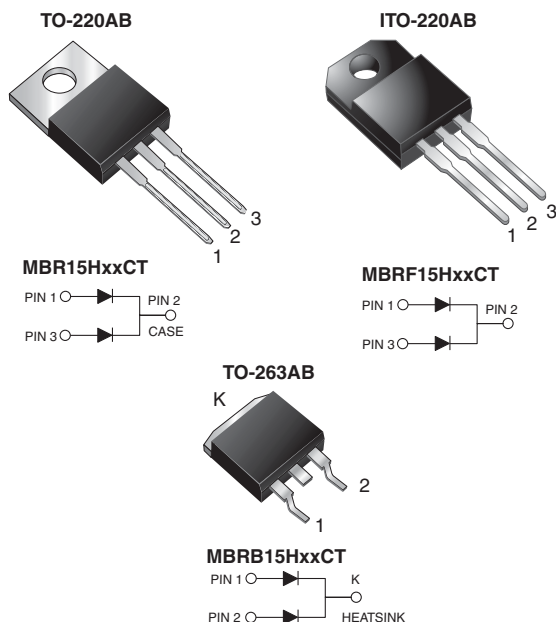




## Dual Common Cathode Schottky Rectifier

High Barrier Technology for Improved High Temperature Performance



### FEATURES

- Guardring for overvoltage protection
- Low power loss, 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 bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for TO-220AB and ITO-220AB package)
- AEC-Q101 qualified
- 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 low voltage, high frequency rectifier of switching mode power supplies, freewheeling diodes, DC/DC converters and polarity protection application.

### MECHANICAL DATA

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

Molding compound meets UL 94 V-0 flammability rating

Base P/N-E3 - RoHS-compliant, commercial grade

Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

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

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix 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, 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 <sub>RRM</sub>	35	45	50	60	V
Working peak reverse voltage	V <sub>RWM</sub>	35	45	50	60	
Maximum DC blocking voltage	V <sub>DC</sub>	35	45	50	60	
Maximum average forward rectified current (Fig. 1)	I <sub>F(AV)</sub> total device per diode	15				A
		7.5				
Non-repetitive avalanche energy at 25 °C, I <sub>AS</sub> = 4 A, L = 10 mH per diode	E <sub>AS</sub>	80				mJ
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I <sub>FSM</sub>	150				A
Peak repetitive reverse surge current per diode at t <sub>p</sub> = 2.0 μs, 1 kHz	I <sub>RRM</sub>	1.0		0.5		
Peak non-repetitive reverse energy (8/20 μs waveform)	E <sub>RSM</sub>	20		10		mJ
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 and storage temperature range	T <sub>J</sub> , 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** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS		MBR15H35CT MBR15H45CT		MBR15H50CT MBR15H60CT		UNIT
				TYP.	MAX.	TYP.	MAX.	
Maximum instantaneous forward voltage per diode	V <sub>F</sub> <sup>(1)</sup>	I <sub>F</sub> = 7.5 A	T <sub>J</sub> = 25 °C	-	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 per diode	I <sub>R</sub> <sup>(2)</sup>	Rated V <sub>R</sub>	T <sub>J</sub> = 25 °C	-	50	-	50	μA
			T <sub>J</sub> = 125 °C	3.0	10	2.0	10	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** ( $T_C = 25\text{ }^{\circ}\text{C}$  unless otherwise noted)

PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT
Maximum thermal resistance per diode	$R_{\theta JC}$	3.0	5.0	3.0	$^{\circ}\text{C/W}$

