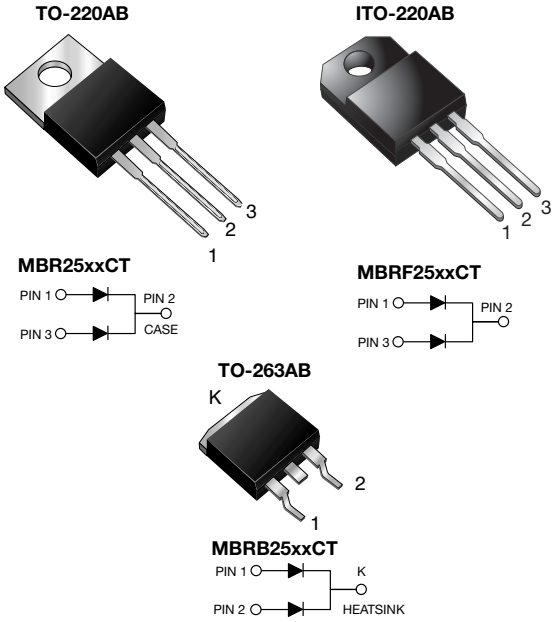
Dual Common Cathode Schottky Rectifier



FEATURES

- Power pack
- 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)
- Material categorization: For definitions of compliance please see 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, or polarity protection application.

MECHANICAL DATA

Case: TO-220AB, ITO-220AB, TO-263AB
Epoxy 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 JESD22-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	
$I_{F(AV)}$	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
Package	TO-220AB, ITO-220AB, TO-263AB
Diode variations	Common cathode

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

PARAMETER		SYMBOL	MBR2535CT	MBR2545CT	MBR2550CT	MBR2560CT	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	35	45	50	60	V
Working peak reverse voltage		V_{RWM}	35	45	50	60	
Maximum DC blocking voltage		V_{DC}	35	45	50	60	
Maximum average forward rectified current at T_C = 130 °C	total device	$I_{F(AV)}$	25				A
	per diode		12.5				
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 µs, 1 kHz		I_{RRM}	1.0		0.5		
Peak non-repetitive reverse energy (8/20 µs waveform) per diode		E_{RSM}	25				mJ
Electrostatic discharge capacitor voltage human body model: C = 100 pF, R = 1.5 kΩ		V_C	25				kV
Voltage rate of change (rated V_R)		dV/dt	10 000				V/µs
Operating junction temperature range		T_J	- 65 to + 150				°C
Storage temperature range		T_{STG}	- 65 to + 175				
Isolation voltage (ITO-220AB only) from terminal to heatsink t = 1 min		V_{AC}	1500				V

ELECTRICAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)								
PARAMETER	**TEST CONDITIONS**		**SYMBOL**	**MBR2535CT**	**MBR2545CT**	**MBR2550CT**	**MBR2560CT**	**UNIT**
Maximum instantaneous forward voltage per diode	I_F = 15 A	T_C = 25 °C	V_F (1)	-		0.75		V
		T_C = 125 °C		-		0.65		
	I_F = 30 A	T_C = 25 °C		0.82		-		
		T_C = 125 °C		0.73		-		
Maximum instantaneous reverse current at blocking voltage per diode		T_C = 25 °C	I_R (1)	0.2		1.0		mA
		T_C = 125 °C		40		50		

Note

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

THERMAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)					
PARAMETER	**SYMBOL**	**MBR**	**MBRF**	**MBRB**	**UNIT**
Typical thermal resistance from junction to case per diode	$R_{\theta JC}$	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 (1)	1.85	45	50/tube	Tube
ITO-220AB	MBRF2545CTHE3/45 (1)	1.99	45	50/tube	Tube
TO-263AB	MBRB2545CTHE3/45 (1)	1.35	45	50/tube	Tube
TO-263AB	MBRB2545CTHE3/81 (1)	1.35	81	800/reel	Tape and reel

