

Vishay General Semiconductor

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



SMC (DO-214AB)

Cathode O Anode

LINKS TO ADDITIONAL RESOURCES



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			

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 <u>www.vishay.com/doc?99912</u>

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 ($T_A = 25 \text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	VSSC8L45	UNIT	
Device marking code		8L45		
Maximum repetitive peak reverse voltage	V _{RRM}	45	V	
Maximum DC fanward aureant	I _F ⁽¹⁾	8.0	— A	
Maximum DC forward current	I _F ⁽²⁾	4.9		
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I _{FSM}	140	А	
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



VSSC8L45-M3



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ELECTRICAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ 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 _B = 45 V	T _A = 25 °C	I _R ⁽²⁾	-	1.85	
	$v_{\rm R} = 45 \text{ v}$ $T_{\rm A} = 125 \text{ °C}$	IR (=/	13	40	mA	
Typical junction capacitance	4.0 V, 1 MHz		CJ	1216	-	pF

Notes

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

 $^{(2)}$ Pulse test: Pulse width $\leq 5~ms$

THERMAL CHARACTERISTICS ($T_A = 25 \text{ °C}$ unless otherwise noted)				
ARAMETER SYMBOL		VSSC8L45	UNIT	
Typical thermal resistance	R _{0JA} ⁽¹⁾	70	°C/W	
	R _{0JM} ⁽²⁾	8	0/10	

Notes

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

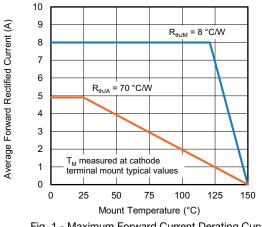
 $^{(2)}$ Units mounted on 3 cm x 3 cm Aluminum, 2 oz. pad area; thermal resistance $R_{\theta,M}$ - junction to mount

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	

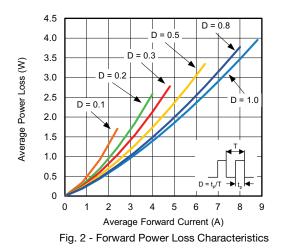


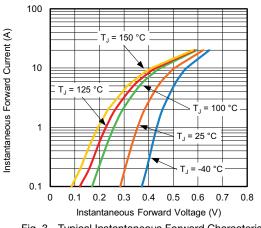
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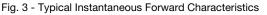
RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

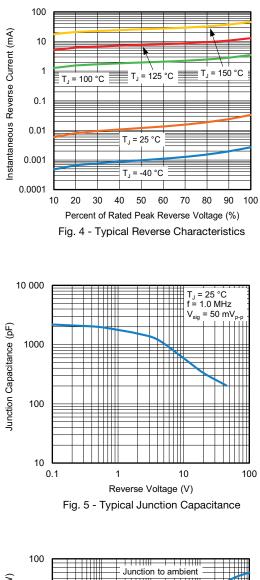












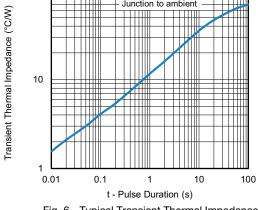


Fig. 6 - Typical Transient Thermal Impedance

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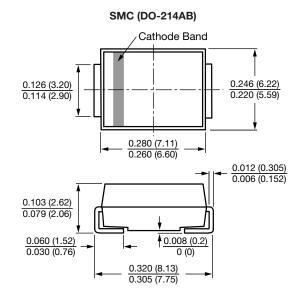
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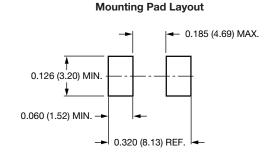
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)







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