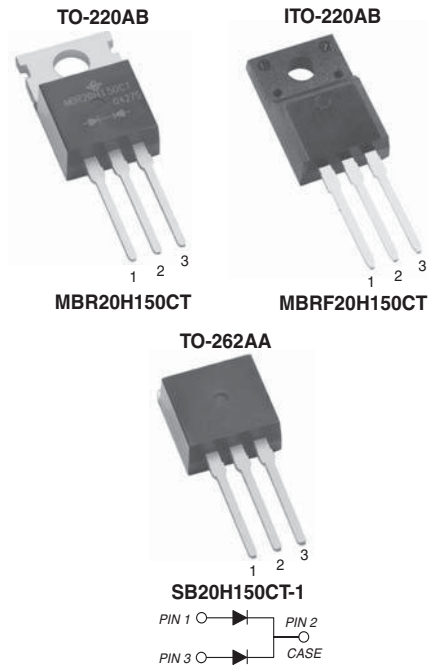




**THE DATASHEET OF  
MBR20H150CT-E3/45**



## Dual Common-Cathode High-Voltage Schottky Rectifier

 Low Leakage Current 5.0  $\mu$ A


### FEATURES

- Guardring for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- High frequency operation
- Solder dip 275 °C max., 10 s per JESD 22-B106
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### TYPICAL APPLICATIONS

For use in high frequency inverters, freewheeling, and polarity protection applications.

### MECHANICAL DATA

**Case:** TO-220AB, ITO-220AB, and TO-262AA

 Molding compound meets UL 94 V-0 flammability rating  
Base P/N-E3 - RoHS compliant and 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
$V_{RRM}$	150 V
$I_{FSM}$	200 A
$V_F$	0.75 V
$T_J$ max.	175 °C

### MAXIMUM RATINGS ( $T_A = 25$ °C unless otherwise noted)

PARAMETER	SYMBOL	MBR20H150CT	UNIT
Maximum repetitive peak reverse voltage	$V_{RRM}$	150	V
Working peak reverse voltage	$V_{RWM}$	150	V
Maximum DC blocking voltage	$V_{DC}$	150	V
Maximum average forward rectified current	$I_{F(AV)}$	per device	20
		per diode	10
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 $t_p = 2$ $\mu$ s, 1 kHz	$I_{RRM}$	1.0	A
Peak non-repetitive reverse surge energy per diode (8/20 $\mu$ s waveform)	$E_{RSM}$	10	mJ
Non-repetitive avalanche energy per diode at 25 °C, $I_{AS} = 1.5$ A, $L = 10$ mH	$E_{AS}$	11.25	mJ
Voltage rate of change (rated $V_F$ )	$dV/dt$	10 000	V/ $\mu$ s
Operating junction and storage temperature range	$T_J, T_{STG}$	- 65 to + 175	°C
Isolation voltage (ITO-220AB only) from terminals to heatsink $t = 1$ min	$V_{AC}$	1500	V



<b>ELECTRICAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	TEST CONDITIONS		SYMBOL	VALUE	UNIT
Maximum instantaneous forward voltage per diode	$I_F = 10\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$	$V_F^{(1)}$	0.90	V
	$I_F = 10\text{ A}$	$T_C = 125\text{ }^\circ\text{C}$		0.75	
	$I_F = 20\text{ A}$	$T_C = 25\text{ }^\circ\text{C}$		0.99	
	$I_F = 20\text{ A}$	$T_C = 125\text{ }^\circ\text{C}$		0.86	
Maximum reverse current per diode at working peak reverse voltage			$I_R^{(1)}$	5.0	$\mu\text{A}$
				1.0	mA

**Notes**

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

<b>THERMAL CHARACTERISTICS</b> ( $T_A = 25\text{ }^\circ\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	MBR	MBRF	MBRB	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	2.2	4.2	2.2	$^\circ\text{C/W}$

<b>ORDERING INFORMATION</b> (Example)					
PACKAGE	PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE CODE	BASE QUANTITY	DELIVERY MODE
TO-220AB	MBR20H150CT-E3/45	2.06	45	50/tube	Tube
ITO-220AB	MBRF20H150CT-E3/45	2.20	45	50/tube	Tube
TO-262AA	SB20H150CT-1E3/45	1.58	45	50/tube	Tube