Note

(1) AEC-Q101 qualified

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

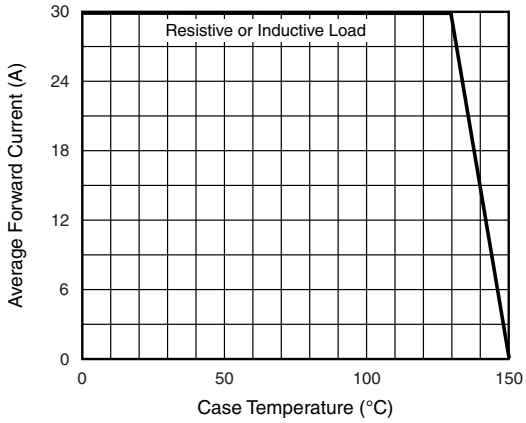


Fig. 1 - Forward Current Derating Curve

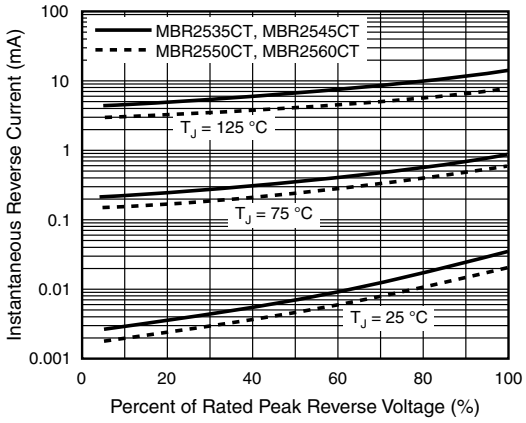


Fig. 4 - Typical Reverse Characteristics Per Diode

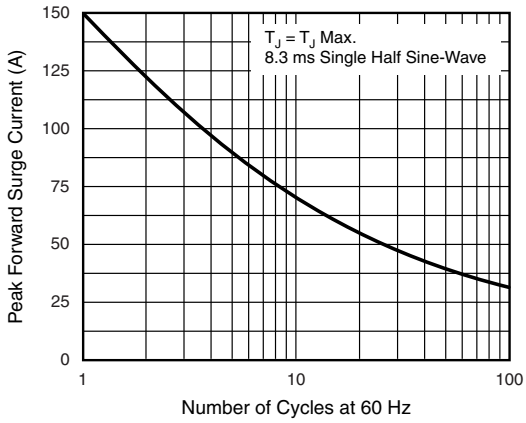


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

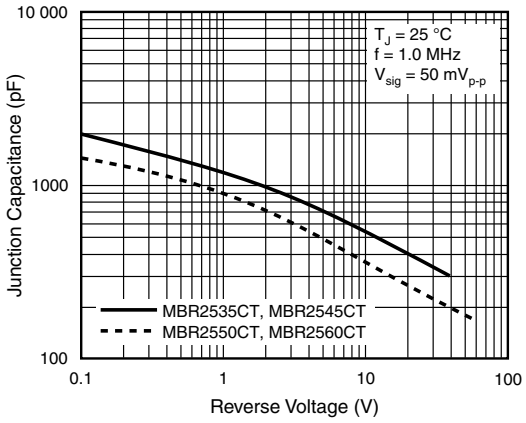


Fig. 5 - Typical Junction Capacitance Per Diode

