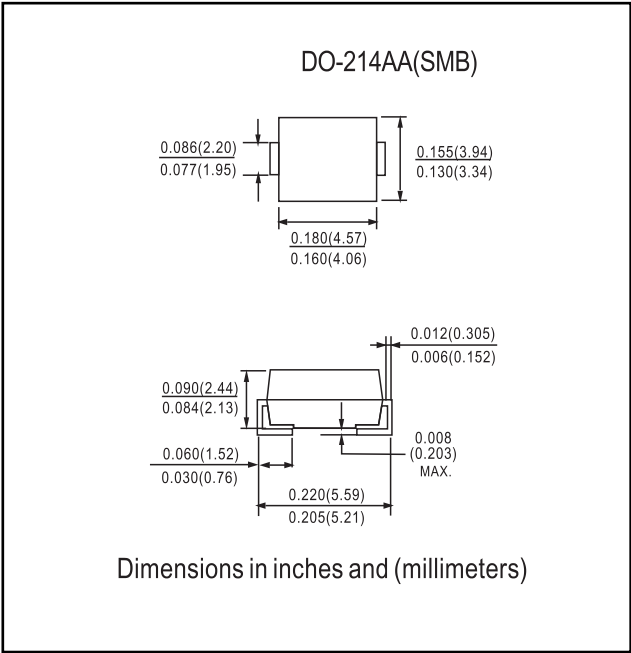




- FEATURES**
- Low profile package
 - Ideal for automated placement
 - Trench MOS Schottky technology
 - Low power losses, high efficiency
 - Low forward voltage drop
 - Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
 - Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



Mechanical Data

Case: DO-214AA (SMB)
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

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VSSB420S	UNIT
Device marking code		V4D	
Maximum repetitive peak reverse voltage	V_{RRM}	200	V
Maximum DC forward current	$I_F^{(1)}$	4.0	A
	$I_F^{(2)}$	1.8	
Peak forward surge current 10 ms single half sine-wave superimposed on rated load	I_{FSM}	40	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}	- 40 to + 150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	TYP.	MAX.	UNIT	
Instantaneous forward voltage	$I_F = 4.0\text{ A}$	$V_F^{(1)}$	$T_A = 25\text{ }^\circ\text{C}$	1.44	1.90	V
			$T_A = 125\text{ }^\circ\text{C}$	0.71	0.80	
Reverse current per diode	$V_R = 180\text{ V}$	$I_R^{(2)}$	$T_A = 25\text{ }^\circ\text{C}$	3	-	μA
			$T_A = 125\text{ }^\circ\text{C}$	0.7	-	mA
	$V_R = 200\text{ V}$		$T_A = 25\text{ }^\circ\text{C}$	4	150	μA
			$T_A = 125\text{ }^\circ\text{C}$	1.1	10	mA
Typical junction capacitance	4.0 V, 1 MHz	C_J	120	-	pF	

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VSSB420S	UNIT
Typical thermal resistance	$R_{\theta JA}^{(1)}$	120	$^\circ\text{C/W}$
	$R_{\theta JM}^{(2)}$	15	

Notes

(1) Free air, mounted on recommended PCB 1 oz. pad area; thermal resistance $R_{\theta JA}$ - junction to ambient
(2) Units mounted on PCB with 20 mm x 20 mm copper pad areas; thermal resistance $R_{\theta JM}$ - junction to mount