**Note**

(1) AEC-Q101 qualified

**RATINGS AND CHARACTERISTICS CURVES**

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

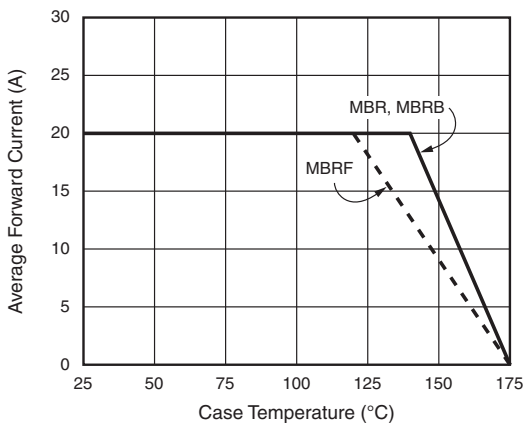


Fig. 1 - Forward Derating Curve (Total)

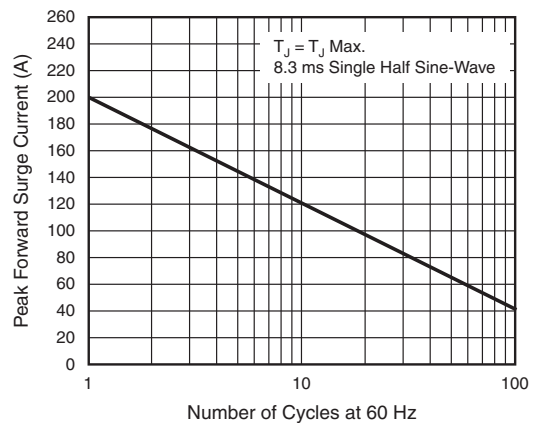


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current Per Diode

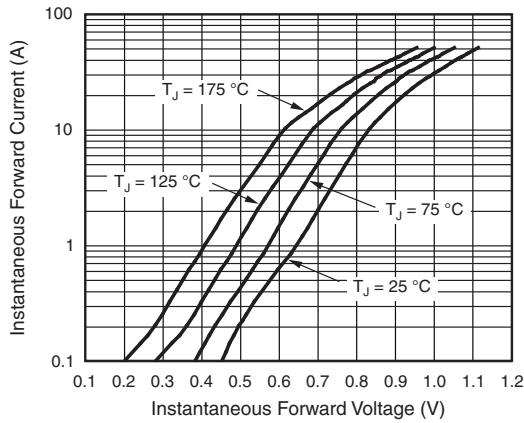


Fig. 3 - Typical Instantaneous Forward Characteristics Per Diode

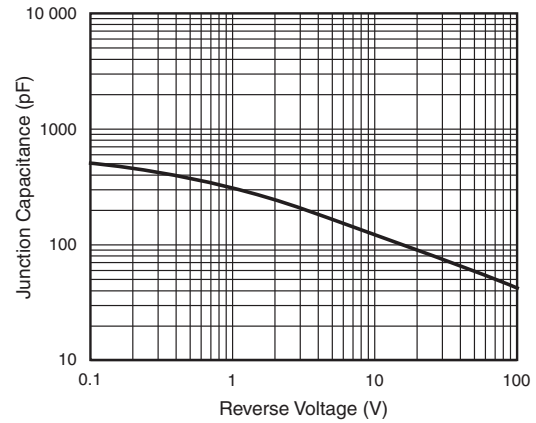


