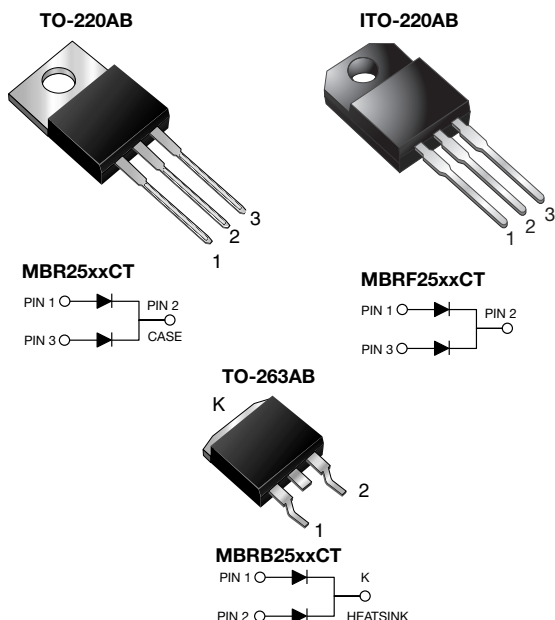


## Dual Common-Cathode Schottky Rectifier



### FEATURES

- Guardring for overvoltage protection
- 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 dip 260 °C, 40 s (for TO-220AB and ITO-220AB package)
- Compliant to RoHS 2002/95/EC and in accordance to 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 94 V-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

$I_{F(AV)}$	2 x 12.5 A
$V_{RRM}$	35 V to 60 V
$I_{FSM}$	150 A
$V_F$	0.73 V at 30 A, 0.65 V at 15 A
$T_J$ max.	150 °C

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

PARAMETER	SYMBOL	MBR2535CT	MBR2545CT	MBR2550CT	MBR2560CT	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 at T <sub>C</sub> = 130 °C	I <sub>F(AV)</sub>	25				A
		12.5				
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 μs, 1 kHz	I <sub>RRM</sub>	1.0		0.5		
Peak non-repetitive reverse energy (8/20 μs waveform) per diode	E <sub>RSM</sub>	25				mJ
Electrostatic discharge capacitor voltage human body model: C = 100 pF, 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

# MBR(F,B)2535CT thru MBR(F,B)2560CT

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MAXIMUM RATINGS (T <sub>C</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	MBR2535CT	MBR2545CT	MBR2550CT	MBR2560CT	UNIT
Operating junction temperature range	T <sub>J</sub>	- 65 to + 150				°C
Storage temperature range	T <sub>STG</sub>	- 65 to + 175				
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	MBR2535CT	MBR2545CT	MBR2550CT	MBR2560CT	UNIT
Maximum instantaneous forward voltage per diode	I <sub>F</sub> = 15 A	T <sub>C</sub> = 25 °C	V <sub>F</sub> <sup>(1)</sup>	-		0.75		V
		T <sub>C</sub> = 125 °C		-		0.65		
	I <sub>F</sub> = 30 A	T <sub>C</sub> = 25 °C		0.82		-		
		T <sub>C</sub> = 125 °C		0.73		-		
Maximum instantaneous reverse current at blocking voltage per diode			I <sub>R</sub> <sup>(1)</sup>	0.2		1.0		mA
				40		50		

## Note

<sup>(1)</sup> Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)					
PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT
Typical thermal resistance from junction to case per diode	R <sub>θJC</sub>	1.5	4.5	1.5	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR2545CT-E3/45	1.85	45	50/tube	Tube
ITO-220AB	MBRF2545CT-E3/45	1.99	45	50/tube	Tube
TO-263AB	MBRB2545CT-E3/45	1.35	45	50/tube	Tube
TO-263AB	MBRB2545CT-E3/81	1.35	81	800/reel	Tape and reel
TO-220AB	MBR2545CT-E3/4W	1.85	4W	50/tube	Tube
TO-220AB	MBR2545CTHE3/45 <sup>(1)</sup>	1.85	45	50/tube	Tube
ITO-220AB	MBRF2545CTHE3/45 <sup>(1)</sup>	1.99	45	50/tube	Tube
TO-263AB	MBRB2545CTHE3/45 <sup>(1)</sup>	1.35	45	50/tube	Tube
TO-263AB	MBRB2545CTHE3/81 <sup>(1)</sup>	1.35	81	800/reel	Tape and reel