**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) AEC-Q101 qualified



## RATINGS AND CHARACTERISTICS CURVES

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

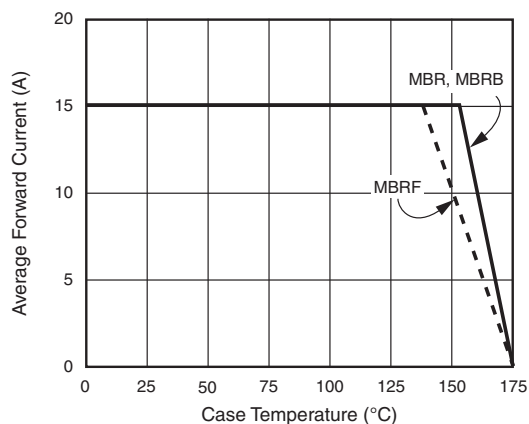


Fig. 1 - Forward Derating Curve Per Diode

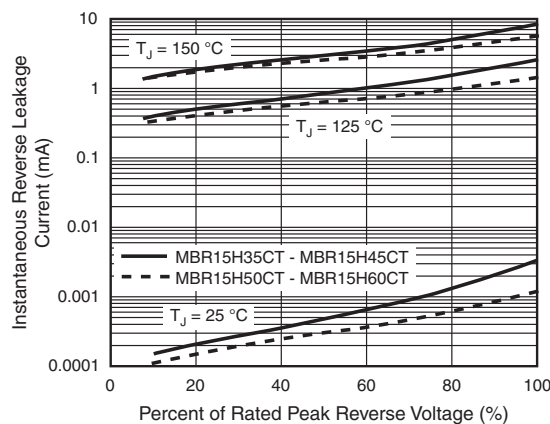


Fig. 4 - Typical Reverse Characteristics Per Diode

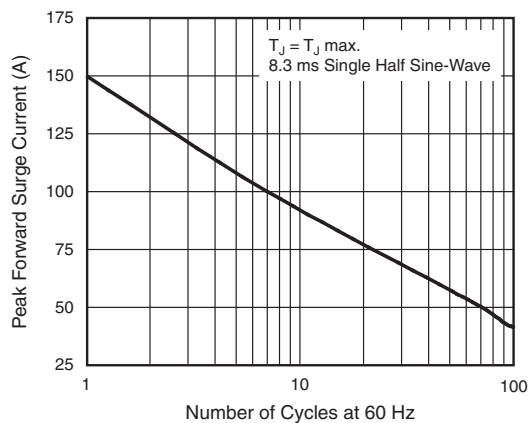


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