Fig. 5 - Typical Junction Capacitance Per Diode

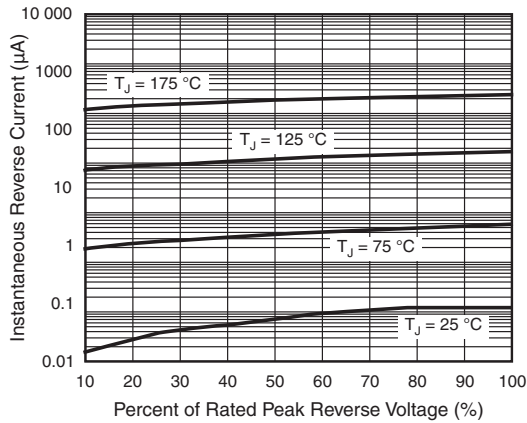


Fig. 4 - Typical Reverse Characteristics Per Diode

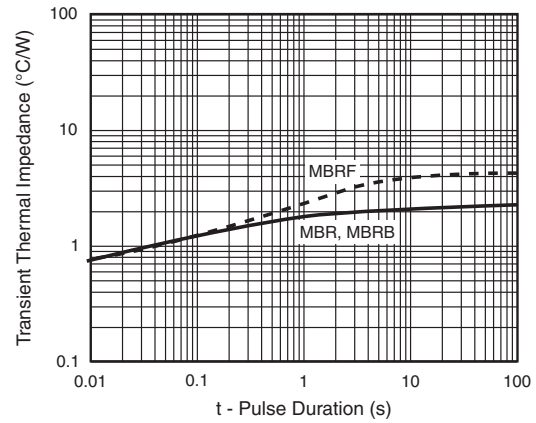
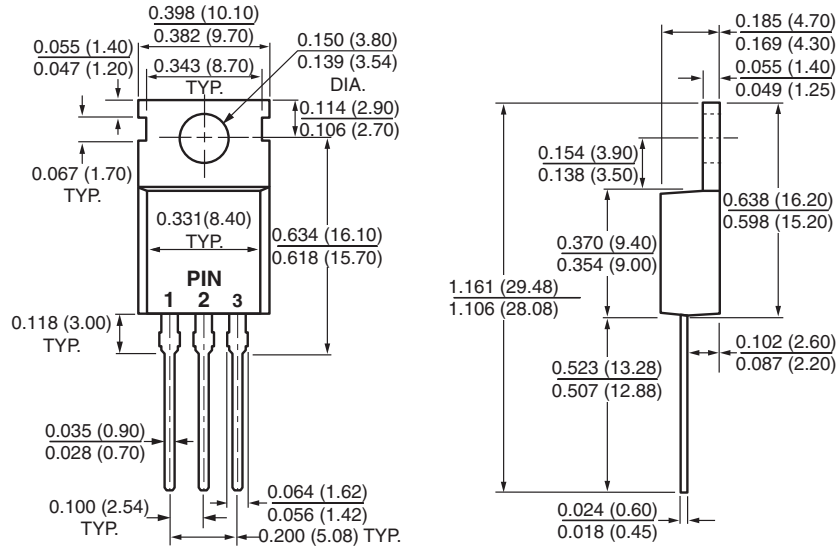


Fig. 6 - Typical Transient Thermal Impedance Per Diode

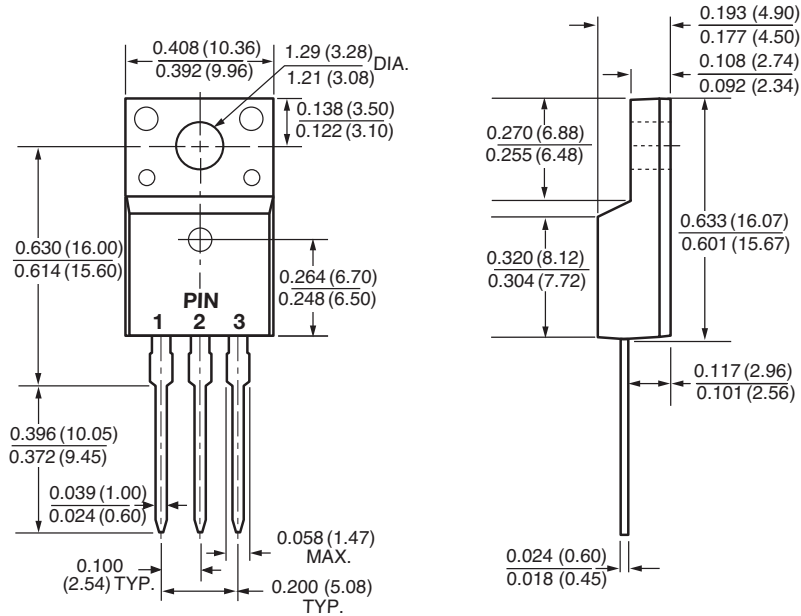


## PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

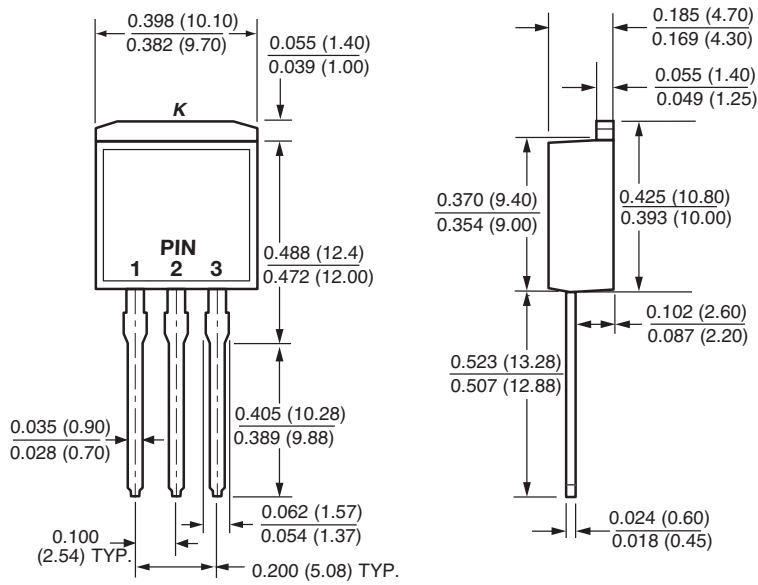
### TO-220AB



### ITO-220AB



TO-262AA





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