

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


**SMA (DO-214AC)**

 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
- Not recommended for PCB bottom side wave mounting
- 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	
$I_{F(AV)}$	3.0 A
$V_{RRM}$	60 V
$I_{FSM}$	80 A
$V_F$ at $I_F = 3.0$ A	0.41 V
$T_J$ max.	150 °C
Package	SMA (DO-214AC)
Circuit configuration	Single

## TYPICAL APPLICATIONS

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

## MECHANICAL DATA

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

Molding compound meets UL 94 V-0 flammability rating Base P/N-M3 - halogen-free, RoHS-compliant, and 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	VSSA3L6S	UNIT
Device marking code		3L6	
Maximum repetitive peak reverse voltage	$V_{RRM}$	60	V
Maximum DC forward current	$I_F$ <sup>(1)</sup>	3.0	A
	$I_F$ <sup>(2)</sup>	2.5	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	$I_{FSM}$	80	A
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000	V/ $\mu$ s
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150	°C

### Notes

<sup>(1)</sup> Mounted on 10 mm x 10 mm pad areas, 1 oz. FR4 PCB

<sup>(2)</sup> 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	$I_F = 3.0$ A	$V_F$ <sup>(1)</sup>	$T_A = 25$ °C	0.49	0.58	V
			$T_A = 125$ °C	0.41	0.50	
Reverse current	$V_R = 60$ V	$I_R$ <sup>(2)</sup>	$T_A = 25$ °C	-	1500	$\mu$ A
			$T_A = 125$ °C	6.0	30	mA
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	395	-	pF	

### Notes

<sup>(1)</sup> Pulse test: 300  $\mu$ s pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: Pulse width  $\leq$  40 ms

**THERMAL CHARACTERISTICS** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise specified)

PARAMETER	SYMBOL	VSSA3L6S	UNIT
Typical thermal resistance	$R_{\theta JA}$ <sup>(1)</sup>	115	$^\circ\text{C/W}$
	$R_{\theta JM}$ <sup>(2)</sup>	15	

**Notes**

- (1) Free air, mounted on recommended PCB, 1 oz. pad area; thermal resistance  $R_{\theta JA}$  - junction to ambient  
 (2) Mounted on 10 mm x 10 mm pad areas, 1 oz. FR4 PCB;  $R_{\theta JM}$  - junction to mount

**ORDERING INFORMATION** (Example)

PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
VSSA3L6S-M3/61T	0.064	61T	1800	7" diameter plastic tape and reel
VSSA3L6S-M3/5AT	0.064	5AT	7500	13" diameter plastic tape and reel

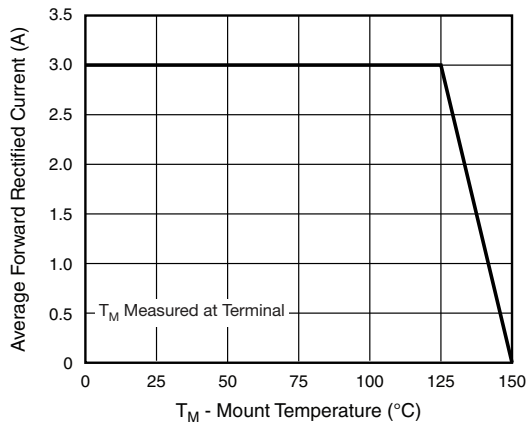
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)


