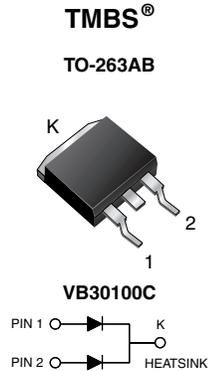


Dual High-Voltage Trench MOS Barrier Schottky Rectifier

 Ultra Low $V_F = 0.455 \text{ V}$ at $I_F = 5 \text{ A}$


FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- AEC-Q101 qualified available:
 - Automotive ordering code P/NHM3
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
 COMPLIANT
 HALOGEN
FREE

TYPICAL APPLICATIONS

For use in high frequency converters, switching power supplies, freewheeling diodes, OR-ing diode, DC/DC converters and reverse battery protection.

MECHANICAL DATA

Case: TO-263AB

Molding compound meets UL 94 V-0 flammability rating
 Base P/N-M3 - halogen-free, RoHS-compliant, and commercial grade

Base P/NHM3 - halogen-free, RoHS-compliant, and AEC-Q101 qualified

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

M3 and HM3 suffix meets JESD 201 class 2 whisker test

Polarity: As marked

PRIMARY CHARACTERISTICS	
Package	TO-263AB
$I_{F(AV)}$	2 x 15 A
V_{RRM}	100 V
I_{FSM}	160 A
V_F at $I_F = 15 \text{ A}$	0.63 V
T_J max.	150 °C
Diode variations	Common cathode

MAXIMUM RATINGS ($T_A = 25 \text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VB30100C	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	100	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	per device	30
		per diode	15
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I_{FSM}	160	A
Voltage rate of change (rated V_F)	dV/dt	10 000	V/ μ s
Operating junction and storage temperature range	T_J, T_{STG}	-40 to +150	°C



ELECTRICAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	TYP.	MAX.	UNIT
Instantaneous forward voltage per diode ⁽¹⁾	$I_F = 5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	V_F	0.516	-	V
	$I_F = 7.5\text{ A}$			0.576	-	
	$I_F = 15\text{ A}$			0.734	0.80	
	$I_F = 5\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.455	-	
	$I_F = 7.5\text{ A}$			0.522	-	
	$I_F = 15\text{ A}$			0.627	0.68	
Reverse current per diode ⁽²⁾	$V_R = 70\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	I_R	7.2	-	μA
		$T_A = 125\text{ }^\circ\text{C}$		8.0	-	mA
	$V_R = 100\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$		65	500	μA
		$T_A = 125\text{ }^\circ\text{C}$		20	35	mA

Notes⁽¹⁾ Pulse test: 300 μs pulse width, 1 % duty cycle⁽²⁾ Pulse test: Pulse width $\leq 40\text{ ms}$

THERMAL CHARACTERISTICS ($T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VB30100C	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	2.5	$^\circ\text{C/W}$

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-263AB	VB30100C-M3/4W	1.39	4W	50/tube	Tube
TO-263AB	VB30100C-M3/8W	1.39	8W	800/reel	Tape and reel
TO-263AB	VB30100CHM3/l ⁽¹⁾	1.39	l	800/reel	Tape and reel

