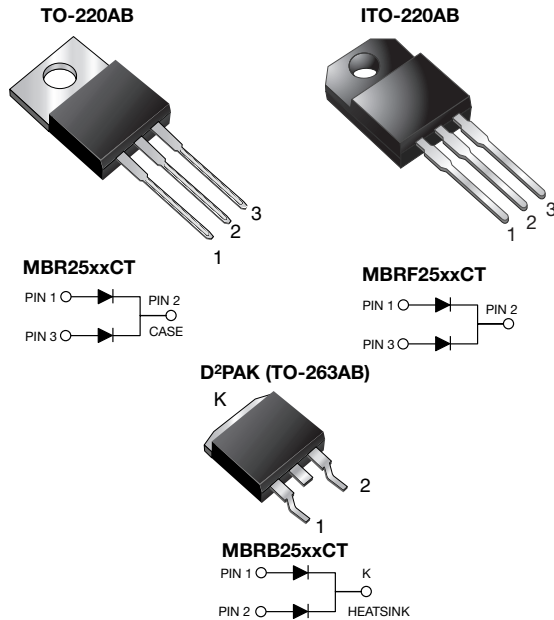


Dual Common Cathode Schottky Rectifier



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 D²PAK (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 available
 - Automotive ordering code: base P/NHE3_A
- 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, D²PAK (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

Base P/NHE3_X - RoHS-compliant, AEC-Q101 qualified ("_X" denotes revision code, e.g. A, B, ...)

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

E3 suffix meets JESD 201 class 2 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, 45 V
I_{FSM}	150 A
V_F	0.73 V at 30 A
T_J max.	150 °C
Package	TO-220AB, ITO-220AB, D ² PAK (TO-263AB)
Circuit configuration	Common cathode

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

PARAMETER	SYMBOL	MBR2535CT	MBR2545CT	UNIT
Maximum repetitive peak reverse voltage	V_{RRM}	35	45	V
Working peak reverse voltage	V_{RWM}	35	45	
Maximum DC blocking voltage	V_{DC}	35	45	
Maximum average forward rectified current at $T_C = 130$ °C	$I_{F(AV)}$	total device	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		
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 ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS	SYMBOL	MBR2535CT	MBR2545CT	UNIT
Maximum instantaneous forward voltage per diode	$I_F = 15\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$	-		V
		$T_C = 125\text{ }^\circ\text{C}$	-		
	$I_F = 30\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$	0.82		
		$T_C = 125\text{ }^\circ\text{C}$	0.73		
Maximum instantaneous reverse current at blocking voltage per diode		$T_C = 25\text{ }^\circ\text{C}$	0.2		mA
		$T_C = 125\text{ }^\circ\text{C}$	40		

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

THERMAL CHARACTERISTICS ($T_C = 25\text{ }^\circ\text{C}$ 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	$^\circ\text{C/W}$

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
TO-263AB	MBRB2545CTHE3_A/P (1)	1.35	P	50/tube	Tube
TO-263AB	MBRB2545CTHE3_A/I (1)	1.35	I	800/reel	Tape and reel

Note

(1) AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)

