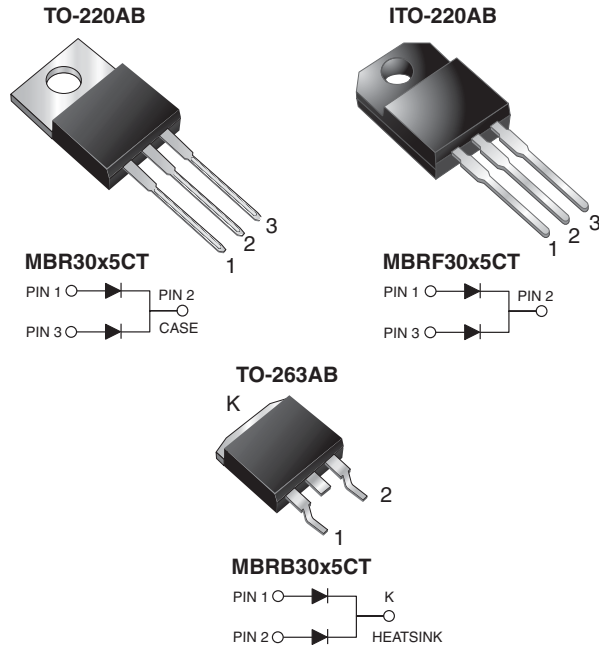


## Dual Common Cathode Schottky Rectifier



### FEATURES

- Power pack
- Guardring for overvoltage protection
- Low power loss, 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, 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  
 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 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	
$I_{F(AV)}$	2 x 15 A
$V_{RRM}$	35 V to 45 V
$I_{FSM}$	200 A
$V_F$	0.60 V
$T_J$ max.	150 °C
Package	TO-220AB, ITO-220AB, TO-263AB
Diode variations	Common cathode

MAXIMUM RATINGS ( $T_C = 25\text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	MBR3035CT	MBR3045CT	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	$I_{F(AV)}$	total device		A
		per diode		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	200		A
Peak repetitive reverse current per diode at $t_p = 2.0\ \mu\text{s}$ , 1 kHz	$I_{RRM}$	2.0		
Voltage rate of change (rated $V_F$ )	$dV/dt$	10 000		
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 $t = 1\text{ min}$	$V_{AC}$	1500		V



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	TEST CONDITIONS		VALUE	UNIT
Maximum instantaneous forward voltage per diode	$V_F^{(1)}$	$I_F = 20\text{ A}$	$T_C = 125^\circ\text{C}$	0.60	V
		$I_F = 30\text{ A}$	$T_C = 25^\circ\text{C}$	0.76	
		$I_F = 30\text{ A}$	$T_C = 125^\circ\text{C}$	0.72	
Maximum instantaneous reverse current at DC blocking voltage per diode	$I_R^{(1)}$	Rated $V_R$	$T_J = 25\text{ }^\circ\text{C}$	1.0	mA
			$T_J = 125\text{ }^\circ\text{C}$	60	

**Notes**

- (1) Pulse test: 300  $\mu\text{s}$  pulse width, 1 % duty cycle
- (2) Pulse test: pulse width  $\leq 40\text{ ms}$

<b>THERMAL CHARACTERISTICS</b> ( $T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT
Typical thermal resistance 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	MBR3045CT-E3/45	1.85	45	50/tube	Tube
TO-220AB	MBR3045CT-E3/4W	1.85	4W	50/tube	Tube
ITO-220AB	MBRF3045CT-E3/45	1.99	45	50/tube	Tube
TO-263AB	MBRB3045CT-E3/45	1.35	45	50/tube	Tube
TO-263AB	MBRB3045CT-E3/81	1.35	81	800/reel	Tape and reel
TO-220AB	MBR3045CTHE3/45 <sup>(1)</sup>	1.85	45	50/tube	Tube
ITO-220AB	MBRF3045CTHE3/45 <sup>(1)</sup>	1.99	45	50/tube	Tube
TO-263AB	MBRB3045CTHE3/45 <sup>(1)</sup>	1.35	45	50/tube	Tube
TO-263AB	MBRB3045CTHE3/81 <sup>(1)</sup>	1.35	81	800/reel	Tape and reel
TO-263AB	MBRB3045CTHE3_A/P <sup>(1)</sup>	1.35	P	50/tube	Tube
TO-263AB	MBRB3045CTHE3_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)