Note⁽¹⁾ AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

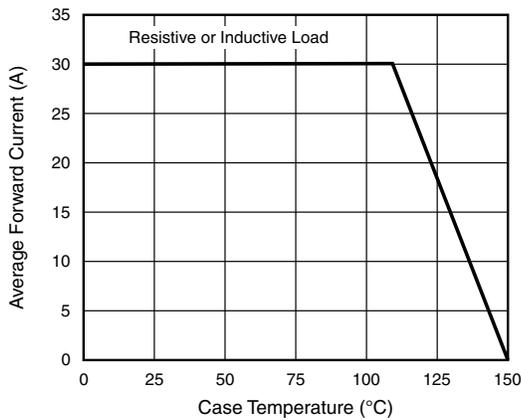


Fig. 1 - Forward Current Derating Curve

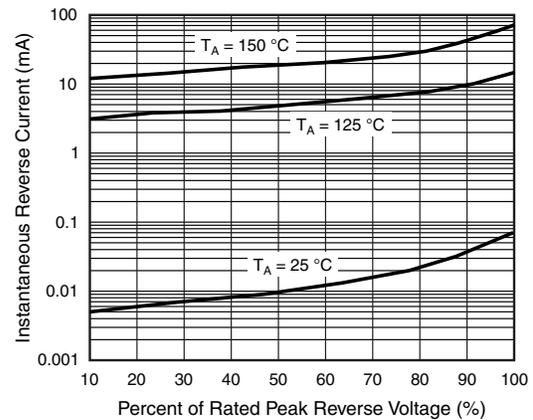


Fig. 4 - Typical Reverse Characteristics Per Diode

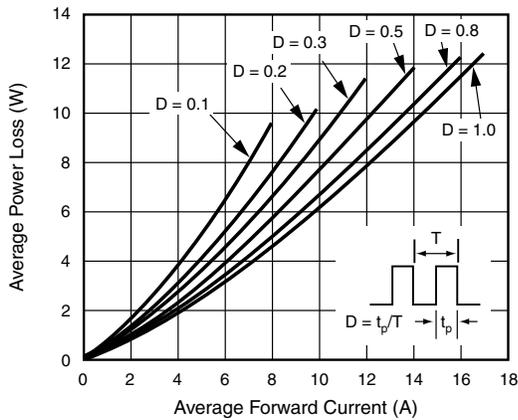


Fig. 2 - Forward Power Loss Characteristics Per Diode

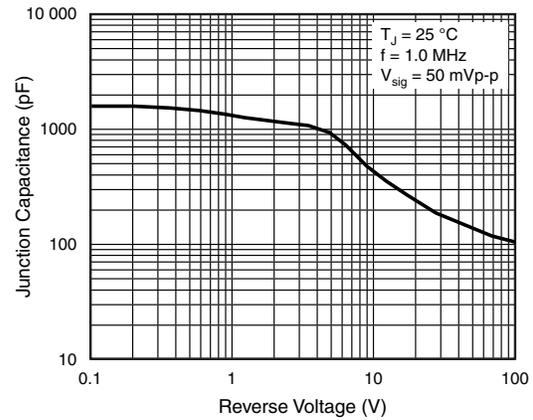


Fig. 5 - Typical Junction Capacitance

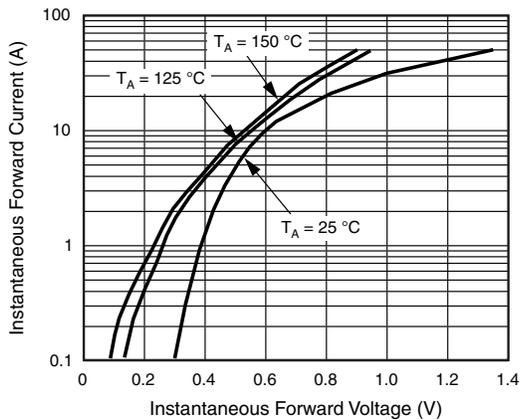


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

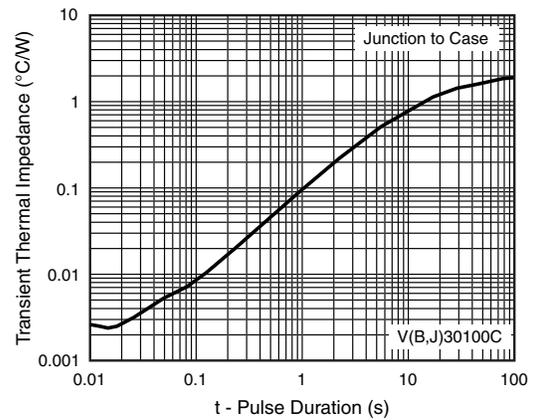
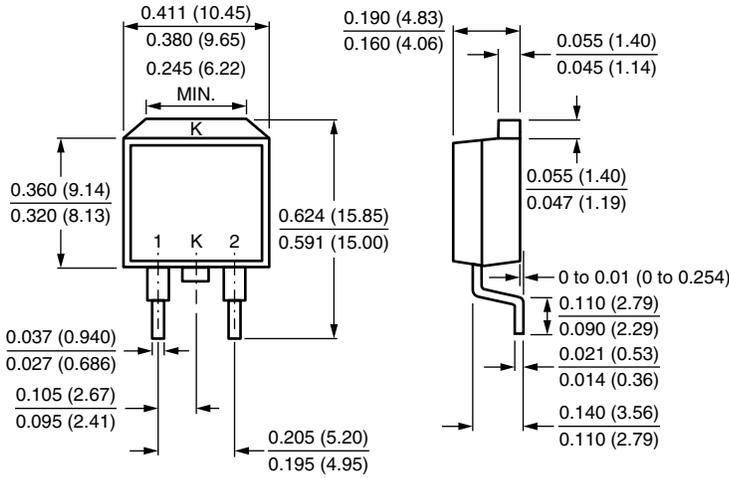


Fig. 6 - Typical Transient Thermal Impedance Per Diode

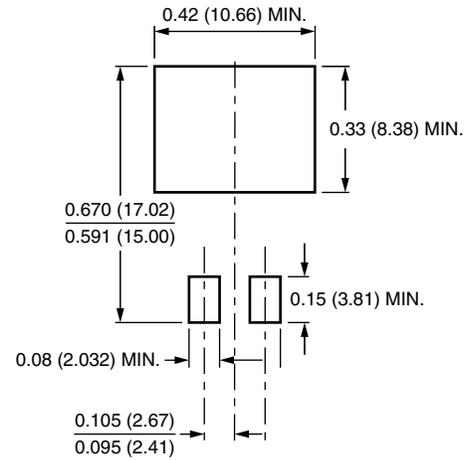


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-263AB



Mounting Pad Layout





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