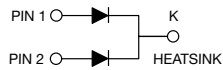
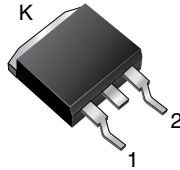


# Dual High Voltage Trench MOS Barrier Schottky Rectifier

 Ultra Low  $V_F = 0.36\text{ V}$  at  $I_F = 5\text{ A}$ 
**TMBS®**  
**TO-263AB**


## FEATURES

- Trench MOS Schottky technology
- Low forward voltage drop, low power losses
- High efficiency operation
- Low thermal resistance
- AEC-Q101 qualified available
  - Automotive ordering code: base P/NHE3
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
 COMPLIANT

## 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/NHE3 - RoHS-compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102  
 HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** As marked

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 30 A
$V_{RRM}$	100 V
$I_{FSM}$	320 A
$V_F$ at $I_F = 30\text{ A}$	0.66 V
$T_J$ max.	150 °C
Package	TO-263AB
Diode variation	Dual common cathode

MAXIMUM RATINGS ( $T_A = 25\text{ °C}$ unless otherwise noted)			
PARAMETER	SYMBOL	VB60100C	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	100	V
Maximum average forward rectified current (fig. 1)	$I_{F(AV)}$	per device	60
		per diode	30
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	320	A
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	$I_F = 5\text{ A}$	$T_A = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.45	-	V
	$I_F = 10\text{ A}$			0.52	-	
	$I_F = 15\text{ A}$			0.58	0.63	
	$I_F = 20\text{ A}$			0.63	-	
	$I_F = 30\text{ A}$			0.73	0.79	
	$I_F = 5\text{ A}$	$T_A = 125\text{ }^\circ\text{C}$		0.36	-	
	$I_F = 10\text{ A}$			0.45	-	
	$I_F = 15\text{ A}$			0.53	0.58	
	$I_F = 20\text{ A}$			0.58	-	
	$I_F = 30\text{ A}$			0.66	0.70	
Reverse current at rated $V_R$ per diode	$V_R = 80\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$	$I_R^{(2)}$	-	500	$\mu\text{A}$
		$T_A = 125\text{ }^\circ\text{C}$		13	20	mA
	$V_R = 100\text{ V}$	$T_A = 25\text{ }^\circ\text{C}$		-	1000	$\mu\text{A}$
		$T_A = 125\text{ }^\circ\text{C}$		30	-	mA

**Notes**(1) Pulse test: 300  $\mu\text{s}$  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	VB60100C	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	VB60100CHE3/P <sup>(1)</sup>	1.38	P	50/tube	Tube
TO-263AB	VB60100CHE3/I <sup>(1)</sup>	1.38	I	800/reel	Tape and reel

**Note**

(1) AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES** ( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