## Note

<sup>(1)</sup> AEC-Q101 qualified



## RATINGS AND CHARACTERISTICS CURVES

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

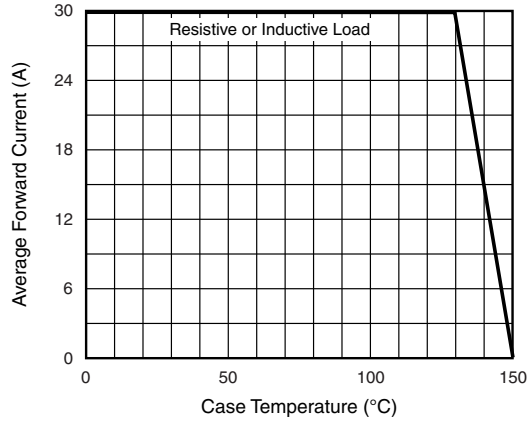


Fig. 1 - Forward Current Derating Curve

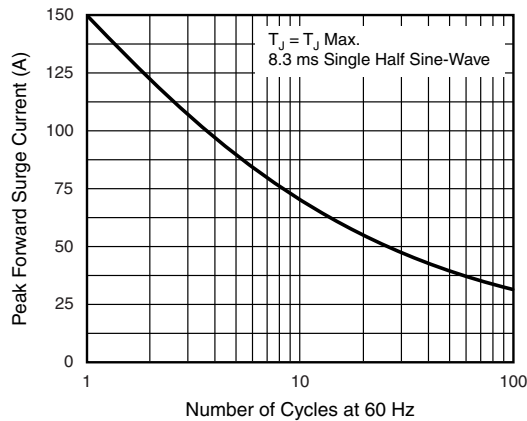


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

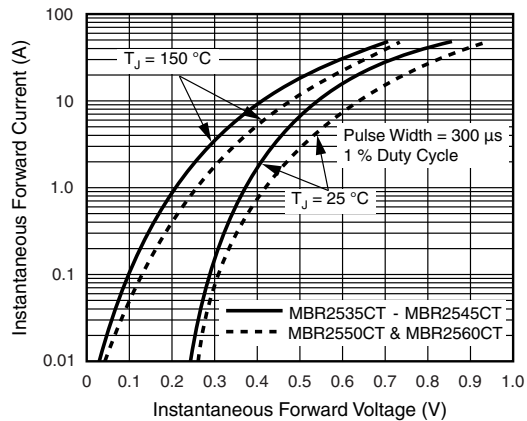


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

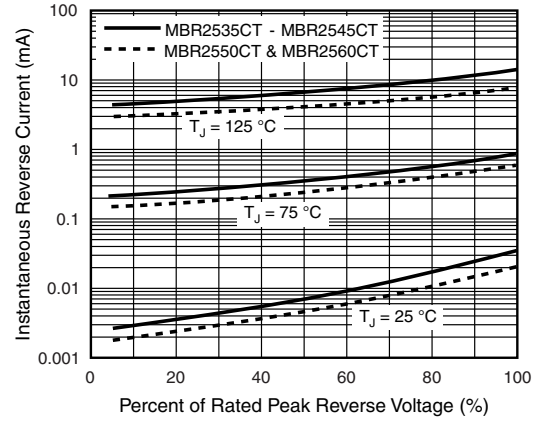


Fig. 4 - Typical Reverse Characteristics Per Diode

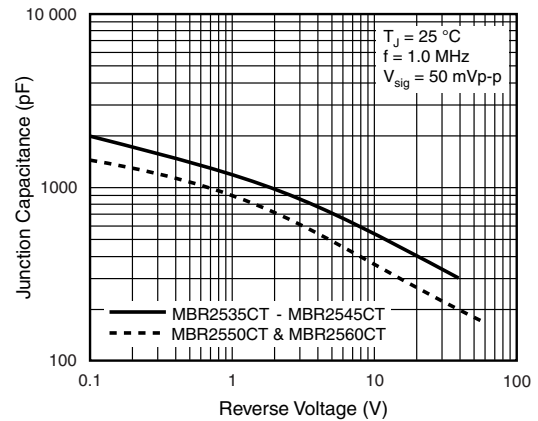


