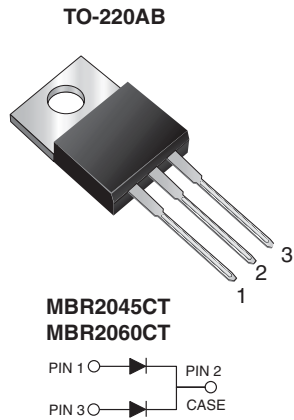


## Dual Common Cathode Schottky Rectifier



### FEATURES

- Power pack
- Guardring for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- High forward surge capability
- High frequency operation
- Solder bath temperature 275 °C maximum, 10 s, per JESD 22-B106
- 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

Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS-compliant, commercial grade

**Terminals:** matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

E3 suffix meets JESD 201 class 1A 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
$T_J \text{ max.}$	150 °C
Package	TO-220AB
Diode variations	Common cathode

MAXIMUM RATINGS ( $T_C = 25\text{ °C}$ unless otherwise noted)				
PARAMETER	SYMBOL	MBR2045CT	MBR2060CT	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 $T_C = 135\text{ °C}$	total device per diode	$I_{F(AV)}$		A
		20		
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 $t_p = 2.0\ \mu\text{s}$ , 1 kHz	$I_{RRM}$	1.0	0.5	
Voltage rate of change (rated $V_R$ )	$dV/dt$	10 000		V/ $\mu\text{s}$
Operating junction temperature range	$T_J$	-65 to +150		°C
Storage temperature range	$T_{STG}$	-65 to +175		



ELECTRICAL CHARACTERISTICS (T <sub>C</sub> = 25 °C unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS		MBR2045CT	MBR2060CT	UNIT
Maximum instantaneous forward voltage per diode	V <sub>F</sub> <sup>(1)</sup>	I <sub>F</sub> = 10 A	T <sub>C</sub> = 25 °C	0.65	0.80	V
		I <sub>F</sub> = 10 A	T <sub>C</sub> = 125 °C	0.57	0.70	
		I <sub>F</sub> = 20 A	T <sub>C</sub> = 25 °C	0.84	0.95	
		I <sub>F</sub> = 20 A	T <sub>C</sub> = 125 °C	0.72	0.85	
Maximum reverse current at DC blocking voltage per diode	I <sub>R</sub> <sup>(2)</sup>	Rated V <sub>R</sub>	T <sub>C</sub> = 25 °C	0.1	0.15	mA
			T <sub>C</sub> = 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 <sub>C</sub> = 25 °C unless otherwise noted)			
PARAMETER	SYMBOL	MBR	UNIT
Typical resistance from junction to case per diode	R <sub>θJC</sub>	2.0	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR2045CT-E3/4W	1.85	4W	50/tube	Tube



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

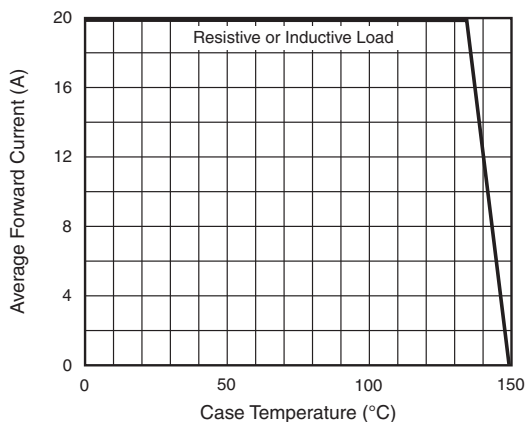


Fig. 1 - Forward Derating Curve (Total)