RATINGS AND CHARACTERISTIC CURVES VSSB420S

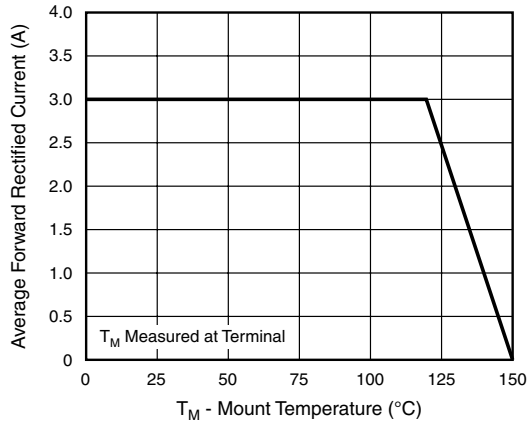


Fig. 1 - Maximum Forward Current Derating Curve

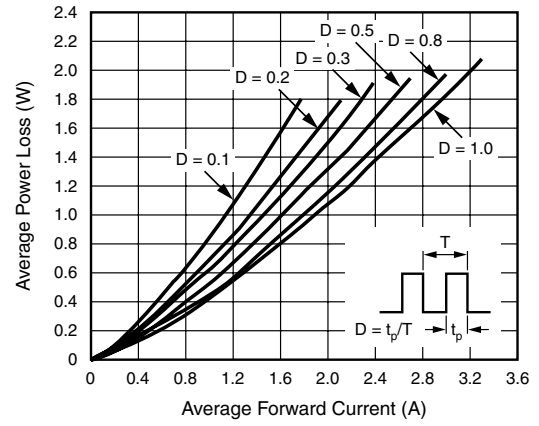


Fig. 2 - Forward Power Loss Characteristics

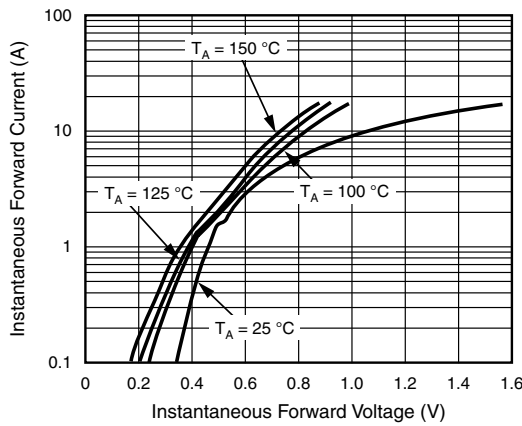


Fig. 3 - Typical Instantaneous Forward Characteristics

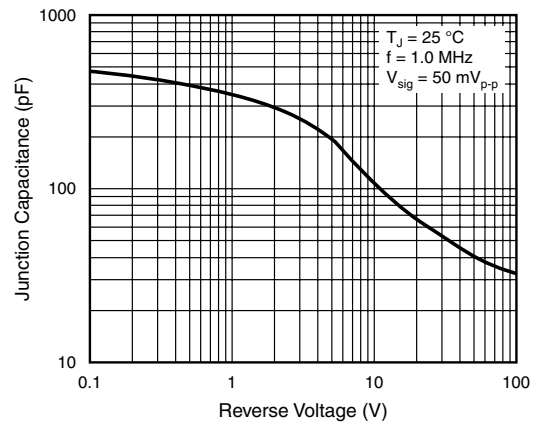


Fig. 5 - Typical Junction Capacitance

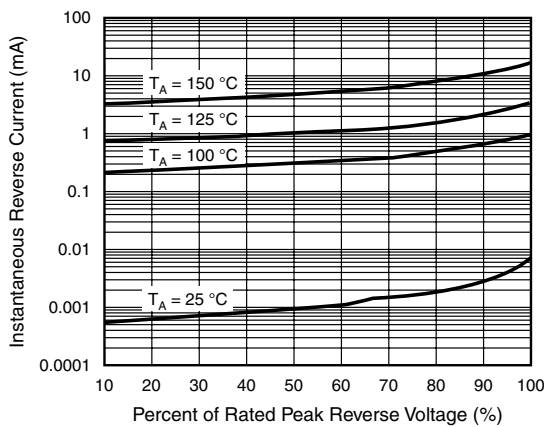


Fig. 4 - Typical Reverse Characteristics

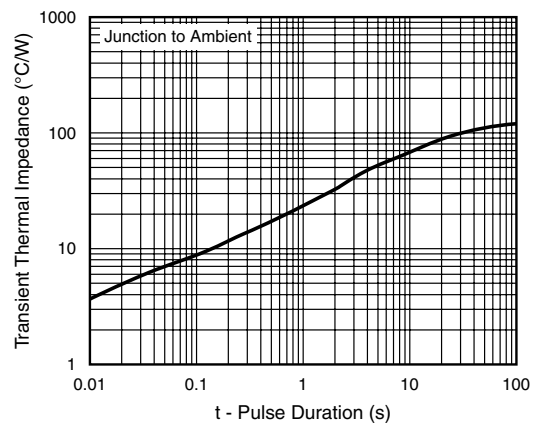


Fig. 6 - Typical Transient Thermal Impedance