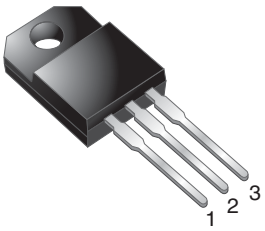
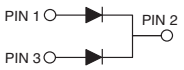
Dual Common Cathode Schottky Rectifier

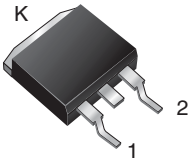
ITO-220AB



MBRF20xxCT



D²PAK (TO-263AB)



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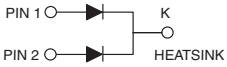

FEATURES

- 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 D²PAK (TO-263AB) package)
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106 (for ITO-220AB package)
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

DESIGN SUPPORT TOOLS

click logo to get started

3D Models Available

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: ITO-220AB, D²PAK (TO-263AB)

Molding compound meets UL 94 V-0 flammability rating
Base P/N-E3 - RoHS-compliant, commercial grade
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 10 A
V_{RRM}	45 V, 60 V
I_{FSM}	150 A
V_F	0.57 V, 0.70 V
T_J max.	150 °C
Package	ITO-220AB, D²PAK (TO-263AB)
Circuit configuration	Common cathode

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

PARAMETER		SYMBOL	MBRB2045CT	MBRB2060CT	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	45	60	V
Working peak reverse voltage		V_{RWM}	45	60	
Maximum DC blocking voltage		V_{DC}	45	60	
Maximum average forward rectified current at T_C = 135 °C	total device	$I_{F(AV)}$	20		A
	per diode		10		
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	150		
Peak repetitive reverse surge current per diode at t_p = 2.0 µs, 1 kHz		I_{RRM}	1.0	0.5	
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

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ELECTRICAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)						
PARAMETER	**SYMBOL**	**TEST CONDITIONS**		**MBRB2045CT**	**MBRB2060CT**	**UNIT**
Maximum instantaneous forward voltage per diode	V_F (1)	I_F = 10 A	T_C = 25 °C	0.65	0.80	V
		I_F = 10 A	T_C = 125 °C	0.57	0.70	
		I_F = 20 A	T_C = 25 °C	0.84	0.95	
		I_F = 20 A	T_C = 125 °C	0.72	0.85	
Maximum reverse current at DC blocking voltage per diode	I_R (2)	Rated V_R	T_C = 25 °C	0.1	0.15	mA
			T_C = 125 °C	15	150	

Notes

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

(2) Pulse test: pulse width ≤ 40 ms

THERMAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)				
PARAMETER	**SYMBOL**	**MBRF**	**MBRB**	**UNIT**
Typical resistance from junction to case per diode	$R_{\theta JC}$	5.0	2.0	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
ITO-220AB	MBRF2045CT-E3/45	1.99	45	50/tube	Tube
TO-263AB	MBRB2045CT-E3/45	1.35	45	50/tube	Tube
TO-263AB	MBRB2045CT-E3/81	1.35	81	800/reel	Tape and reel
ITO-220AB	MBRF2045CTHE3_A/P (1)	1.99	P	50/tube	Tube
TO-263AB	MBRB2045CTHE3_B/P (1)	1.35	P	50/tube	Tube
TO-263AB	MBRB2045CTHE3_B/I (1)	1.35	I	800/reel	Tape and reel

Notes

(1) AEC-Q101 qualified

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RATINGS AND CHARACTERISTICS CURVES (T_C = 25 °C unless otherwise noted)

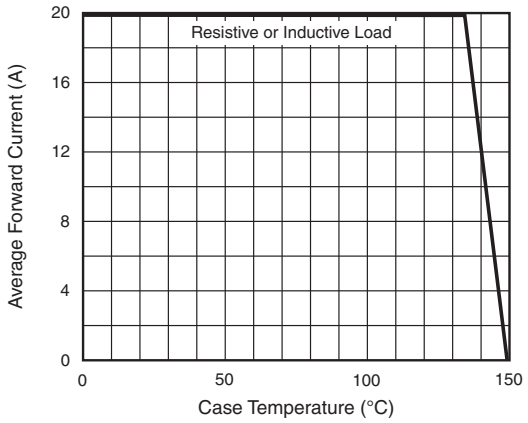

Fig. 1 - Forward Derating Curve (Total)