Fig. 5 - Typical Junction Capacitance Per Diode

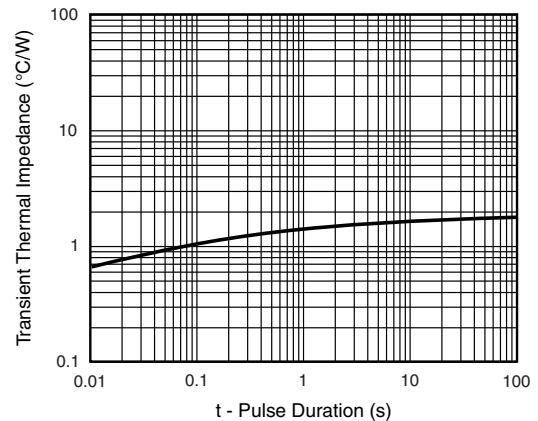


Fig. 6 - Typical Transient Thermal Impedance Per Diode

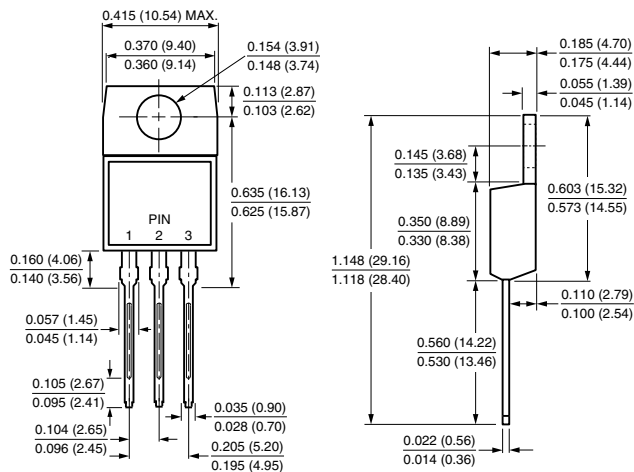
# MBR(F,B)2535CT thru MBR(F,B)2560CT

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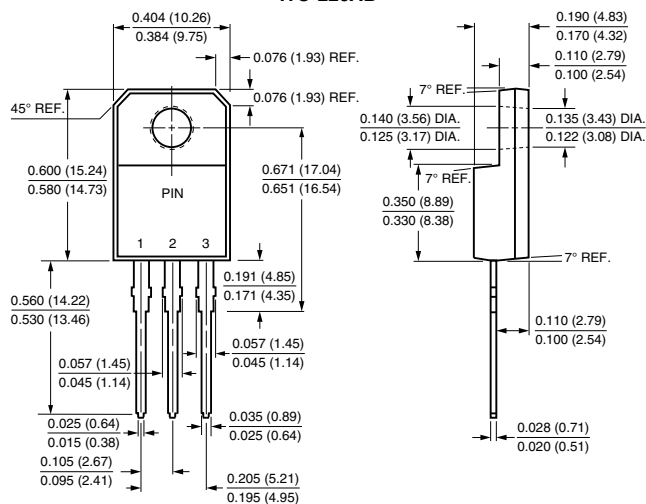


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

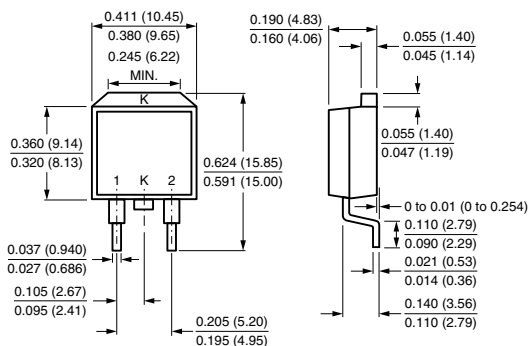
TO-220AB



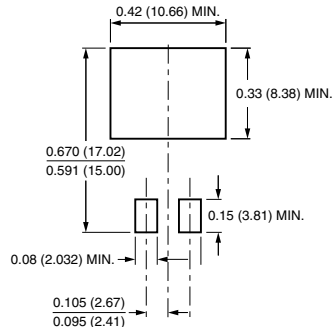
ITO-220AB



TO-263AB



Mounting Pad Layout





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