

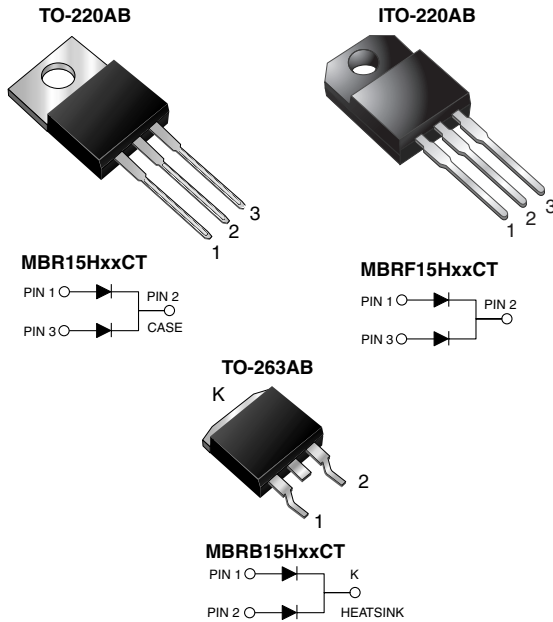


New Product  
**MBR(F,B)15H35CT thru MBR(F,B)15H60CT**

Vishay General Semiconductor

## Dual Common-Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



### FEATURES

- Guardring for overvoltage protection
- Lower power losses, high efficiency
- Low forward voltage drop
- Low leakage current
- 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 dip 260 °C, 40 s (for TO-220AB and ITO-220AB package)
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, dc-to-dc converters or polarity protection application.

### MECHANICAL DATA

**Case:** TO-220AB, ITO-220AB, TO-263AB

Epoxy meets UL 94V-0 flammability rating

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD22-B102

E3 suffix for consumer grade, meets JESD 201 class 1A whisker test, HE3 suffix for high reliability grade (AEC Q101 qualified), meets JESD 201 class 2 whisker test

**Polarity:** As marked

**Mounting Torque:** 10 in-lbs maximum

### PRIMARY CHARACTERISTICS

$I_{F(AV)}$	7.5 A x 2
$V_{RRM}$	35 V to 60 V
$I_{FSM}$	150 A
$V_F$	0.55 V, 0.61 V
$I_R$	50 $\mu$ A
$T_J$ max.	175 °C

### MAXIMUM RATINGS ( $T_C = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	MBR15H35CT	MBR15H45CT	MBR15H50CT	MBR15H60CT	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	35	45	50	60	V
Working peak reverse voltage	$V_{RWM}$	35	45	50	60	V
Maximum DC blocking voltage	$V_{DC}$	35	45	50	60	V
Max. average forward rectified current total device per diode (Fig. 1)	$I_{F(AV)}$	15 7.5				A
Non-repetitive avalanche energy per diode at 25 °C, $I_{AS} = 4$ A, $L = 10$ mH	$E_{AS}$	80				mJ
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	150				A
Peak repetitive reverse surge current per diode at $t_p = 2.0$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0		0.5		A
Peak non-repetitive reverse energy (8/20 $\mu$ s waveform)	$E_{RSM}$	20		10		mJ

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PARAMETER	SYMBOL	MBR15H35CT	MBR15H45CT	MBR15H50CT	MBR15H60CT	UNIT
Electrostatic discharge capacitor voltage human body model: C = 100 F, R = 1.5 kΩ	V <sub>C</sub>	25				kV
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000				V/μs
Operating junction temperature range	T <sub>J</sub>	- 65 to + 175				°C
Storage temperature range	T <sub>STG</sub>	- 65 to + 175				°C
Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min	V <sub>AC</sub>	1500				V

ELECTRICAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)								
PARAMETER	TEST CONDITIONS		SYMBOL	MBR15H35CT MBR15H45CT		MBR15H50CT MBR15H60CT		UNIT
				TYP.	MAX.	TYP.	MAX.	
Maximum instantaneous forward voltage per diode <sup>(1)</sup>	I <sub>F</sub> = 7.5 A	T <sub>J</sub> = 25 °C	V <sub>F</sub>	-	0.63	-	0.73	V
	I <sub>F</sub> = 7.5 A	T <sub>J</sub> = 125 °C		0.50	0.55	0.58	0.61	
	I <sub>F</sub> = 15 A	T <sub>J</sub> = 25 °C		-	0.75	-	0.87	
	I <sub>F</sub> = 15 A	T <sub>J</sub> = 125 °C		0.61	0.66	0.68	0.72	
Maximum reverse current at rated V <sub>R</sub> per diode <sup>(2)</sup>		T <sub>J</sub> = 25 °C T <sub>J</sub> = 125 °C	I <sub>R</sub>	- 3.0	50 10	- 2.0	50 10	μA mA

**Notes:**

- (1) Pulse test: 300 μs pulse width, 1 % duty cycle
- (2) Pulse test: Pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT	
Maximum thermal resistance per diode	R <sub>θJC</sub>	3.0	5.0	3.0	°C/W	