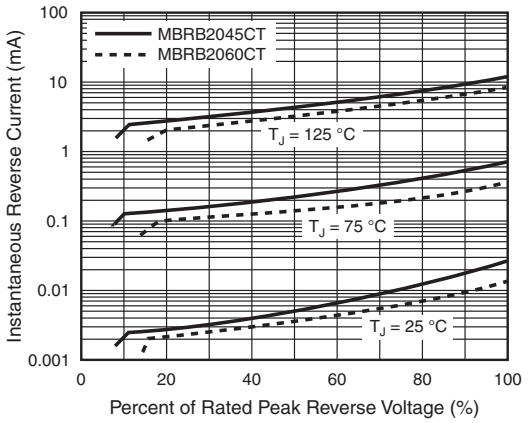

Fig. 4 - Typical Reverse Characteristics Per Diode

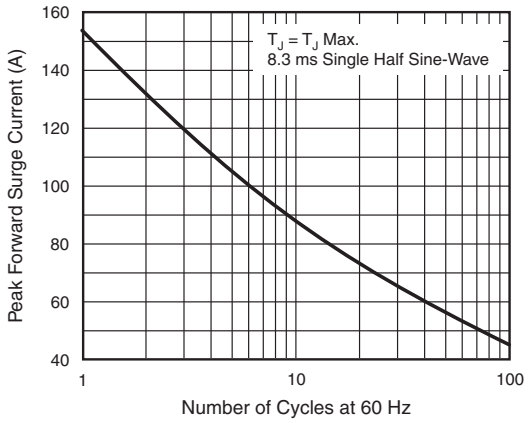

Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

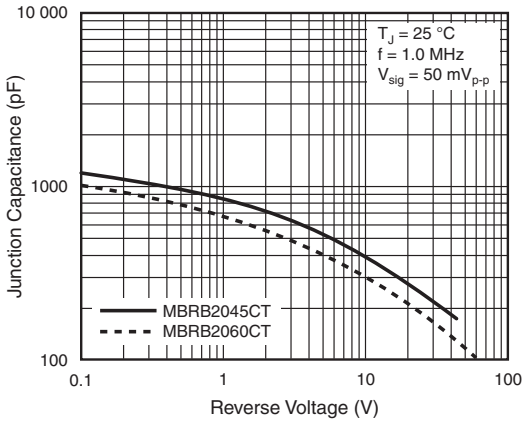

Fig. 5 - Typical Junction Capacitance Per Diode

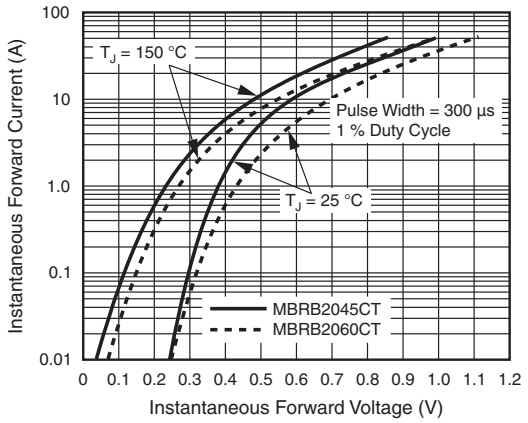

Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

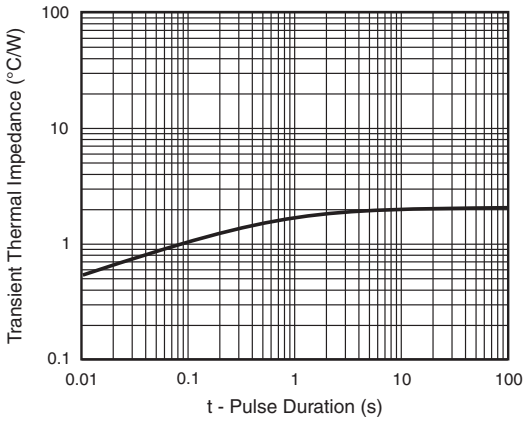