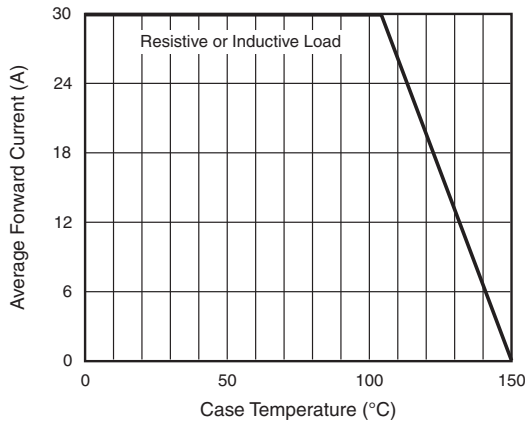


Fig. 1 - Forward Current Derating Curve

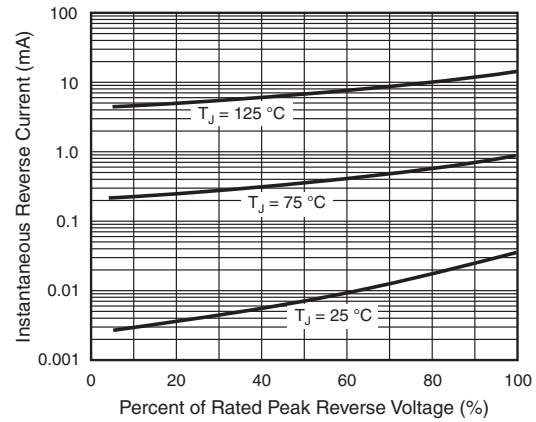


Fig. 4 - Typical Reverse Characteristics Per Diode

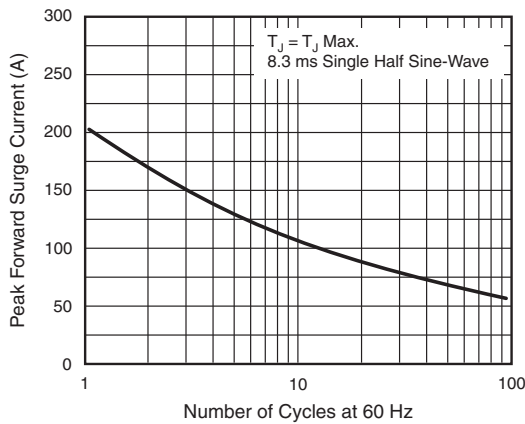


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

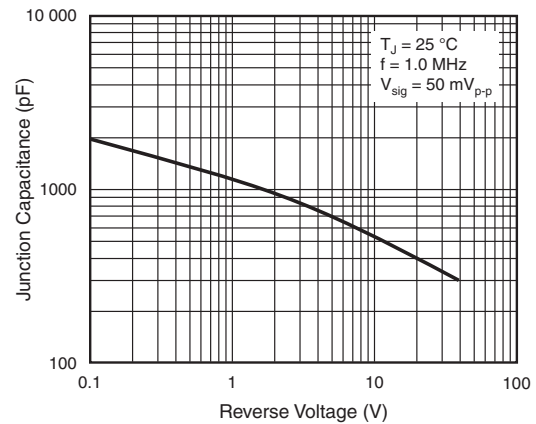


Fig. 5 - Typical Junction Capacitance Per Diode

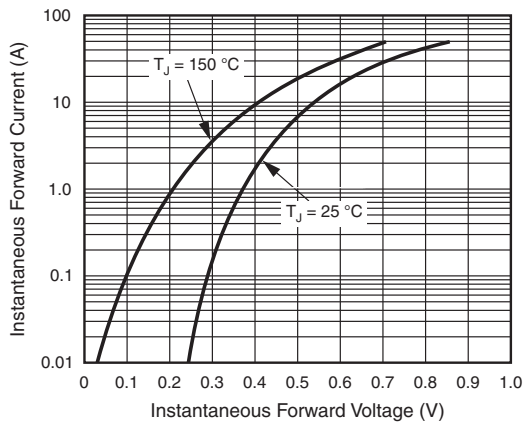


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