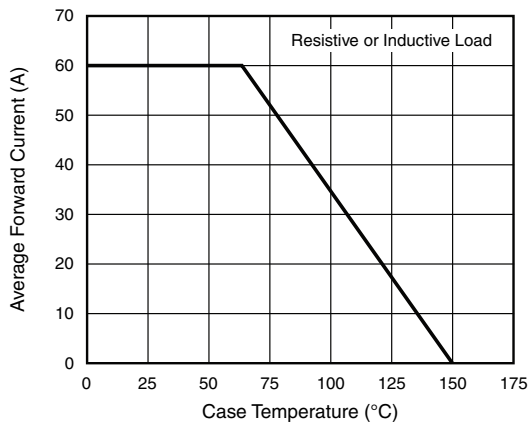


Fig. 1 - Forward Current Derating Curve

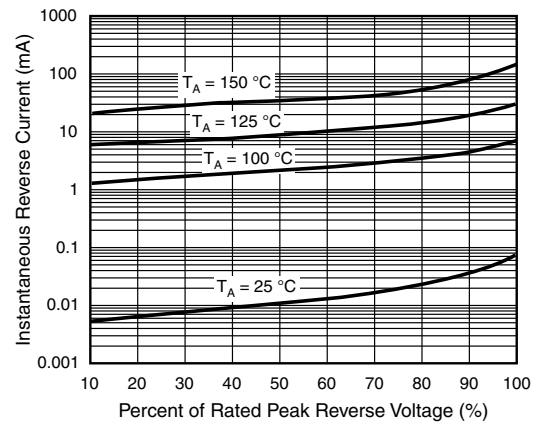


Fig. 4 - Typical Reverse Characteristics Per Diode

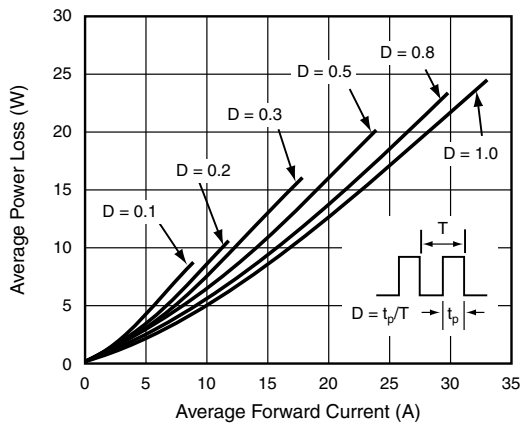


Fig. 2 - Forward Power Loss Characteristics Per Diode

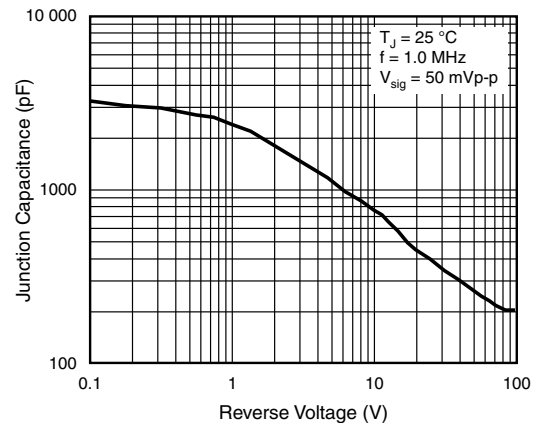


Fig. 5 - Typical Junction Capacitance Per Diode

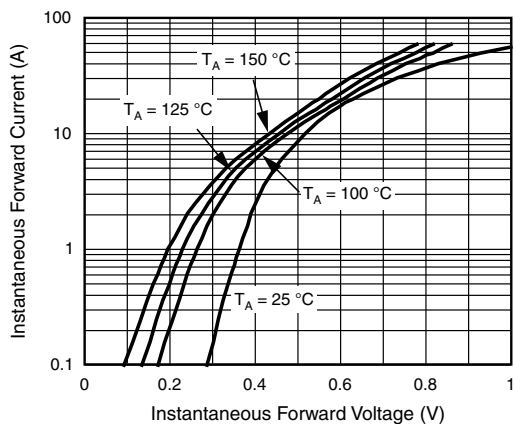


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

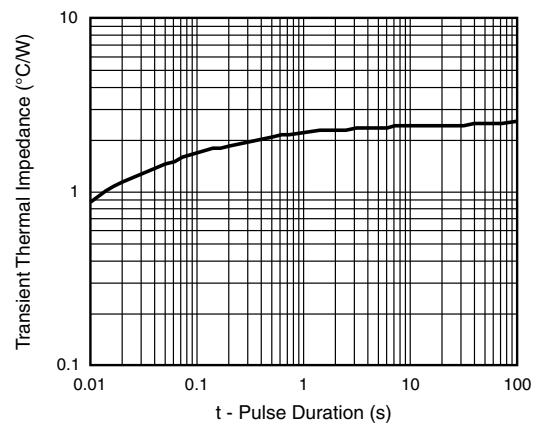
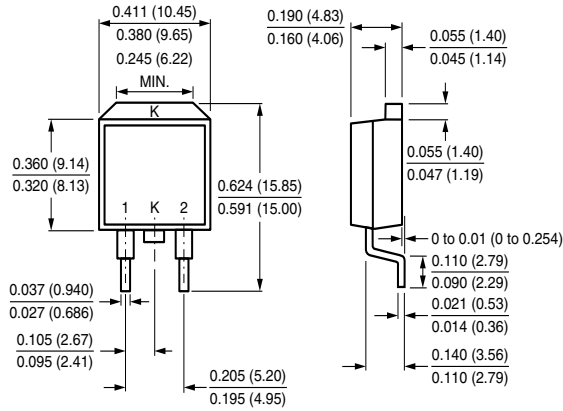


Fig. 6 - Typical Transient Thermal Impedance Per Diode

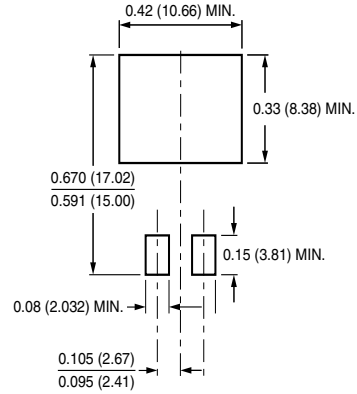


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-263AB



Mounting Pad Layout





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