Fig. 1 - Maximum Forward Current Derating Curve

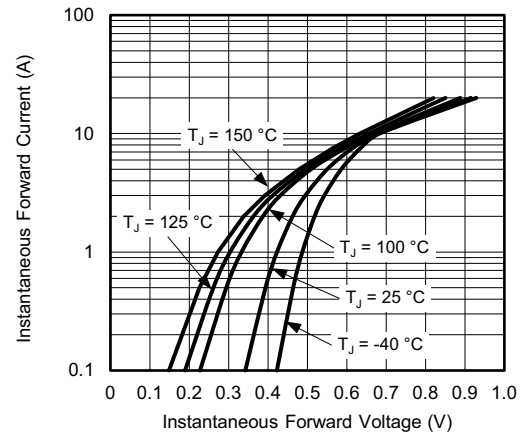


Fig. 3 - Typical Instantaneous Forward Characteristics

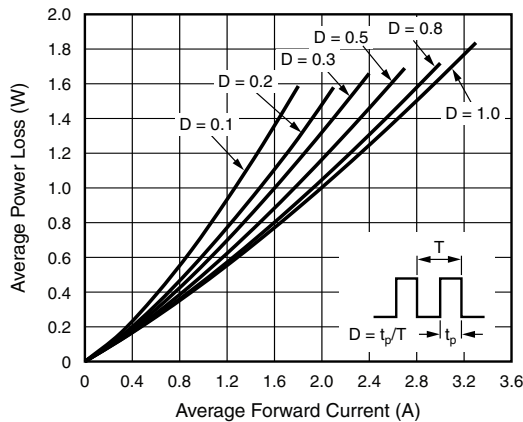


Fig. 2 - Forward Power Loss Characteristics

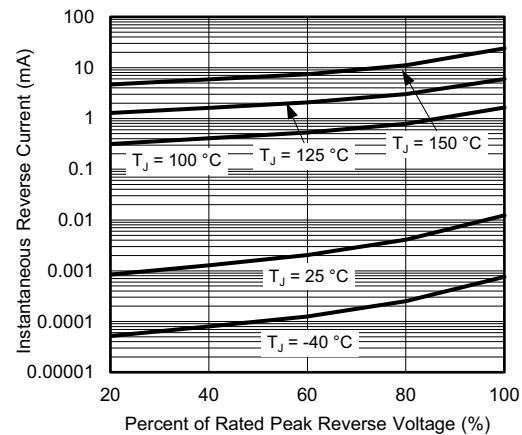


Fig. 4 - Typical Reverse Characteristics

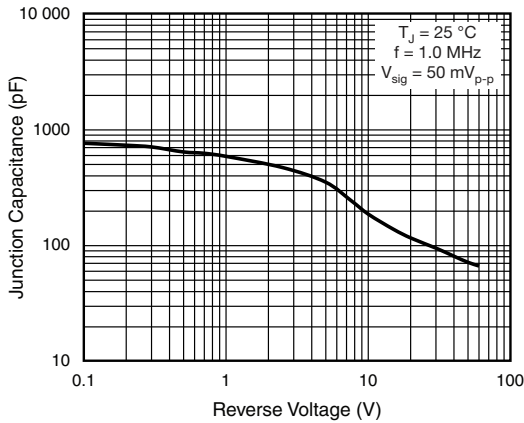


Fig. 5 - Typical Junction Capacitance

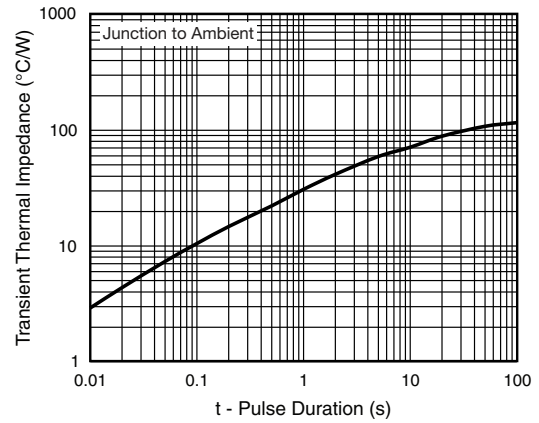
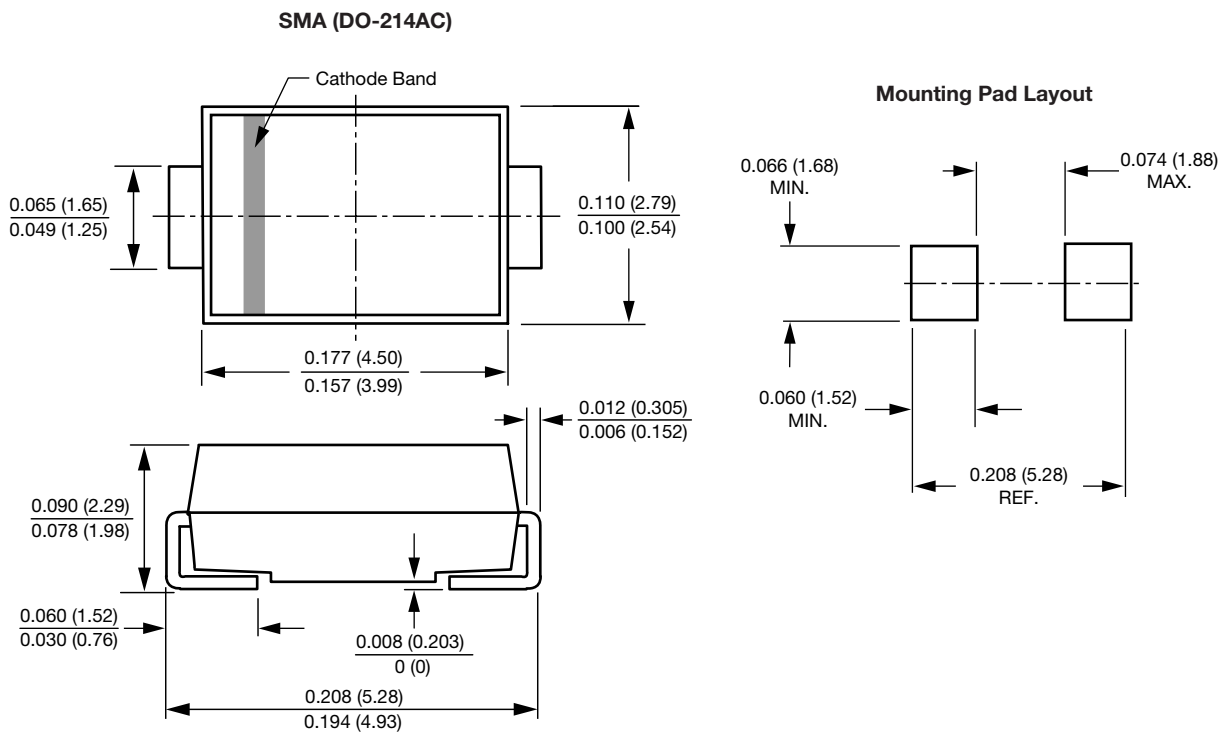


Fig. 6 - Typical Transient Thermal Impedance

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





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