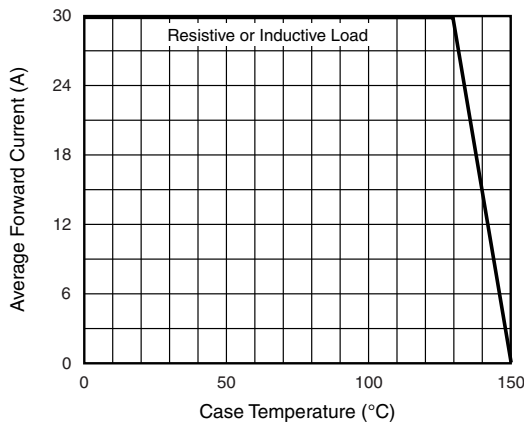


Fig. 1 - Forward Current Derating Curve

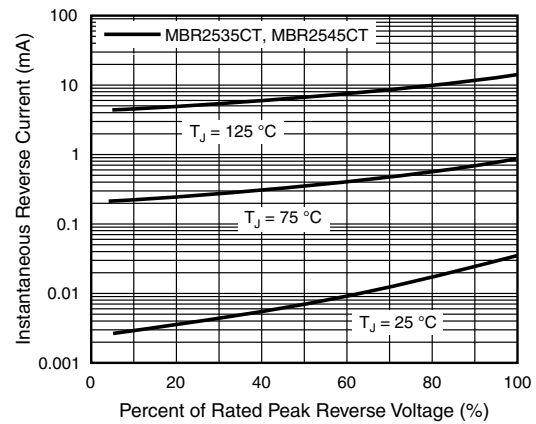


Fig. 4 - Typical Reverse Characteristics Per Diode

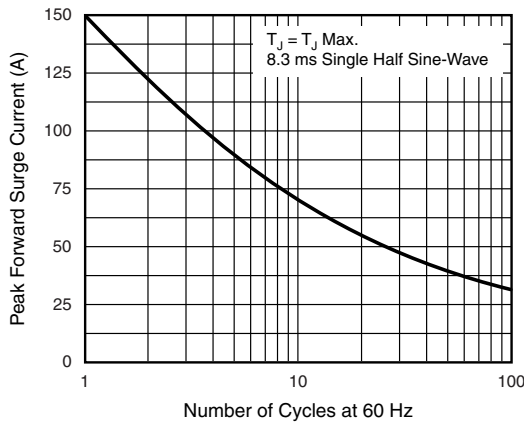


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

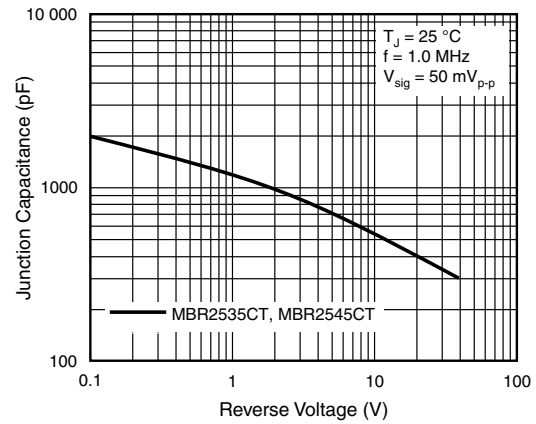


Fig. 5 - Typical Junction Capacitance Per Diode

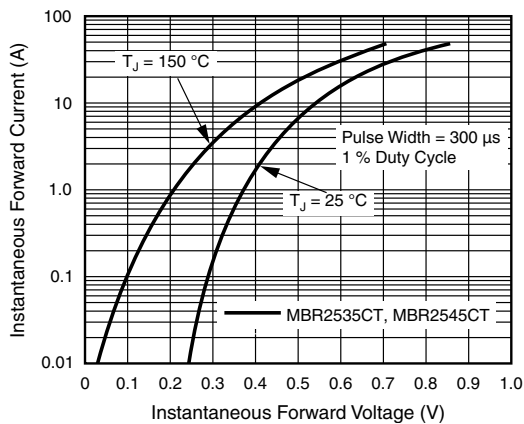


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

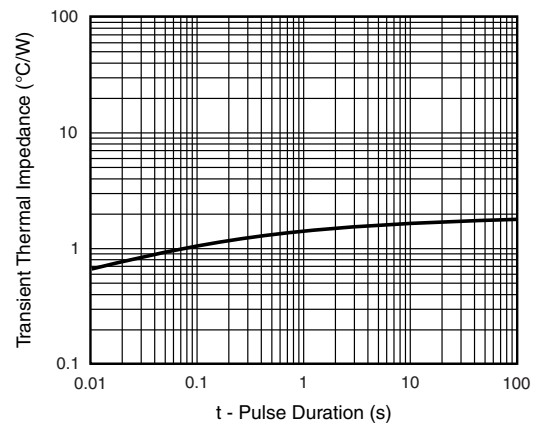
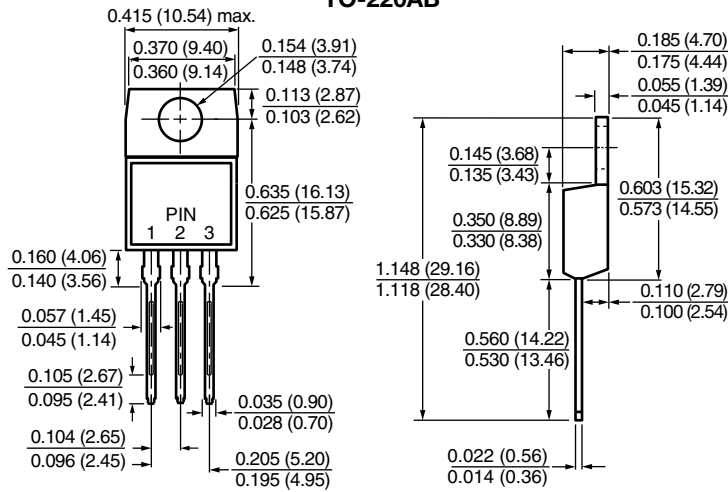


