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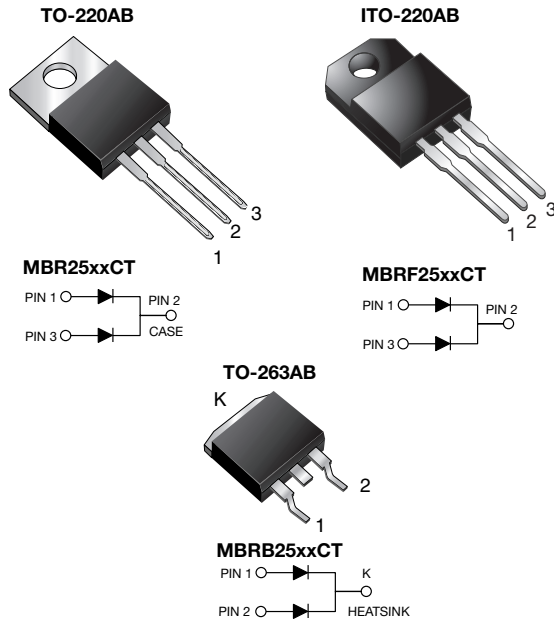
Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



## 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 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](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, 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  
 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, 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	MBR2560CT	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	35	45	60	V
Working peak reverse voltage	$V_{RWM}$	35	45	60	
Maximum DC blocking voltage	$V_{DC}$	35	45	60	
Maximum average forward rectified current at $T_C = 130$ °C	$I_{F(AV)}$	25		12.5	A
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 $t_p = 2$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0		0.5	A
Peak non-repetitive reverse energy (8/20 $\mu$ s waveform) per diode	$E_{RSM}$	25			mJ
Electrostatic discharge capacitor voltage human body model: C = 100 pF, R = 1.5 k $\Omega$	$V_C$	25			kV
Voltage rate of change (rated $V_R$ )	dV/dt	10 000			V/ $\mu$ s
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



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)						
PARAMETER	TEST CONDITIONS	SYMBOL	MBR2535CT	MBR2545CT	MBR2560CT	UNIT
Maximum instantaneous forward voltage per diode	$I_F = 15\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	-	0.75	V
		$T_C = 125\text{ }^\circ\text{C}$		-	0.65	
	$I_F = 30\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$		0.82	-	
		$T_C = 125\text{ }^\circ\text{C}$		0.73	-	
Maximum instantaneous reverse current at blocking voltage per diode		$T_C = 25\text{ }^\circ\text{C}$	$I_R^{(1)}$	0.2	1.0	mA
		$T_C = 125\text{ }^\circ\text{C}$		40	50	

**Note**(1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle

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

<b>ORDERING INFORMATION</b> (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
TO-263AB	MBRB2545CTHE3_A/P <sup>(1)</sup>	1.35	P	50/tube	Tube
TO-263AB	MBRB2545CTHE3_A/I <sup>(1)</sup>	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)

