

# Surface Mount Trench MOS Barrier Schottky Rectifier


**DO-214AC (SMA)**
**TMBS®**
**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

**TYPICAL APPLICATIONS**

For use in low voltage, high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications.

**MECHANICAL DATA**
**Case:** DO-214AC (SMA)

 Molding compound meets UL 94 V-0 flammability rating  
 Base P/N-E3 - RoHS-compliant, commercial grade

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A whisker test

**Polarity:** Color band denotes the cathode end

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2.0 A
$V_{RRM}$	100 V
$I_{FSM}$	60 A
$E_{AS}$	24 mJ
$V_F$ at $I_F = 2.0$ A	0.56 V
$T_J$ max.	150 °C

MAXIMUM RATINGS (TA = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VSSA210	UNIT
Device marking code		V2B	
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	V
Maximum DC forward current	$I_F^{(1)}$	2.0	A
	$I_F^{(2)}$	1.7	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	60	A
Non-repetitive avalanche energy at $T_J = 25$ °C, L = 60 mH	$E_{AS}$	24	mJ
Peak repetitive reverse current at $t_p = 2$ μs, 1 kHz, $T_J = 38$ °C ± 2 °C	$I_{RRM}$	1.0	A
Operating junction and storage temperature range	$T_J, T_{STG}$	- 40 to + 150	°C

**Notes**

(1) Mounted on 8 mm x 8 mm pad areas, 1 oz. FR4 P.C.B.

(2) Free air, mounted on recommended copper pad area

<b>ELECTRICAL CHARACTERISTICS</b> (TA = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	IR = 1.0 mA	TA = 25 °C	VBR	100 (minimum)	-	V
Instantaneous forward voltage	IF = 2.0 A	TA = 25 °C	VF (1)	0.61	0.70	
		TA = 125 °C		0.56	0.65	
Reverse current	VR = 70 V	TA = 25 °C	IR (2)	1.0	-	µA
		TA = 125 °C		0.95	-	mA
	VR = 100 V	TA = 25 °C		3.5	150	µA
		TA = 125 °C		2.2	15	mA
Typical junction capacitance	4.0 V, 1 MHz		CJ	175	-	pF

**Notes**

- (1) Pulse test: 300 µs pulse width, 1 % duty cycle  
 (2) Pulse test: Pulse width ≤ 40 ms

<b>THERMAL CHARACTERISTICS</b> (TA = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VSSA210	UNIT
Typical thermal resistance	RθJA (1)	135	°C/W
	RθJM (2)	25	

**Notes**

- (1) Free air, mounted on recommended P.C.B. 1 oz. pad area. Thermal resistance RθJA - junction to ambient  
 (2) Units mounted on P.C.B. with 8 mm x 8 mm copper pad areas. RθJM - junction to mount

<b>ORDERING INFORMATION</b> (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
VSSA210-E3/61T	0.064	61T	1800	7" diameter plastic tape and reel
VSSA210-E3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel

**RATINGS AND CHARACTERISTICS CURVES**

(TA = 25 °C unless otherwise noted)

