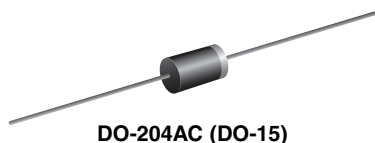


## High-Voltage Trench MOS Barrier Schottky Rectifier



DO-204AC (DO-15)

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	3.0 A
$V_{RRM}$	200 V
$I_{FSM}$	50 A
$V_F$ at $I_F = 3.0$ A	0.64 V
$T_J$ max.	150 °C

### TYPICAL APPLICATIONS

For use in high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters or polarity protection application.

### FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Solder dip 275 °C max. 10 s, per JESD 22-B106
- 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-204AC (DO-15)

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

MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)			
PARAMETER	SYMBOL	VSB3200S	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	200	V
Maximum average forward rectified current (fig. 1) <sup>(1)</sup>	$I_{F(AV)}$	3.0	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	$I_{FSM}$	50	A
Voltage rate of change (rated $V_R$ )	dV/dt	10 000	V/ $\mu$ s
Operating junction and storage temperature range	$T_J, T_{STG}$	- 40 to + 150	°C

### Note

<sup>(1)</sup> Units mounted on PCB with 14 mm x 14 mm copper pad areas 0.375" (9.5 mm) lead length

ELECTRICAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Breakdown voltage	I <sub>R</sub> = 1.0 mA	T <sub>A</sub> = 25 °C	V <sub>BR</sub>	200 (minimum)	-	V
Instantaneous forward voltage <sup>(1)</sup>	I <sub>F</sub> = 3.0 A	T <sub>A</sub> = 25 °C T <sub>A</sub> = 125 °C	V <sub>F</sub>	0.98 0.64	1.40 0.72	
Reverse current per diode <sup>(2)</sup>	V <sub>R</sub> = 200 V	T <sub>A</sub> = 25 °C T <sub>A</sub> = 125 °C	I <sub>R</sub>	1.3 0.98	50 7	μA mA
Typical junction capacitance	4.0 V, 1 MHz		C <sub>J</sub>	170	-	pF

**Notes**

<sup>(1)</sup> Pulse test: 300 μs pulse width, 1 % duty cycle

<sup>(2)</sup> Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	VSB3200S	UNIT
Typical thermal resistance <sup>(1)</sup>	R <sub>θJA</sub>	64	°C/W
	R <sub>θJL</sub>	18	

**Note**

<sup>(1)</sup> Units mounted on PCB with 14 mm x 14 mm copper pad areas 0.375" (9.5 mm) lead length

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
VSB3200S-M3/54	0.399	54	4000	13" diameter paper tape and reel
VSB3200S-M3/73	0.399	73	2000	Ammo pack packaging

**RATINGS AND CHARACTERISTICS CURVES**

(T<sub>A</sub> = 25 °C unless otherwise noted)

