

# Surface-Mount TMBS® (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	$I_F^{(1)}$	3.0	A
	$I_F^{(2)}$	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

(1) Mounted on 10 mm x 10 mm pad areas, 1 oz. FR4 PCB

(2) 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	$V_F^{(1)}$	0.49	0.58	V
			0.41	0.50	
Reverse current	$V_R = 60$ V	$I_R^{(2)}$	-	1500	$\mu$ A
			6.0	30	mA
Typical junction capacitance	4.0 V, 1 MHz	$C_J$	395	-	pF

### Notes

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

(2) 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	$R_{\theta JA}^{(1)}$	115	$^{\circ}\text{C/W}$
	$R_{\theta JM}^{(2)}$	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

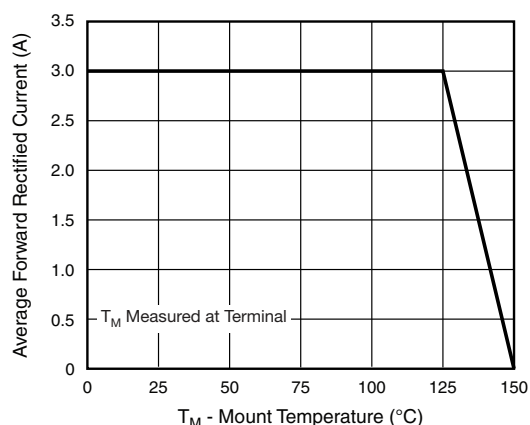
**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