Fig. 6 - Typical Transient Thermal Impedance Per Diode

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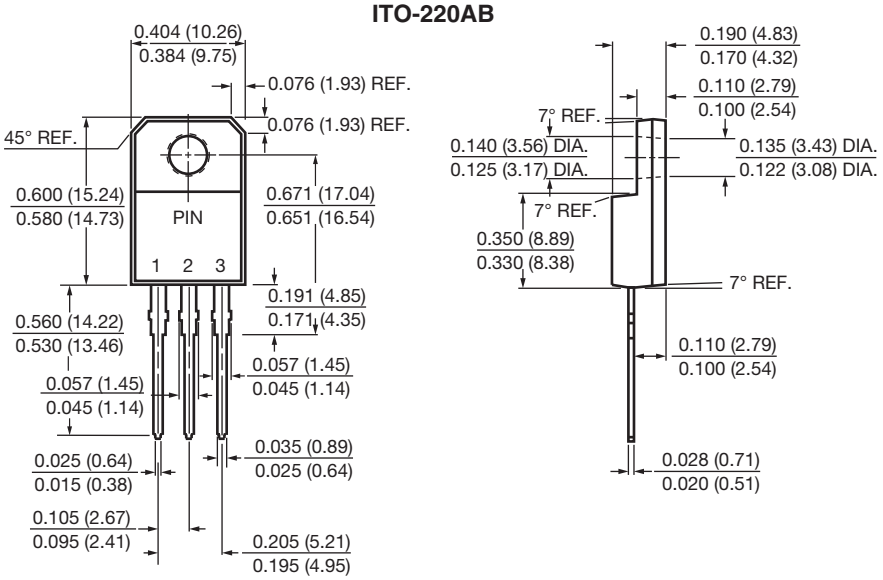
PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

ITO-220AB



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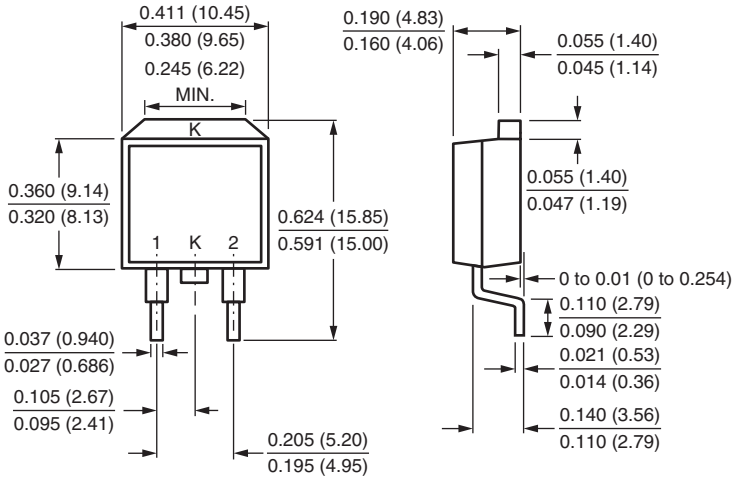
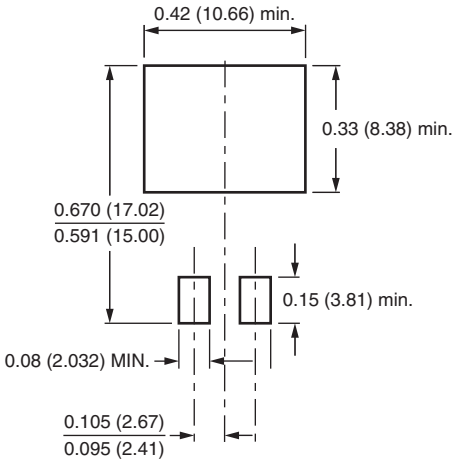


Mounting Pad Layout



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