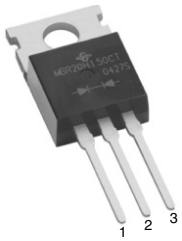
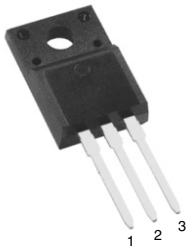
MBR20H200CT, MBRF20H200CT & SB20H200CT-1

TO-220AB



MBR20H200CT

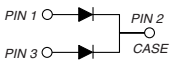
ITO-220AB



MBRF20H200CT

TO-262AA

SB20H200CT-1



FEATURES

- Guarding for overvoltage protection
- Low power loss, high efficiency
- Low forward voltage drop
- High frequency operation
- Solder dip 260 °C, 40 s
- Component in accordance to RoHS 2002/95/EC and 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, TO-262AA

Epoxy meets UL 94V-0 flammability rating

Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD22-B102
E3 suffix for consumer grade, meets JESD 201 class 1A whisker test

Mounting Torque: 10 in-lbs maximum

Polarity: As marked

PRIMARY CHARACTERISTICS	
$I_{F(AV)}$	2 x 10 A
V_{RRM}	200 V
I_{FSM}	290 A
V_F	0.75 V
T_J	175 °C

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

PARAMETER		SYMBOL	MBR20H200CT	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	200	V
Working peak reverse voltage		V_{RWM}	200	V
Maximum DC blocking voltage		V_{DC}	200	V
Maximum average forward rectified current	total device per diode	$I_{F(AV)}$	20 10	A
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load per diode		I_{FSM}	290	A
Peak repetitive reverse current per diode at t_p = 2 µs, 1 kHz		I_{RRM}	1.0	A
Peak non-repetitive reverse surge energy per diode (8/20 µs waveform)		E_{RSM}	20	mJ
Non-repetitive avalanche energy per diode at 25 °C, I_{AS} = 2.0 A, L = 10 mH		E_{AS}	20	mJ
Electrostatic discharge capacitor voltage human body model air discharge: C = 100 pF, R 0 1.5 kΩ		V_C	25	kV
Voltage rate of change (rated V_R)		dV/dt	10 000	V/µs
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 minute		V_{AC}	1500	V

ELECTRICAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)						
PARAMETER	**TEST**		**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Maximum instantaneous forward voltage per diode (1)	I_F = 10 A I_F = 10 A I_F = 20 A I_F = 20 A	T_C = 25 °C T_C = 125 °C T_C = 25 °C T_C = 125 °C	V_F	0.81 0.65 0.87 0.74	0.88 0.75 0.97 0.85	V
Maximum reverse current per diode at working peak reverse voltage (1)		T_J = 25 °C T_J = 125 °C	I_R	5.0 1.0		µA mA
Typical junction capacitance	4.0 V, 1 MHz		C_J	250		pF

Note:

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

THERMAL CHARACTERISTICS (T_C = 25 °C unless otherwise noted)					
PARAMETER	**SYMBOL**	**MBR**	**MBRF**	**SB**	**UNIT**
Typical thermal resistance per diode	$R_{\theta JC}$	2.0	4.0	2.0	°C/W

ORDERING INFORMATION (Example)					
PACKAGE	**PREFERRED P/N**	**UNIT WEIGHT (g)**	**PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
TO-220AB	MBR20H200CT-E3/45	2.06	45	50/tube	Tube
ITO-220AB	MBRF20H200CT-E3/45	2.20	45	50/tube	Tube
TO-262AA	SB20H200CT-1E3/45	1.58	45	50/tube	Tube

RATINGS AND CHARACTERISTICS CURVES

(T_A = 25 °C unless otherwise noted)

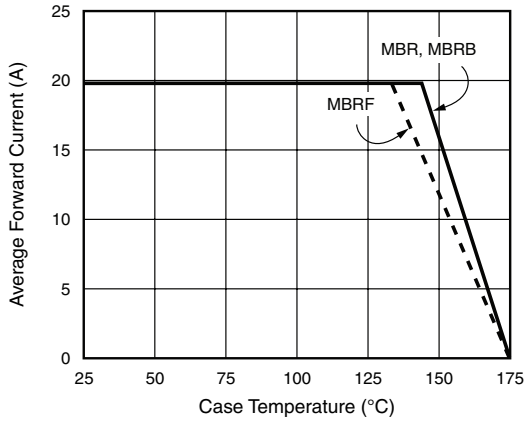


Figure 1. Forward Derating Curve (Total)