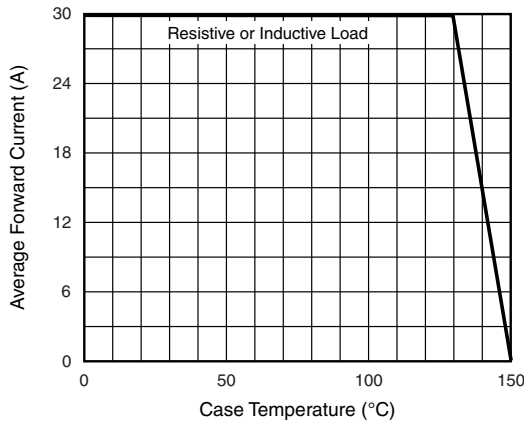


Fig. 1 - Forward Current Derating Curve

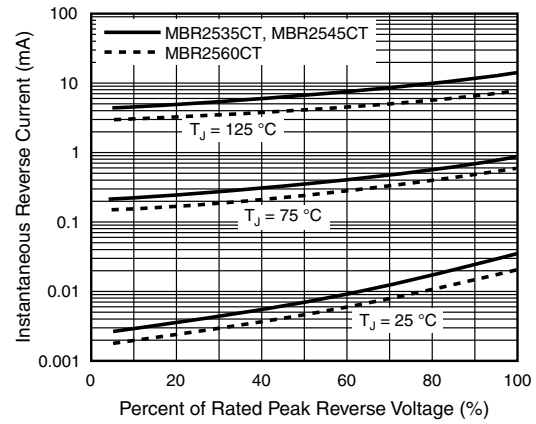


Fig. 4 - Typical Reverse Characteristics Per Diode

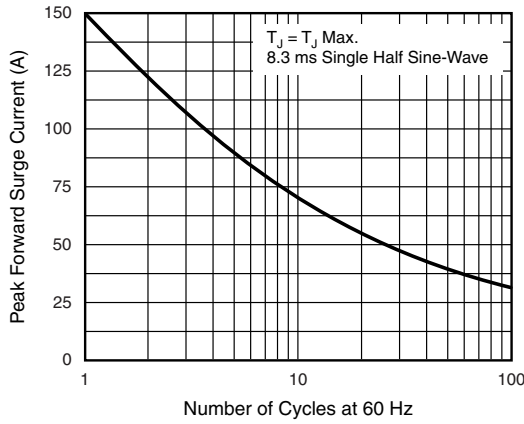


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

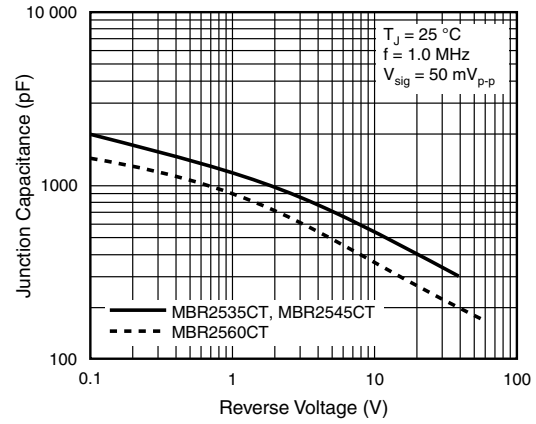


Fig. 5 - Typical Junction Capacitance Per Diode