Fig. 6 - Typical Transient Thermal Impedance Per Diode

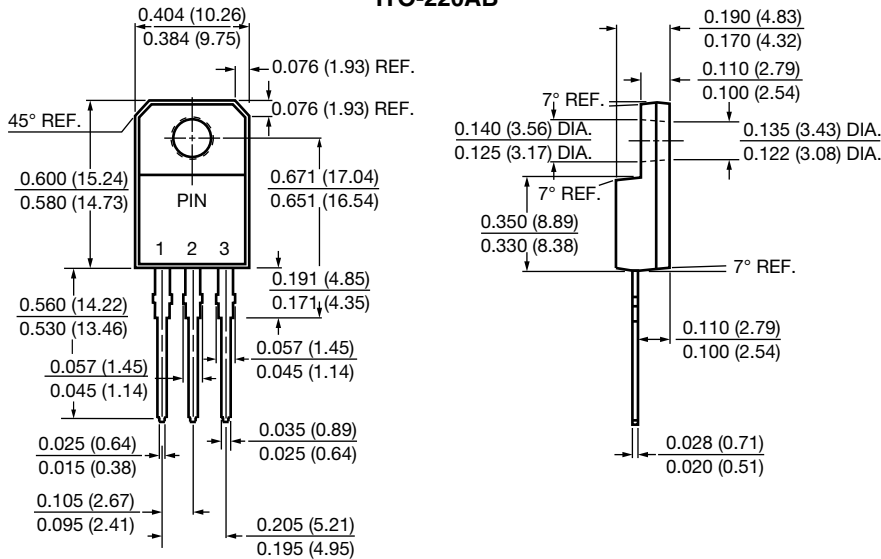


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

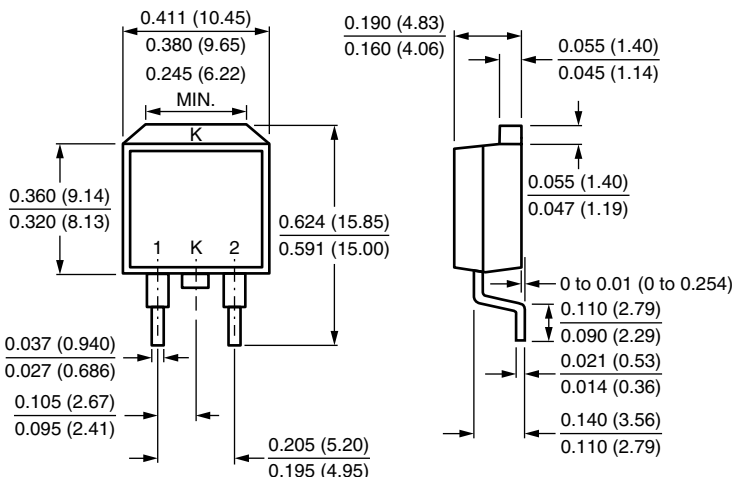
TO-220AB



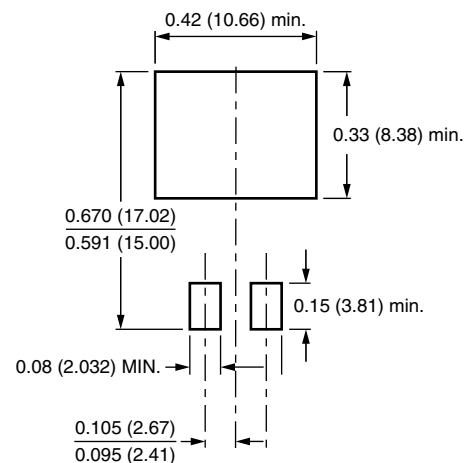
ITO-220AB



D²PAK (TO-263AB)



Mounting Pad Layout





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