

Surface Mount Trench MOS Barrier Schottky Rectifier



DO-214AA (SMB)

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
V_{RRM}	60 V
I_{FSM}	80 A
V_F at $I_F = 3.0$ A	0.42 V
T_J max.	150 °C

TYPICAL APPLICATIONS

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

MAXIMUM RATINGS ($T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VSSB3L6S	UNIT
Device marking code		3L6	
Maximum repetitive peak reverse voltage	V_{RRM}	60	V
Maximum DC forward current	$I_F^{(1)}$	3.0	A
	$I_F^{(2)}$	2.6	
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/ μ 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

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
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS
COMPLIANT
HALOGEN
FREE

MECHANICAL DATA

Case: DO-214AA (SMB)

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 1A whisker test

Polarity: Color band denotes the cathode end

VSSB3L6S

Vishay General Semiconductor



ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage	I _F = 3.0 A	T _A = 25 °C	V _F ⁽¹⁾	0.49	0.59	V
		T _A = 125 °C		0.42	0.52	
Reverse current	V _R = 60 V	T _A = 25 °C	I _R ⁽²⁾	-	1200	μA
		T _A = 125 °C		5	25	mA
Typical junction capacitance	4.0 V, 1 MHz		C _J	358	-	pF

Notes

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

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise specified)			
PARAMETER	SYMBOL	VSSB3L6S	UNIT
Typical thermal resistance	R _{θJA} ⁽¹⁾	115	°C/W
	R _{θJM} ⁽²⁾	13	

Notes

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

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
VSSB3L6S-M3/52T	0.096	52T	750	7" diameter plastic tape and reel
VSSB3L6S-M3/5BT	0.096	5BT	3200	13" diameter plastic tape and reel

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

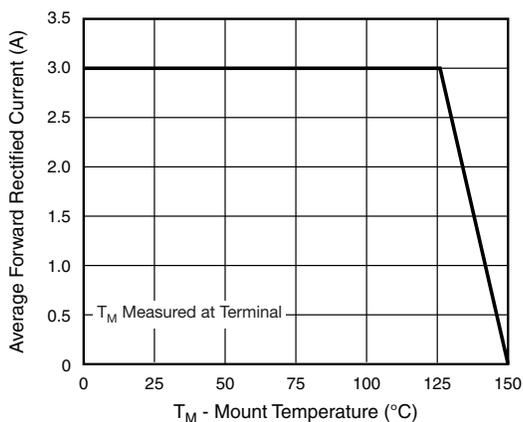


Fig. 1 - Maximum Forward Current Derating Curve

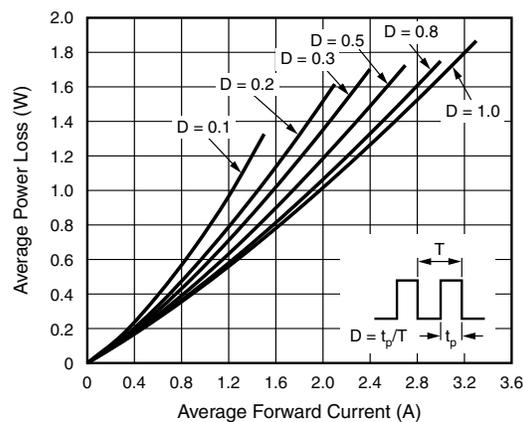


Fig. 2 - Forward Power Loss Characteristics

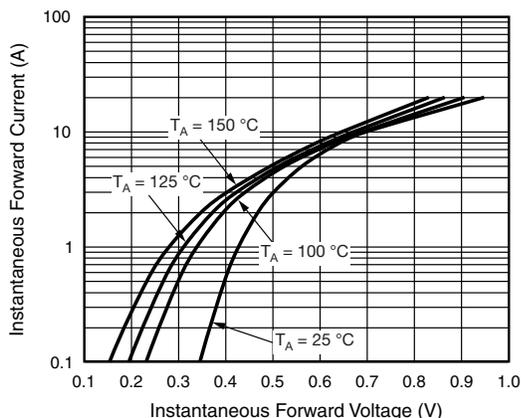


Fig. 3 - Typical Instantaneous Forward Characteristics

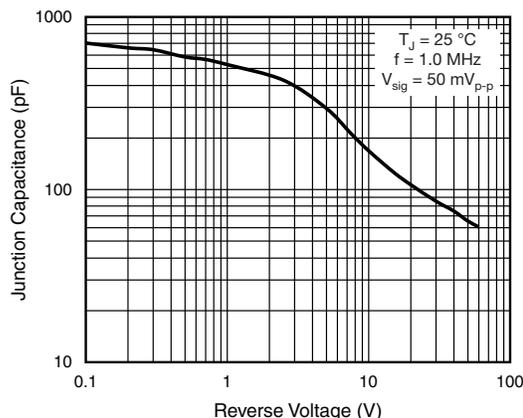


Fig. 5 - Typical Junction Capacitance

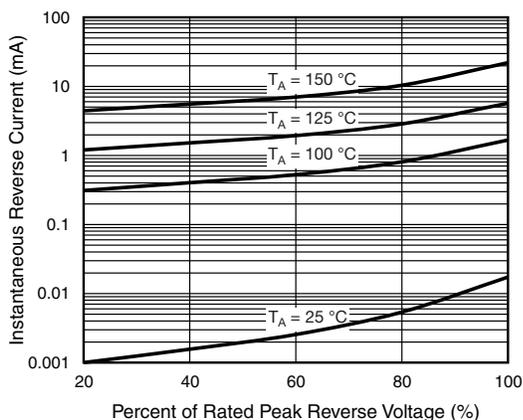


Fig. 4 - Typical Reverse Characteristics

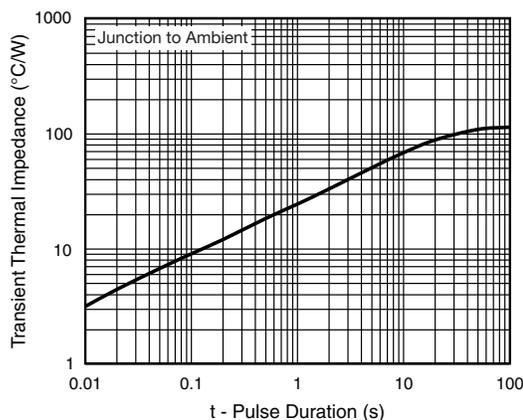
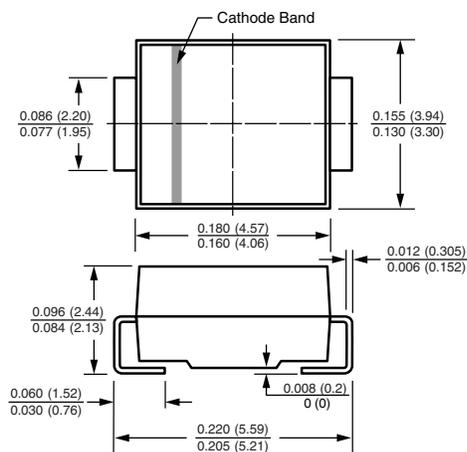


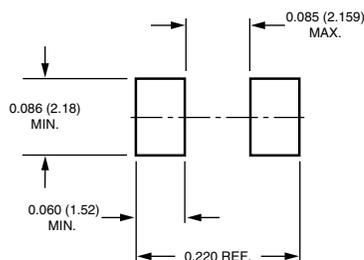
Fig. 6 - Typical Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

DO-214AA (SMB)



Mounting Pad Layout





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