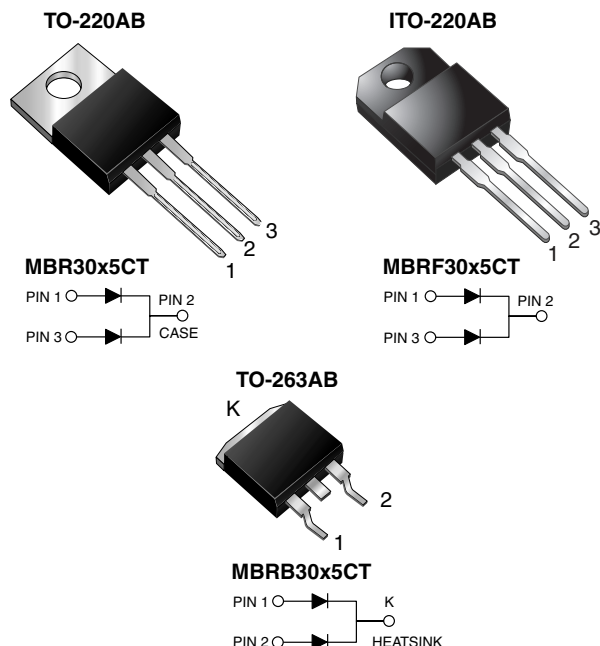


Dual Common Cathode Schottky Rectifier



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
- 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, 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

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 ($T_C = 25$ °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)}	30		A
		15		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode	I _{FSM}	200		
Peak repetitive reverse current per diode at t _p = 2.0 μs, 1 kHz	I _{RRM}	2.0		
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	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 μs pulse width, 1 % duty cycle
 (2) Pulse test: Pulse width $\leq 40\text{ ms}$

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

PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	1.5	4.5	1.5	$^{\circ}\text{C/W}$

ORDERING INFORMATION (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
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 ⁽¹⁾	1.85	45	50/tube	Tube
ITO-220AB	MBRF3045CTHE3/45 ⁽¹⁾	1.99	45	50/tube	Tube
TO-263AB	MBRB3045CTHE3/45 ⁽¹⁾	1.35	45	50/tube	Tube
TO-263AB	MBRB3045CTHE3/81 ⁽¹⁾	1.35	81	800/reel	Tape and reel