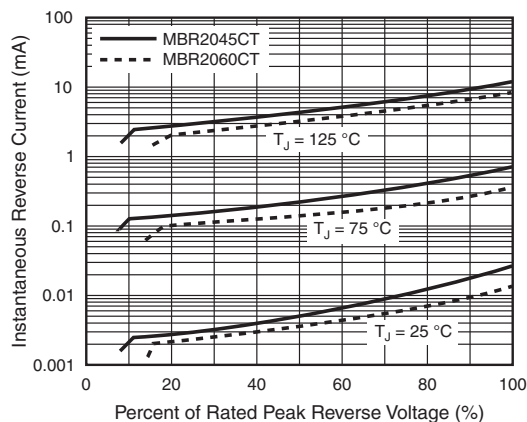


Fig. 4 - Typical Reverse Characteristics Per Diode

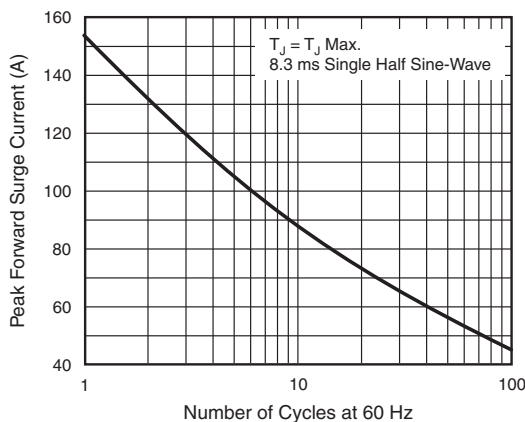


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

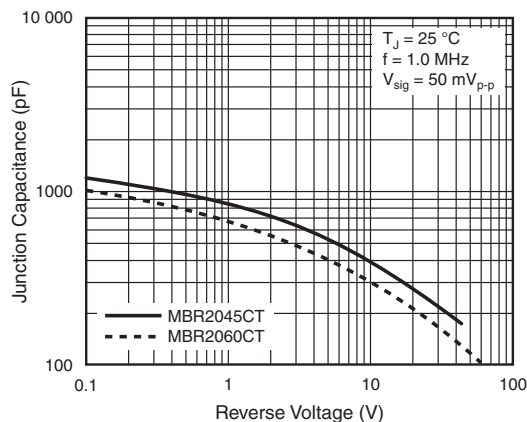


Fig. 5 - Typical Junction Capacitance Per Diode

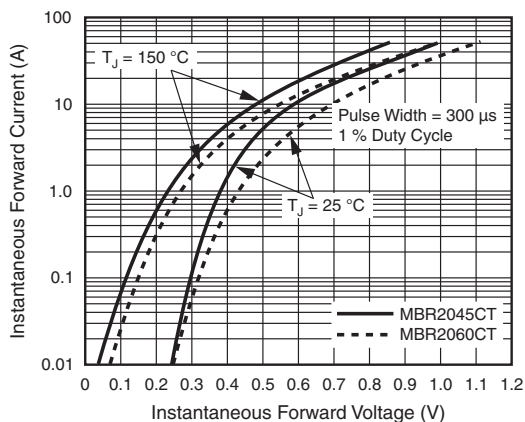


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

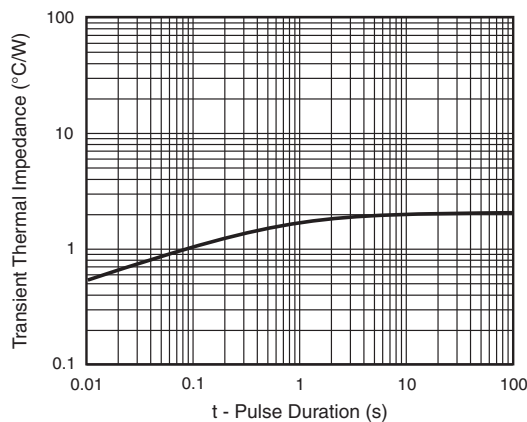
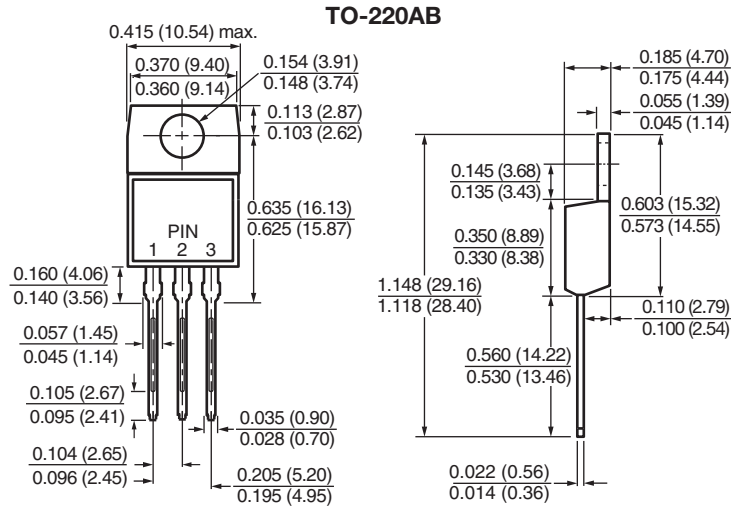


Fig. 6 - Typical Transient Thermal Impedance Per Diode



### PACKAGE OUTLINE DIMENSIONS in inches (millimeters)





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