

Surface Mount Trench MOS Barrier Schottky Rectifier


DO-214AB (SMC)

RoHS
 COMPLIANT
 HALOGEN
FREE
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

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: DO-214AB (SMC)

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

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	DO-214AB (SMC)
Diode variation	Single die

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	$V_R = 45\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	-	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 μs 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

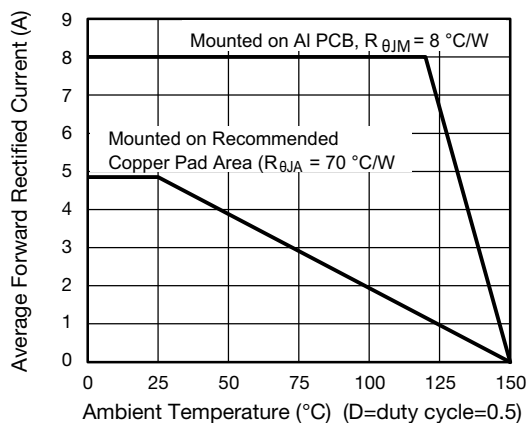
RATINGS AND CHARACTERISTICS CURVES ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

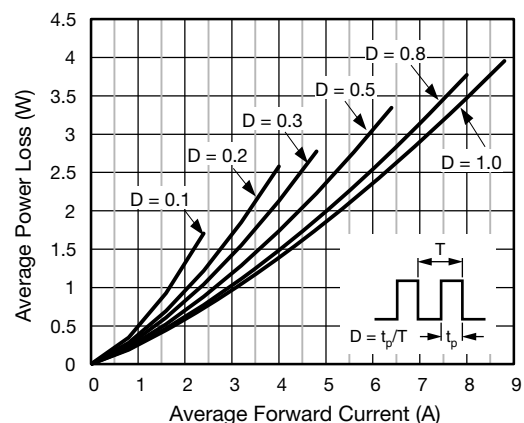


Fig. 2 - Forward Power Loss Characteristics

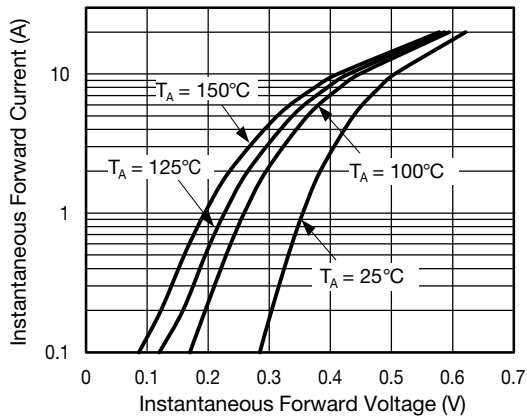


Fig. 3 - Typical Instantaneous Forward Characteristics

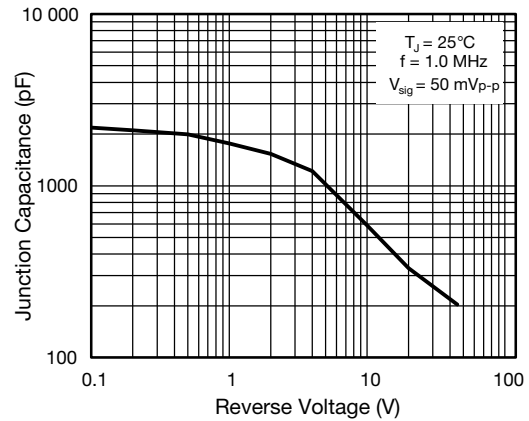


Fig. 5 - Typical Junction Capacitance

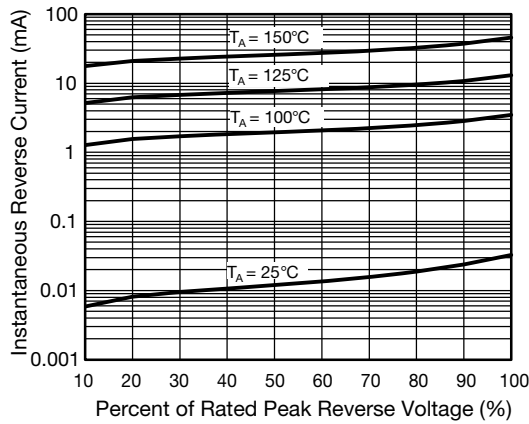


Fig. 4 - Typical Reverse Characteristics

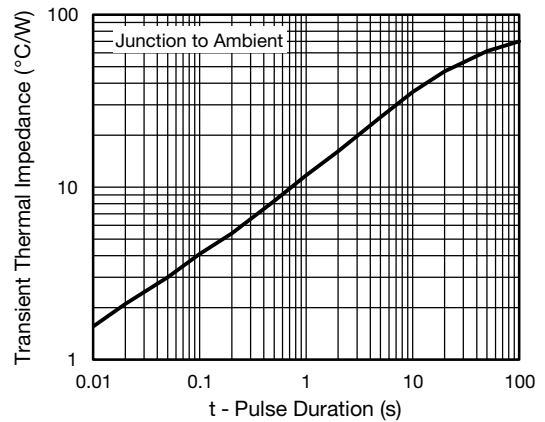
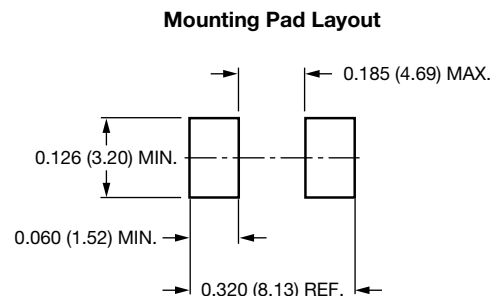
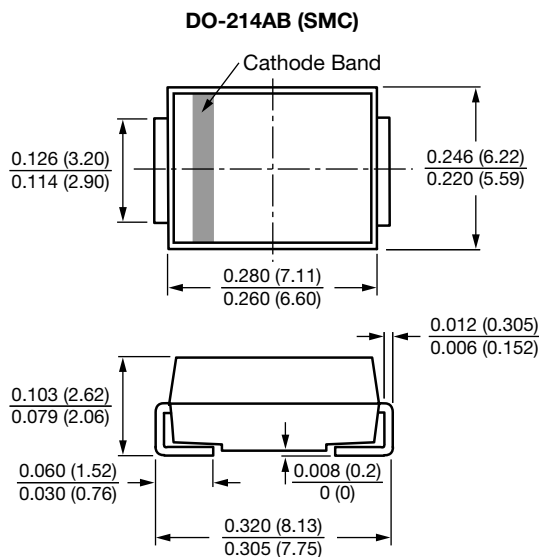


Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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