Note

- (1) AEC-Q101 qualified



RATINGS AND CHARACTERISTICS CURVES

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

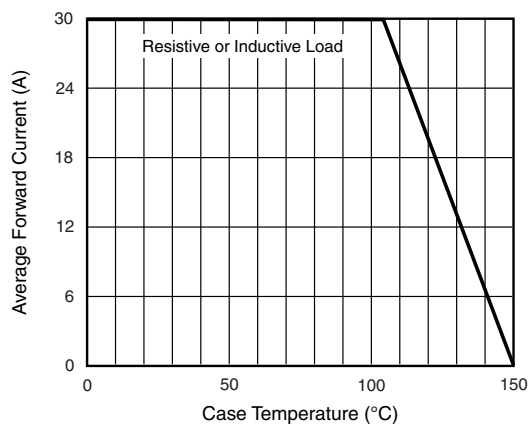


Fig. 1 - Forward Current Derating Curve

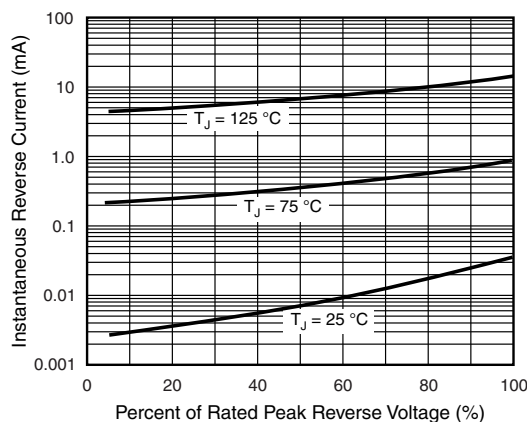


Fig. 4 - Typical Reverse Characteristics Per Diode

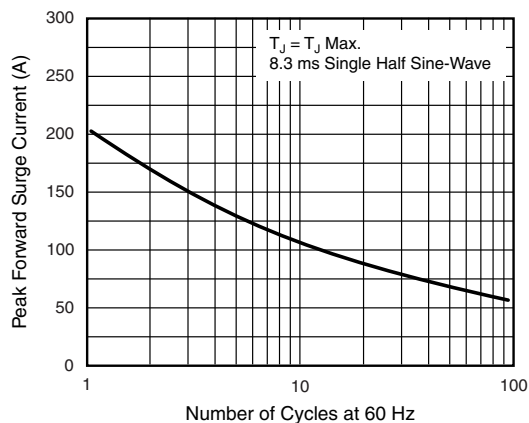


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

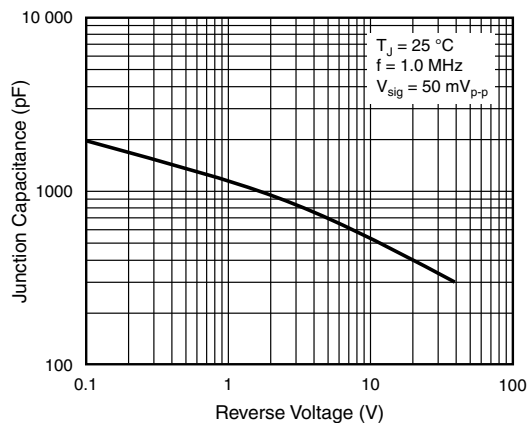


Fig. 5 - Typical Junction Capacitance Per Diode

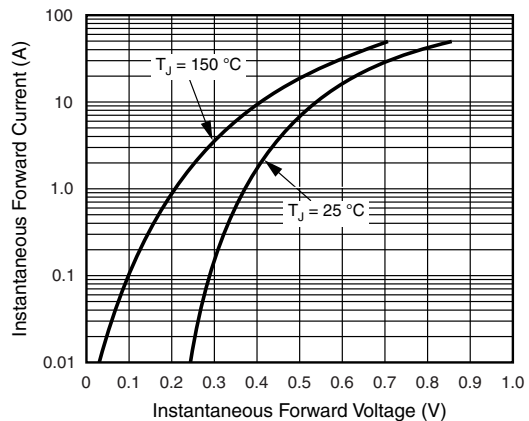


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

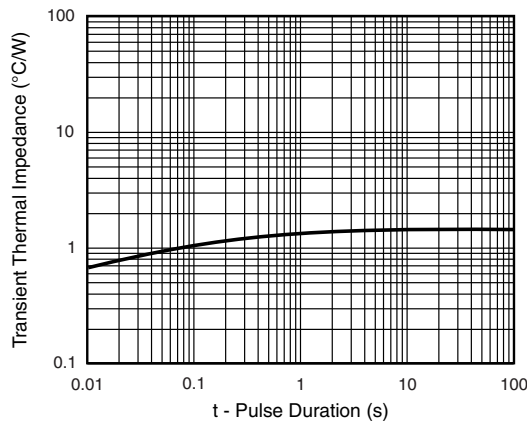
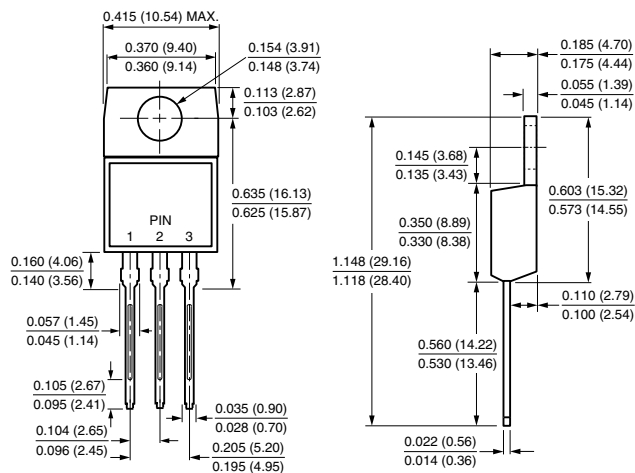


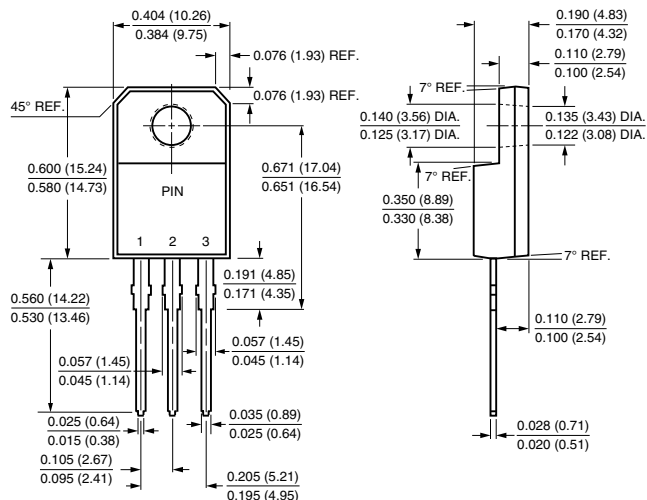
Fig. 6 - Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

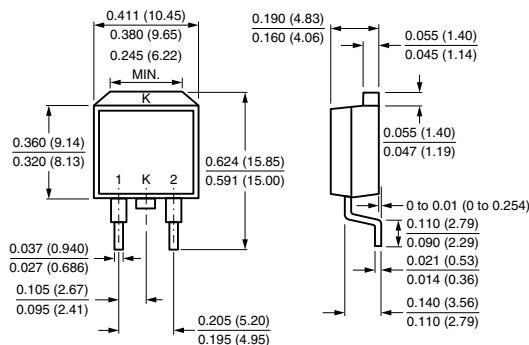
TO-220AB



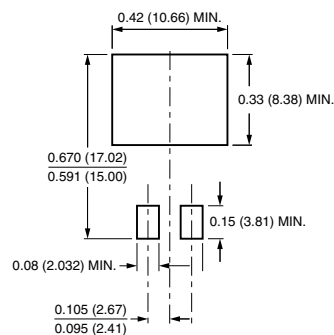
ITO-220AB



TO-263AB



Mounting Pad Layout





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