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR15H45CT-E3/45	1.85	45	50/tube	Tube
ITO-220AB	MBRF15H45CT-E3/45	1.99	45	50/tube	Tube
TO-263AB	MBRB15H45CT-E3/45	1.35	45	50/tube	Tube
TO-263AB	MBRB15H45CT-E3/81	1.35	81	800/reel	Tape and reel
TO-220AB	MBR15H45CTHE3/45 <sup>(1)</sup>	1.85	45	50/tube	Tube
ITO-220AB	MBRF15H45CTHE3/45 <sup>(1)</sup>	1.99	45	50/tube	Tube
TO-263AB	MBRB15H45CTHE3/45 <sup>(1)</sup>	1.35	45	50/tube	Tube
TO-263AB	MBRB15H45CTHE3/81 <sup>(1)</sup>	1.35	81	800/reel	Tape and reel

**Note:**

- (1) Automotive grade AEC Q101 qualified



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## RATINGS AND CHARACTERISTICS CURVES

( $T_A = 25\text{ }^\circ\text{C}$  unless otherwise noted)

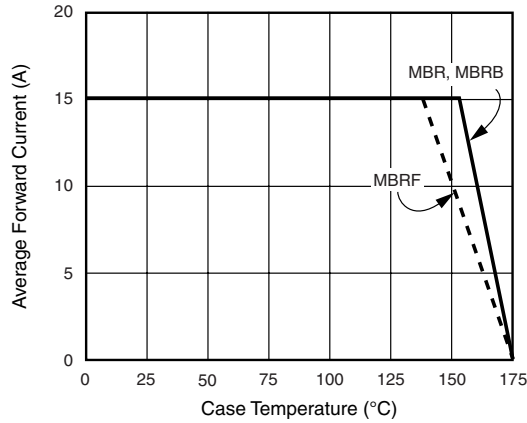