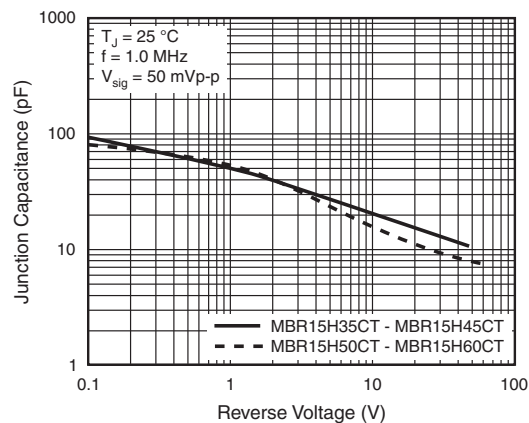


Fig. 5 - Typical Junction Capacitance Per Diode

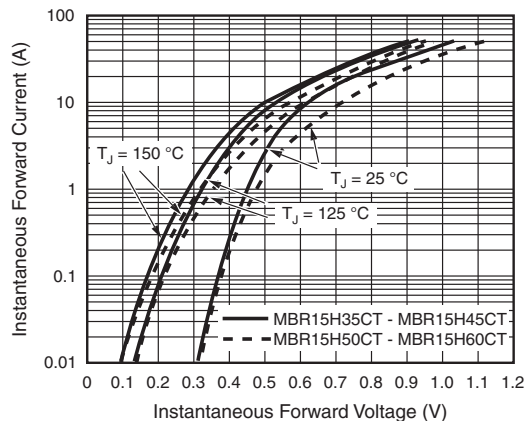


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

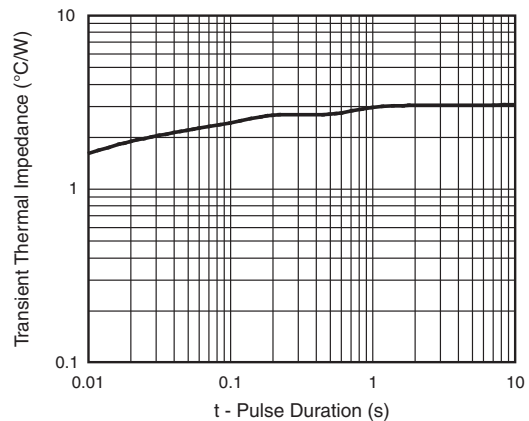
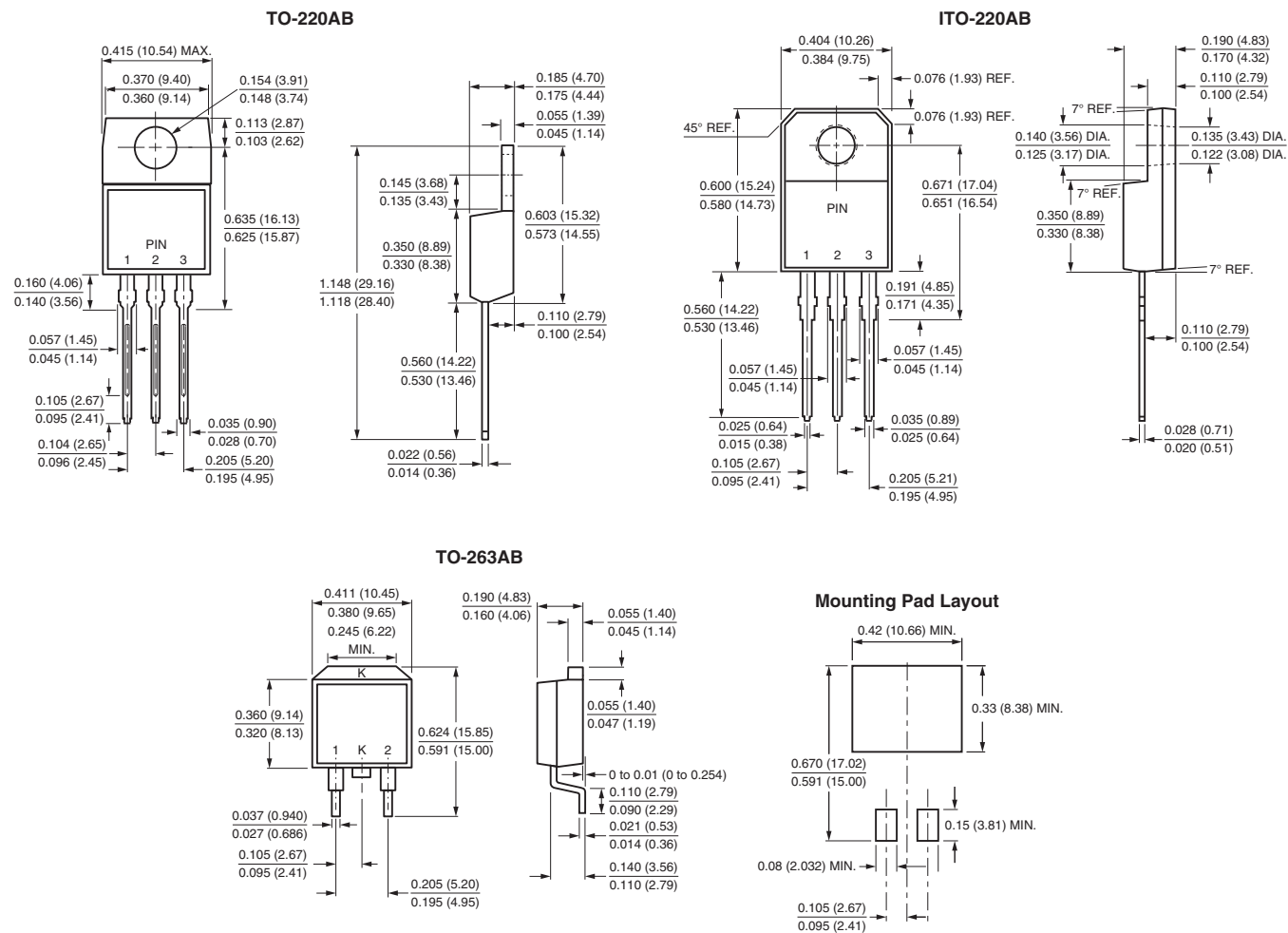


Fig. 6 - Typical Transient Thermal Impedance Per Diode



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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