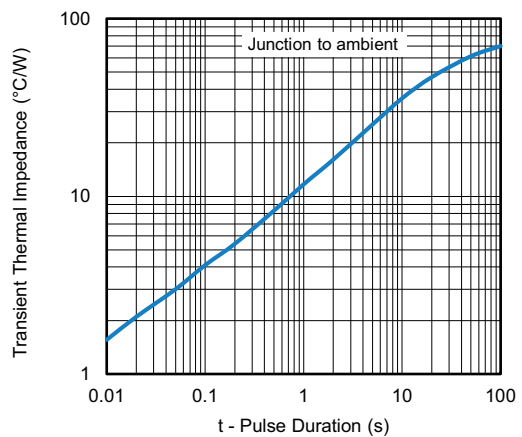
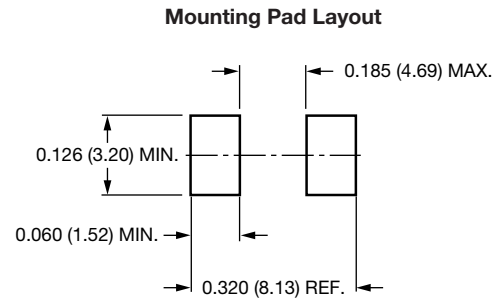
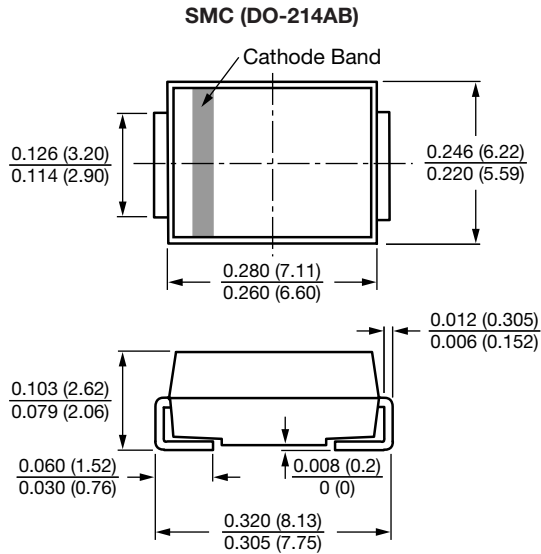


Fig. 6 - Typical Transient Thermal Impedance



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





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