Figure 1. Forward Derating Curve Per Diode

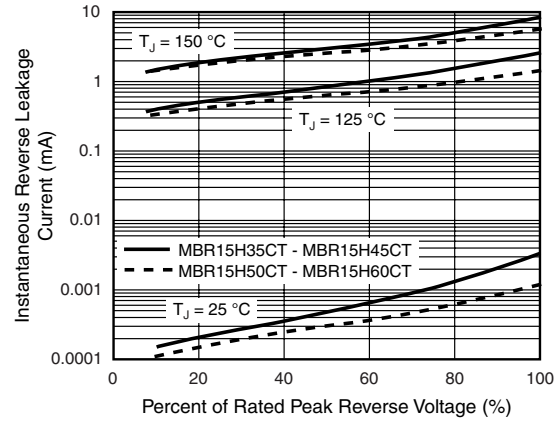


Figure 4. Typical Reverse Characteristics Per Diode

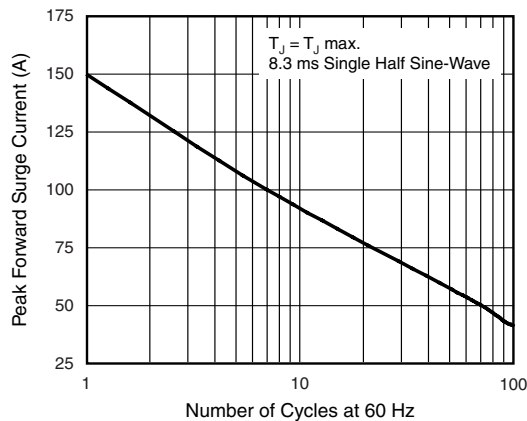


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

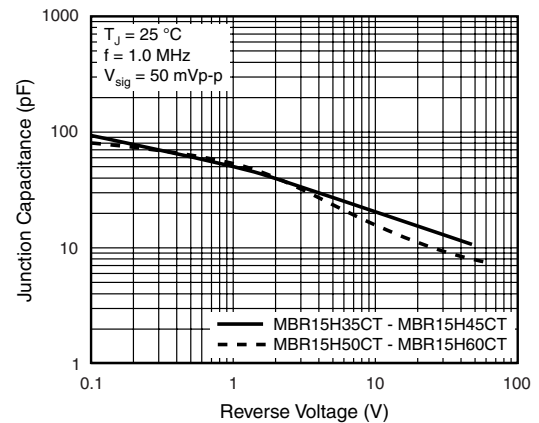


Figure 5. Typical Junction Capacitance Per Diode

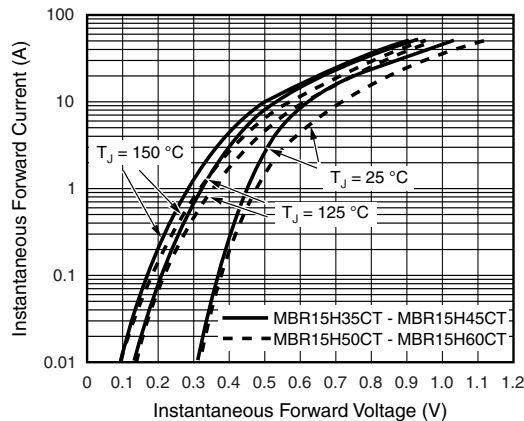


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

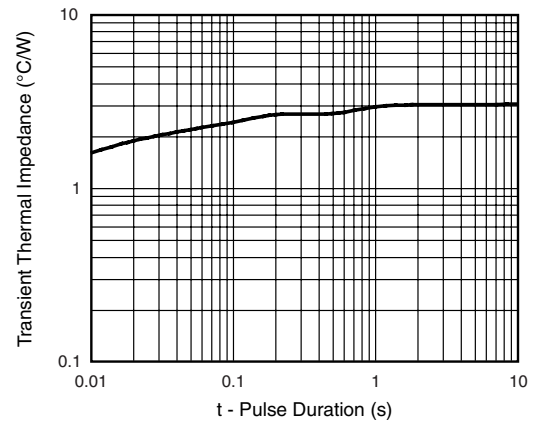


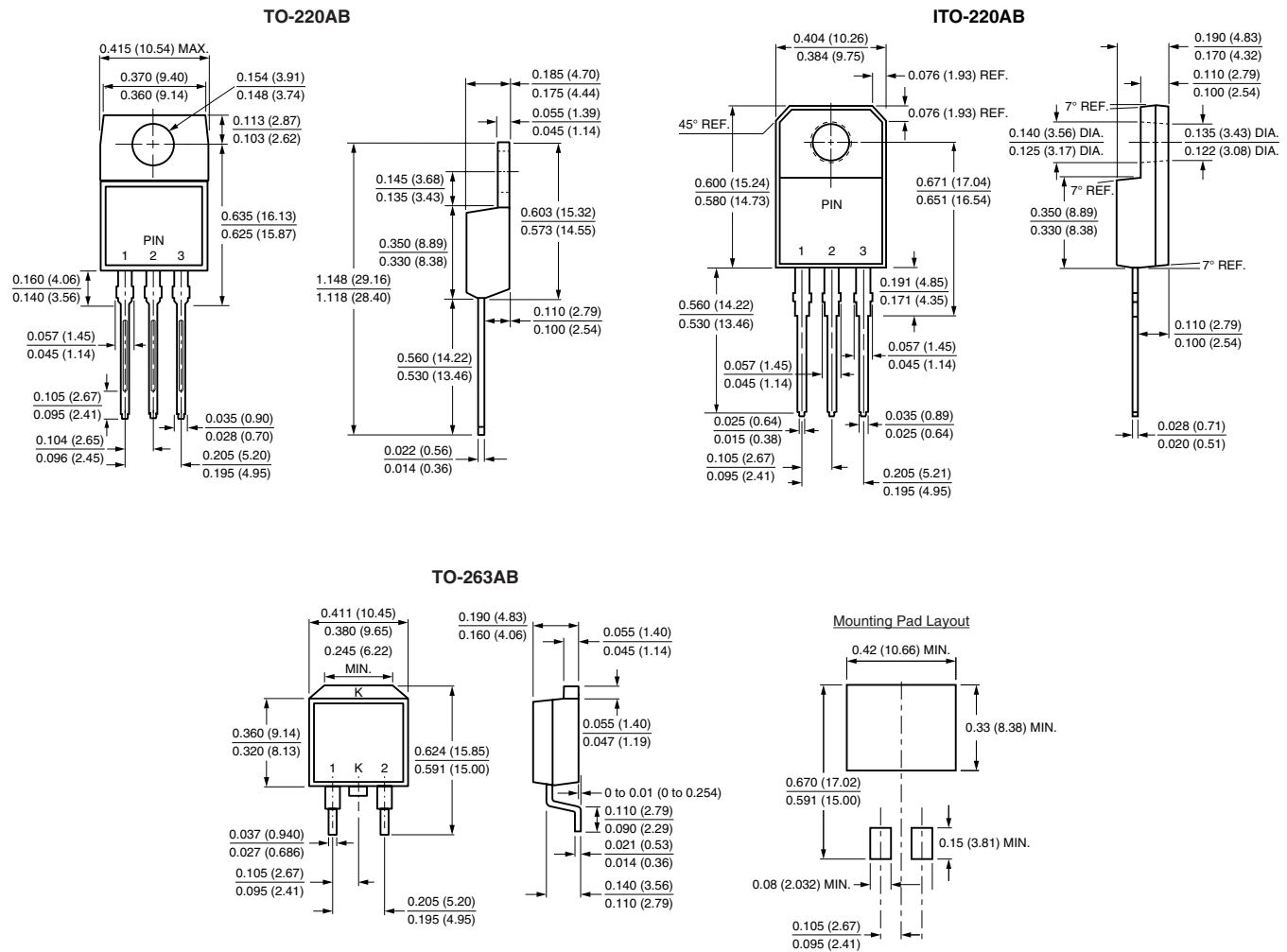
Figure 6. Typical Transient Thermal Impedance Per Diode

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## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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