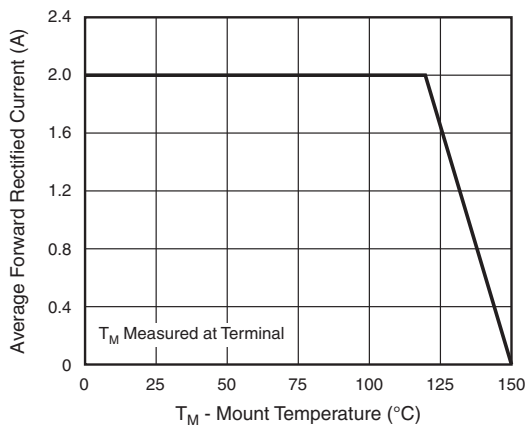


Fig. 1 - Maximum Forward Current Derating Curve

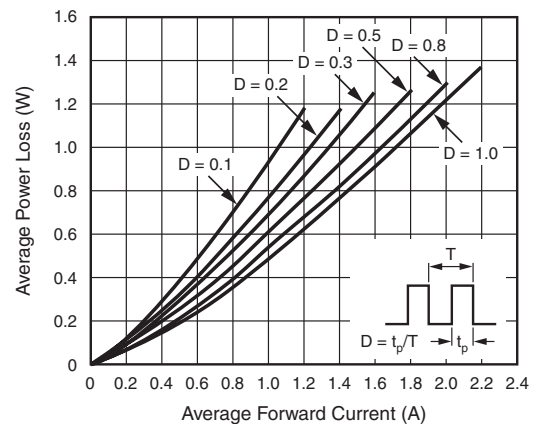


Fig. 2 - Forward Power Loss Characteristics



Fig. 3 - Typical Instantaneous Forward Characteristics



Fig. 5 - Typical Junction Capacitance

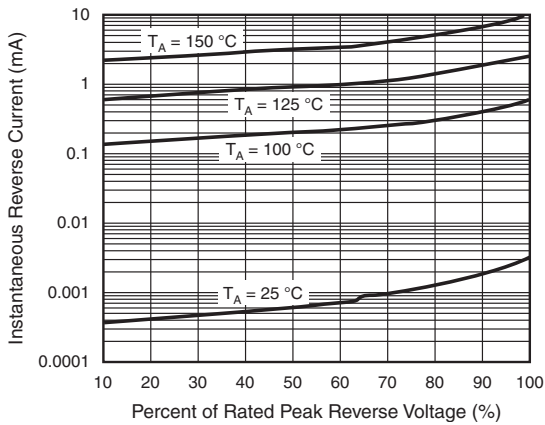


Fig. 4 - Typical Reverse Characteristics

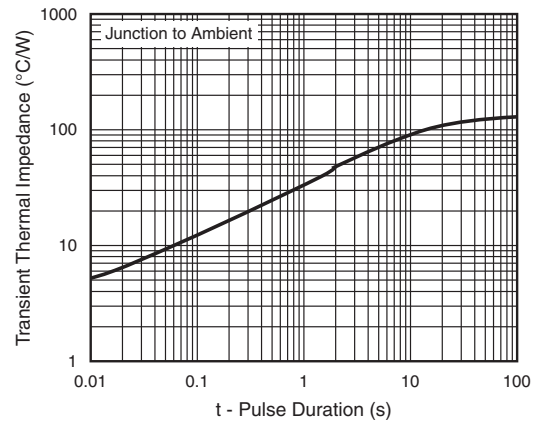
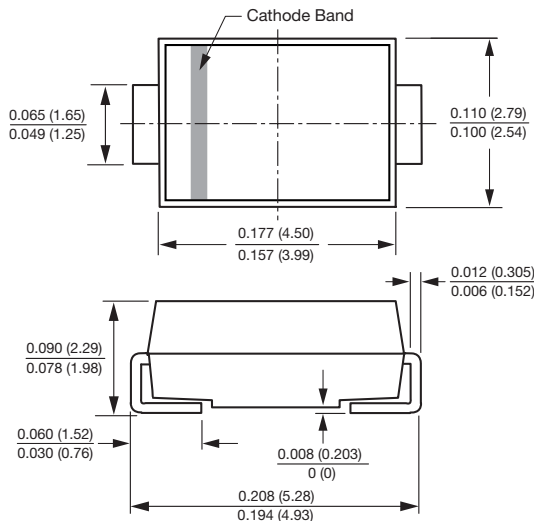


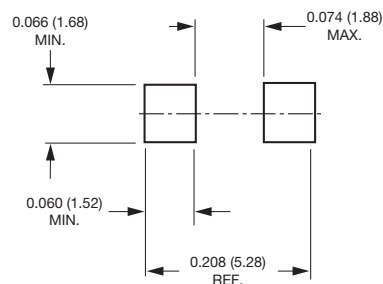
Fig. 6 - Typical Transient Thermal Impedance

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

**DO-214AC (SMA)**



**Mounting Pad Layout**





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