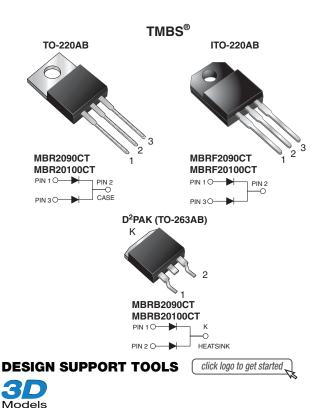


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RoHS

Dual Common-Cathode High Voltage Trench MOS Barrier Schottky Rectifier



PRIMARY CHARACTERISTICS					
I _{F(AV)}	2 x 10 A				
V_{RRM}	90 V to 100 V				
I _{FSM}	150 A				
V_{F}	0.65 V				
T _J max.	150 °C				
Package	TO-220AB, ITO-220AB, D ² PAK (TO-263AB)				
Circuit configuration	Common cathode				

FEATURES

- Trench MOS Schottky technology
- · Lower power losses, high efficiency
- · Low forward voltage drop
- · High forward surge capability
- High frequency operation
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C (for TO-263AB package)
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AB and ITO-220AB package)
- Material categorization: for definitions of compliance please see www.vishav.com/doc?99912

TYPICAL APPLICATIONS

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

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, D2PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade

base 1/14-L5 - Nor15-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: as marked

Mounting Torque: 10 in-lbs maximum

MAXIMUM RATINGS (T _A = 25 °C unless otherwise noted)						
PARAMETER			MBR2090CT	MBR20100CT	UNIT	
Maximum repetitive peak reverse voltage			90	100	V	
Working peak reverse voltage			90	100	٧	
Maximum DC blocking voltage			90	100	V	
Maximum average forward rectified current at T _C = 133 °C	total device	1	20		А	
waxiiiuiii average loiward rectilled current at 1 _C = 135 C	per diode	I _{F(AV)}	10			
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode			150		Α	
Non-repetitive avalanche energy at T _J = 25 °C, L = 60 mH per diode			130		mJ	
Peak repetitive reverse current at t_p = 2 μ s, 1 kHz, T_J = 38 °C \pm 2 °C per diode		I _{RRM}	0.5		Α	
Voltage rate of change (rated V _R)			10 000		V/µs	
Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min			1500		V	
Operating junction and storage temperature range			-65 to +150		°C	

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ELECTRICAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	TEST CONDITIONS		SYMBOL	MAX.	UNIT	
Maximum instantaneous forward voltage per diode	I _F = 10 A	T _C = 25 °C		0.80	>	
	I _F = 10 A	T _C = 125 °C	V_F ⁽¹⁾	0.65		
	I _F = 20 A	T _C = 125 °C		0.75		
Maximum reverse current per diode at working peak reverse voltage		T _J = 25 °C	I _R ⁽²⁾	100	μΑ	
		T _J = 125 °C		6.0	mA	

Notes

(1) Pulse test: 300 µs pulse width, 1 % duty cycle

(2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T _A = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT	
Typical thermal resistance per diode	$R_{\theta JA}$	60	-	60	°C/W	
	$R_{\theta JC}$	2.0	3.5	2.0		

ORDERING INFORMATION (Example)							
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE		
TO-220AB	MBR20100CT-E3/4W	1.88	4W	50/tube	Tube		
ITO-220AB	MBRF20100CT-E3/4W	1.75	4W	50/tube	Tube		
TO-263AB	MBRB20100CT-E3/4W	1.38	4W	50/tube	Tube		
TO-263AB	MBRB20100CT-E3/8W	1.38	8W	800/reel	Tape and reel		

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

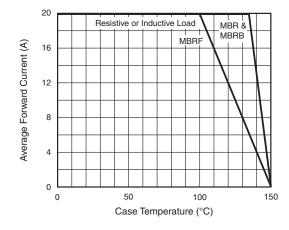


Fig. 1 - Forward Current Derating Curve

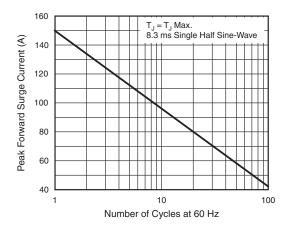


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode



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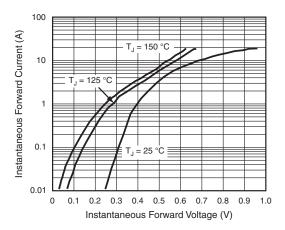


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

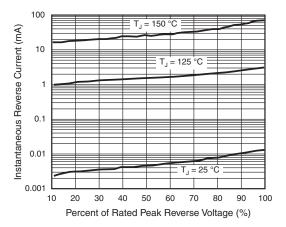


Fig. 4 - Typical Reverse Characteristics Per Diode

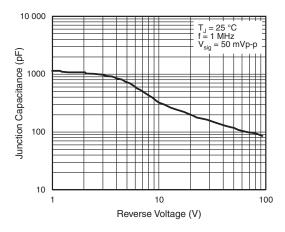


Fig. 5 - Typical Junction Capacitance Per Diode

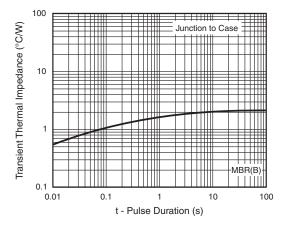


Fig. 6 - Typical Transient Thermal Impedance Per Diode

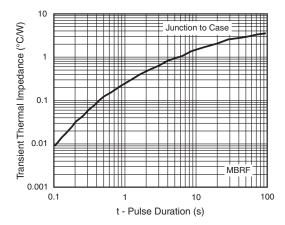


Fig. 7 - Typical Transient Thermal Impedance Per Diode

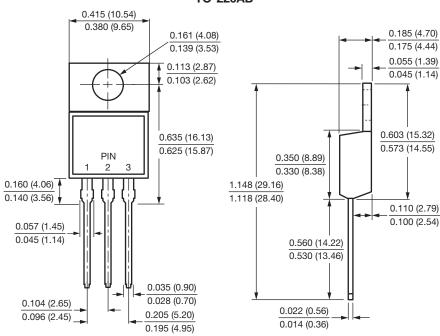


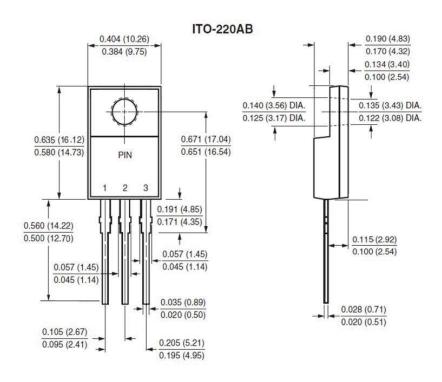
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PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

TO-220AB



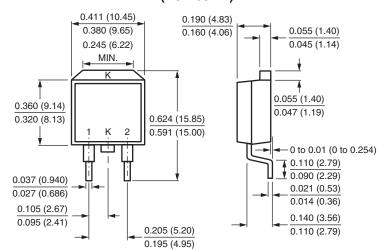




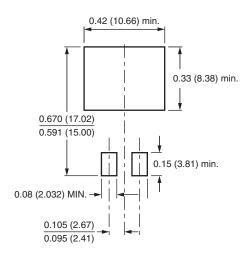
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D²PAK (TO-263AB)



Mounting Pad Layout







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