Fig. 1 - Maximum Forward Current Derating Curve

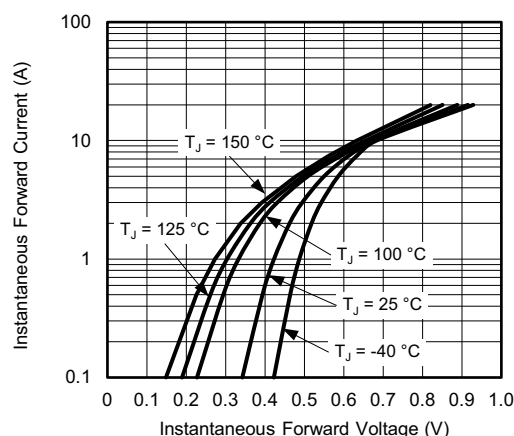


Fig. 3 - Typical Instantaneous Forward Characteristics

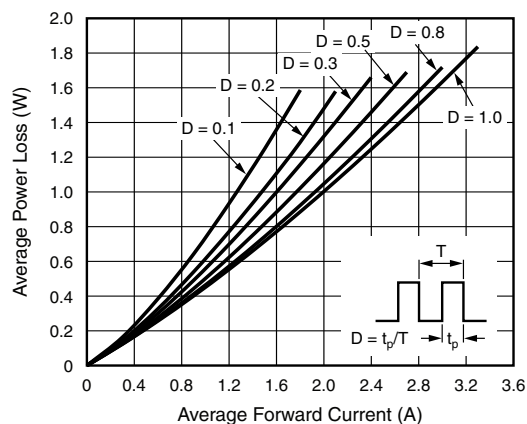


Fig. 2 - Forward Power Loss Characteristics

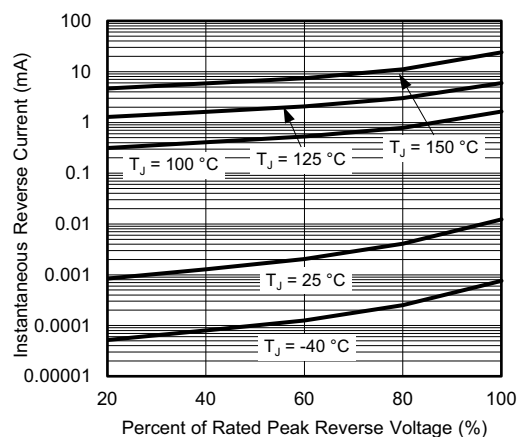


Fig. 4 - Typical Reverse Characteristics

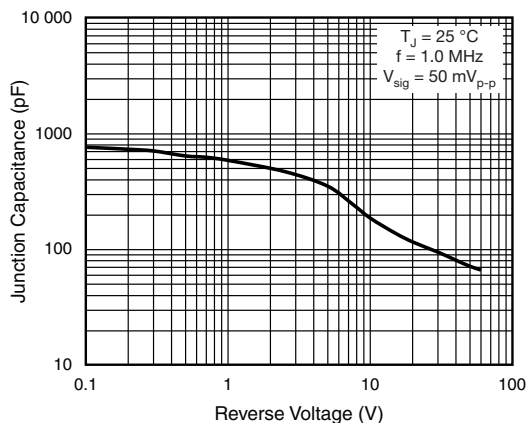


Fig. 5 - Typical Junction Capacitance

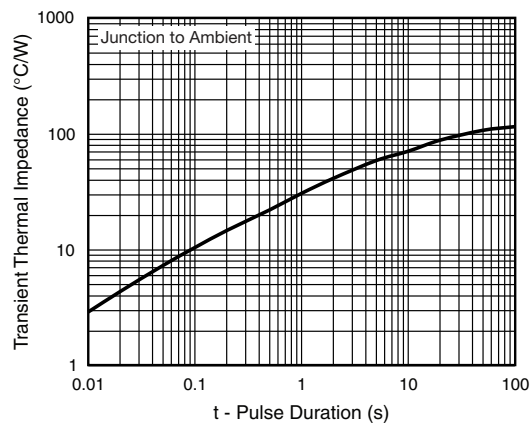
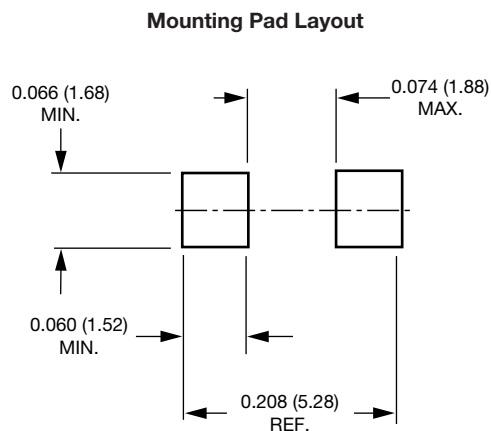
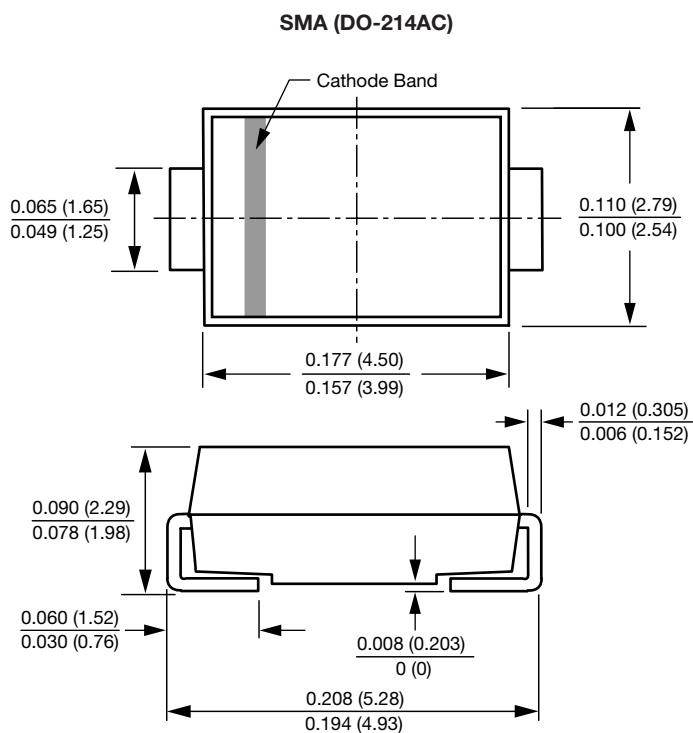


Fig. 6 - Typical Transient Thermal Impedance

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




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