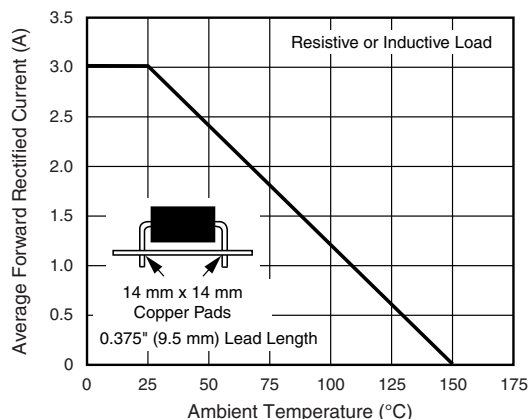


Figure 1. Maximum Forward Current Derating Curve

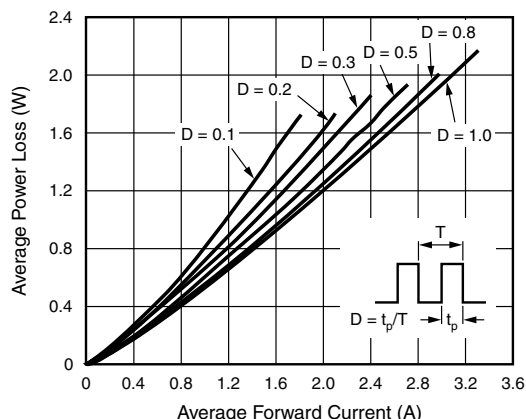


Figure 2. Forward Power Loss Characteristics

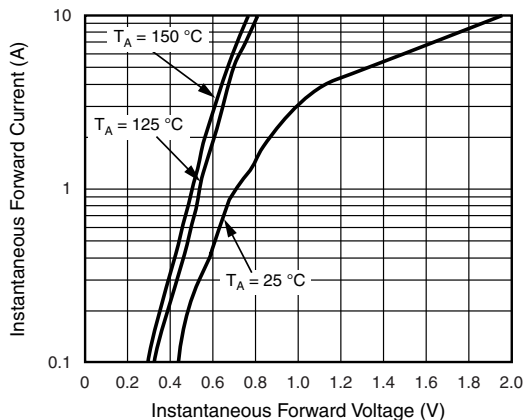


Figure 3. Typical Instantaneous Forward Characteristics

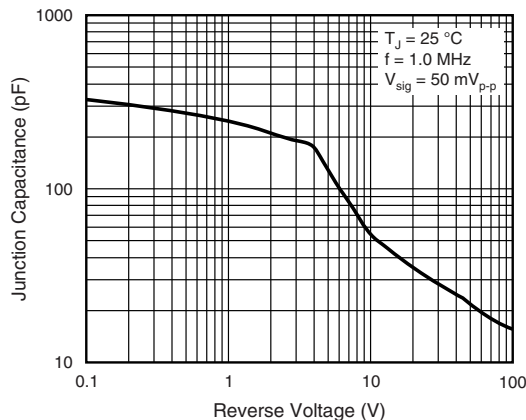


Figure 5. Typical Junction Capacitance

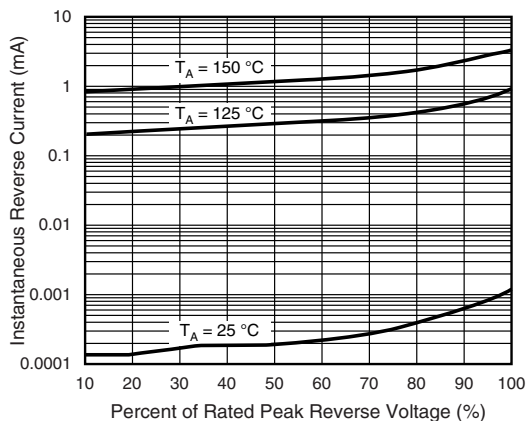


Figure 4. Typical Reverse Characteristics

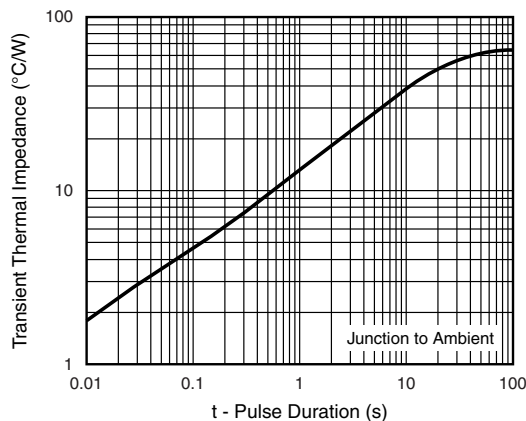
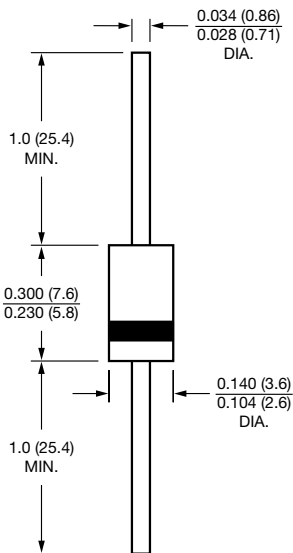


Figure 6. Typical Transient Thermal Impedance

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

**DO-204AC (DO-15)**





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