TAYCHIPST **Surface Mount Trench MOS Barrier Schottky Rectifier**

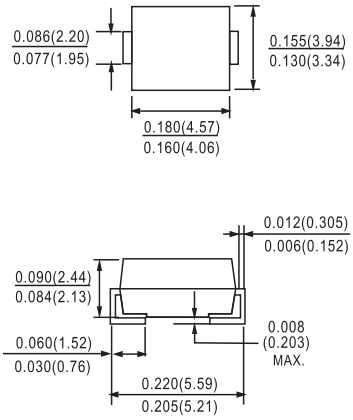
VSSB420S

200V 4.0A

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

DO-214AA(SMB)



Dimensions in inches and (millimeters)

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 °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/µs
Operating junction and storage temperature range	T_J, T_{STG}	- 40 to + 150	°C

ELECTRICAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

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

THERMAL CHARACTERISTICS (T_A = 25 °C unless otherwise noted)

PARAMETER	SYMBOL	VSSB420S	UNIT
Typical thermal resistance	$R_{\theta JA}$ (1)	120	°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

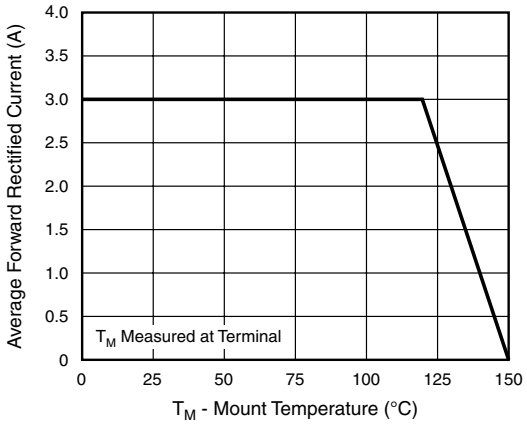


Fig. 1 - Maximum Forward Current Derating Curve

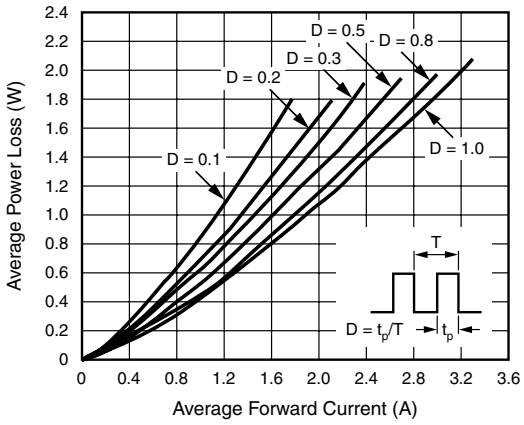


Fig. 2 - Forward Power Loss Characteristics

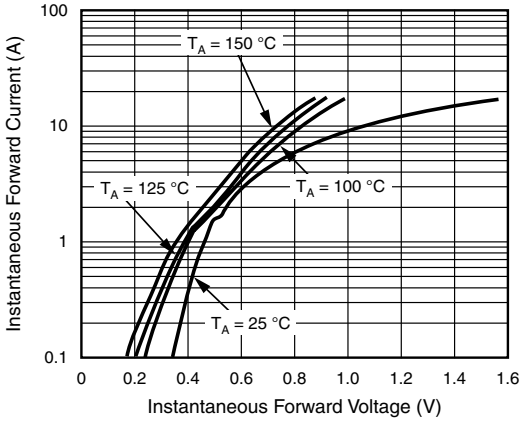


Fig. 3 - Typical Instantaneous Forward Characteristics

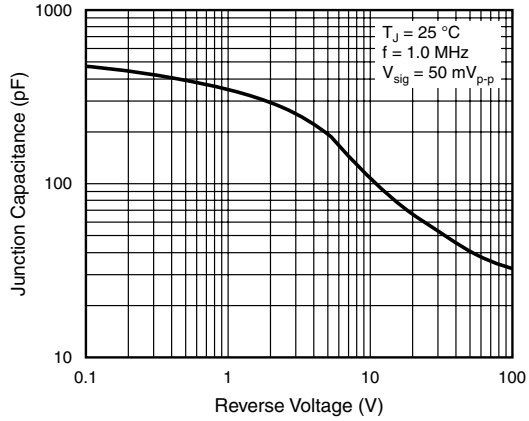


Fig. 5 - Typical Junction Capacitance

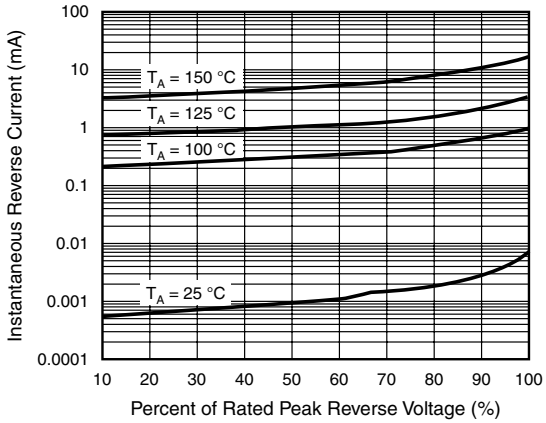


Fig. 4 - Typical Reverse Characteristics

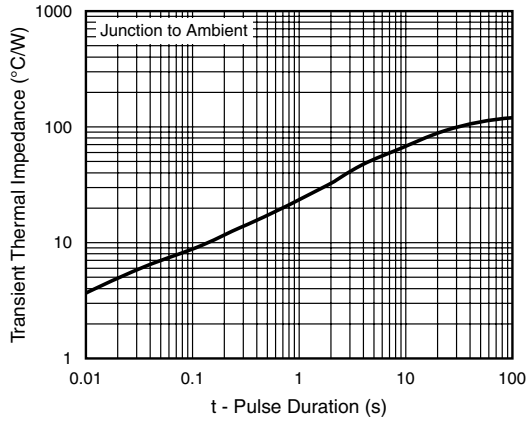


Fig. 6 - Typical Transient Thermal Impedance