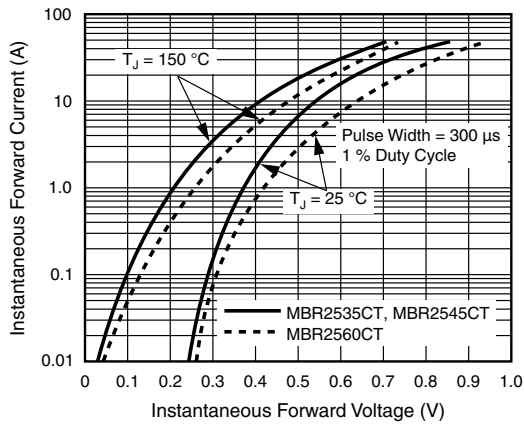


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

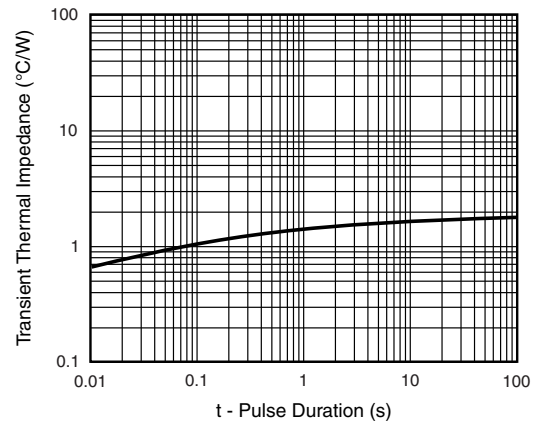
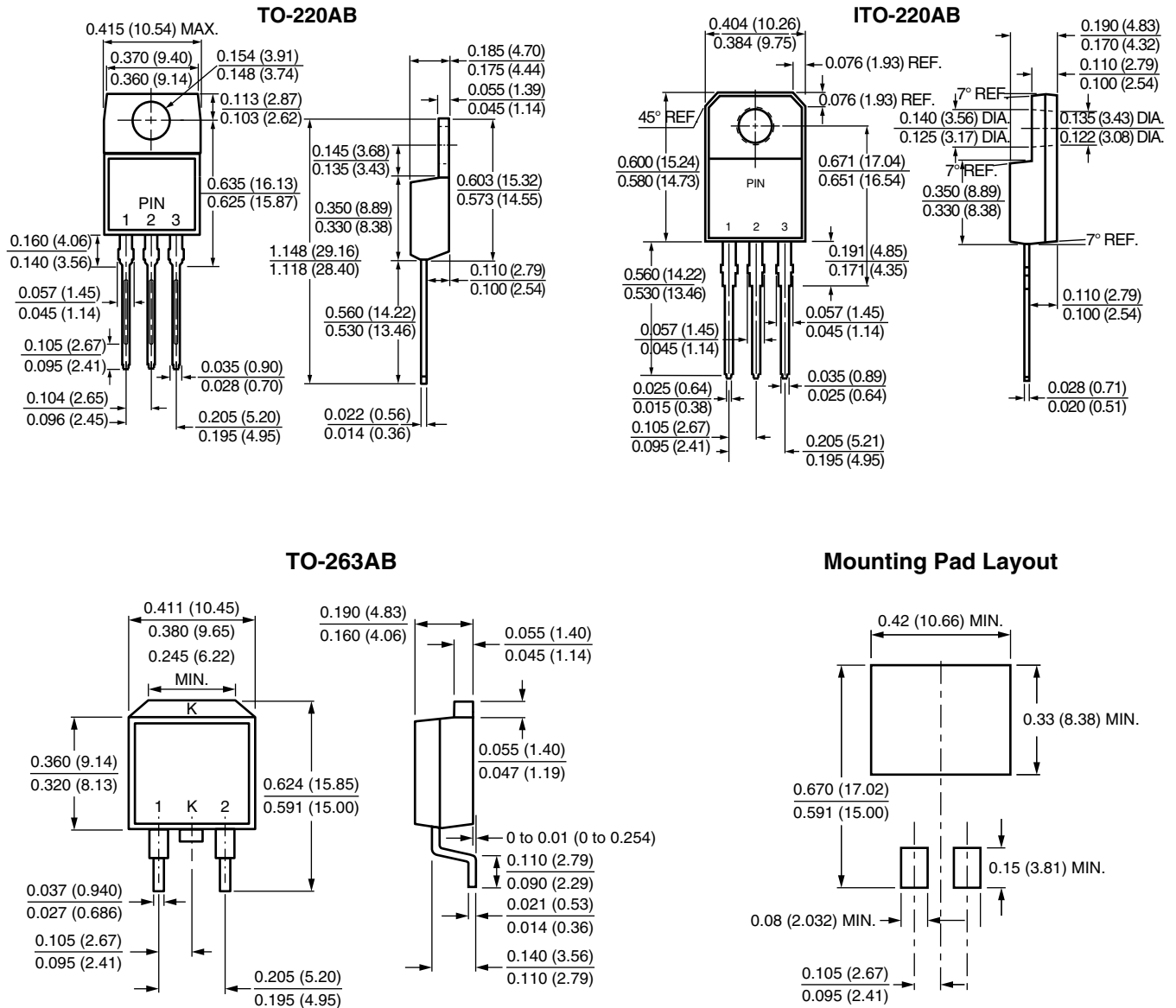


Fig. 6 - Typical Transient Thermal Impedance Per Diode



## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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