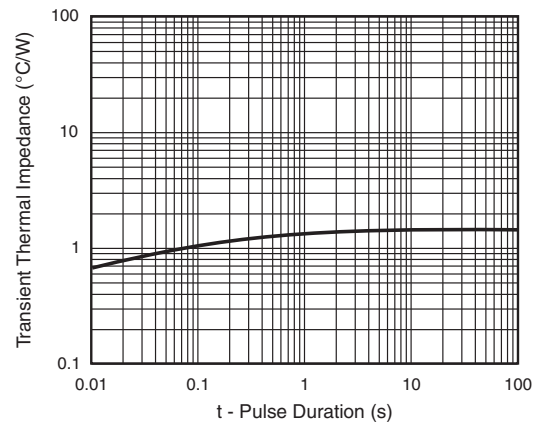
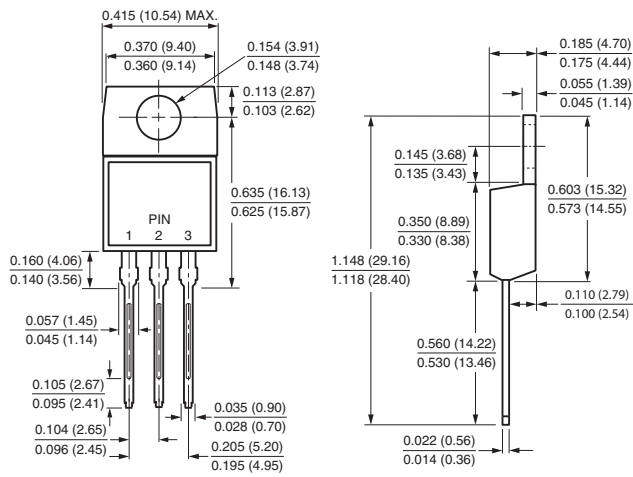


Fig. 6 - Typical Transient Thermal Impedance Per Diode

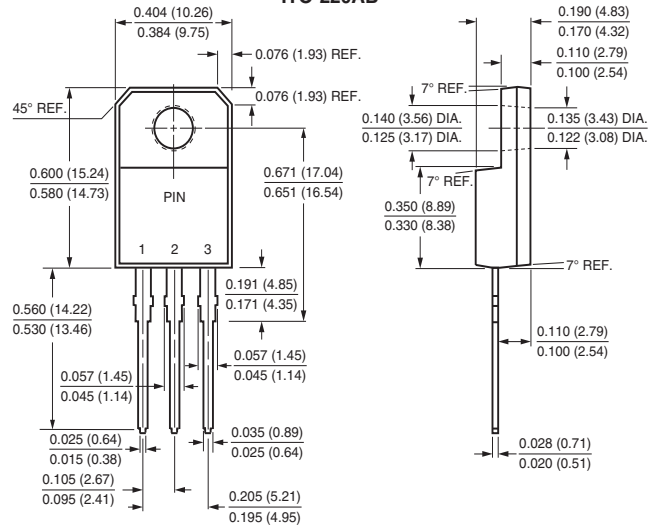


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

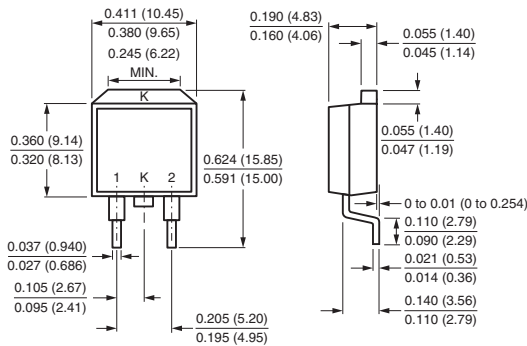
### TO-220AB



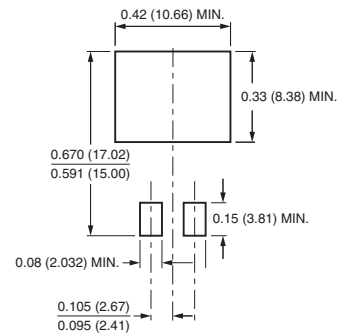
### ITO-220AB



### TO-263AB



### Mounting Pad Layout





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