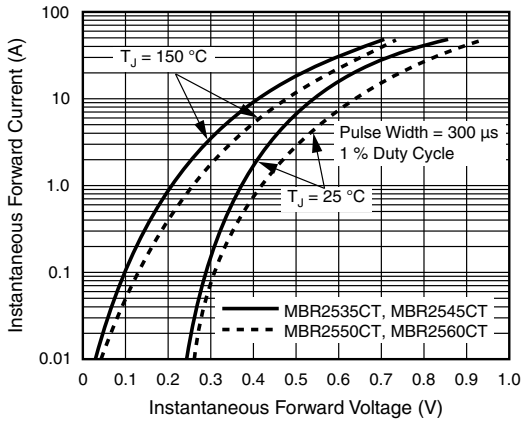


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

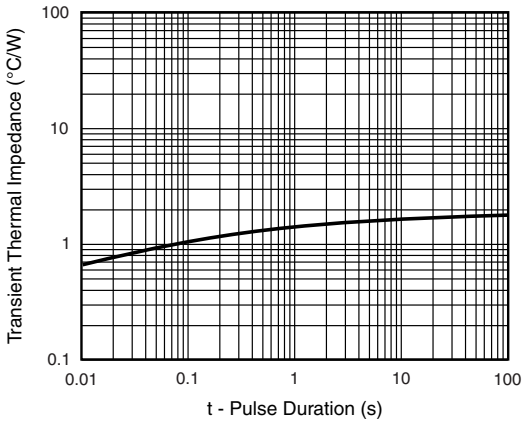
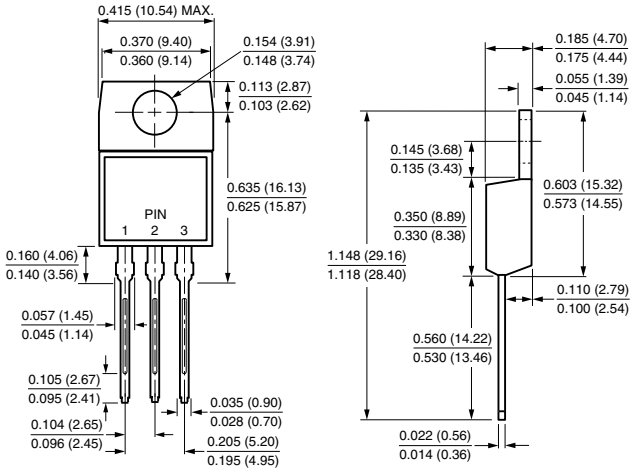


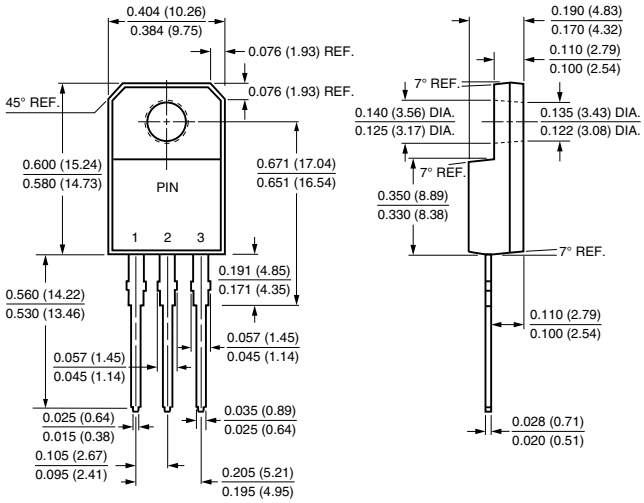
Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

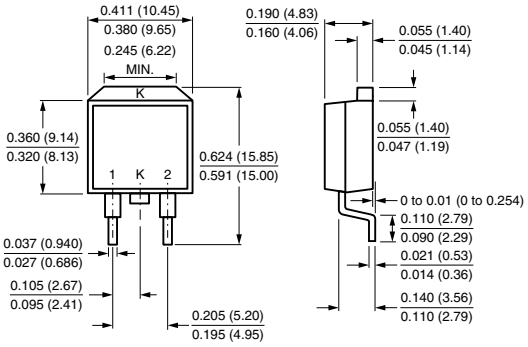
TO-220AB



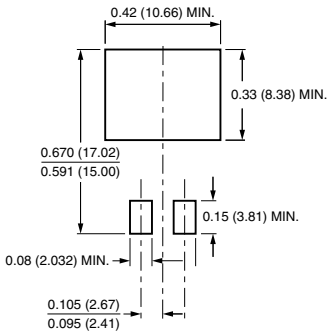
ITO-220AB



TO-263AB



Mounting Pad Layout



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