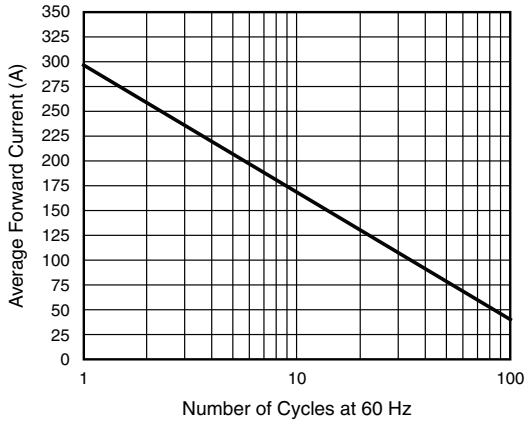


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode

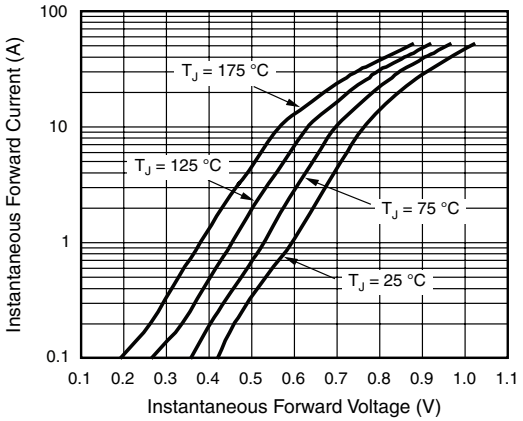


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

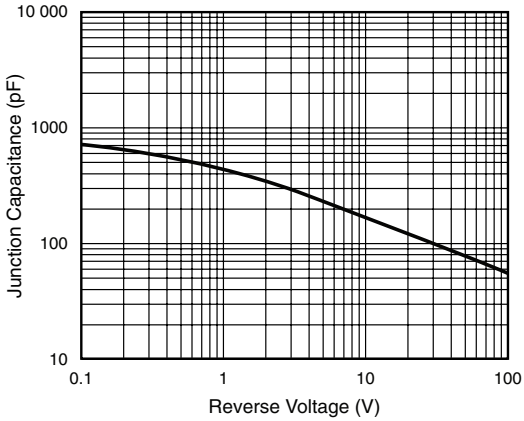


Figure 5. Typical Junction Capacitance Per Diode

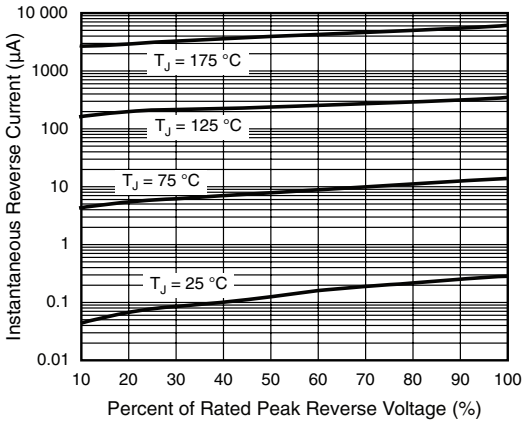


Figure 4. Typical Reverse Characteristics Per Diode

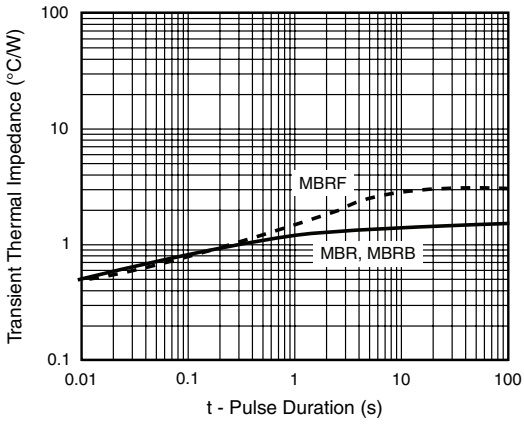
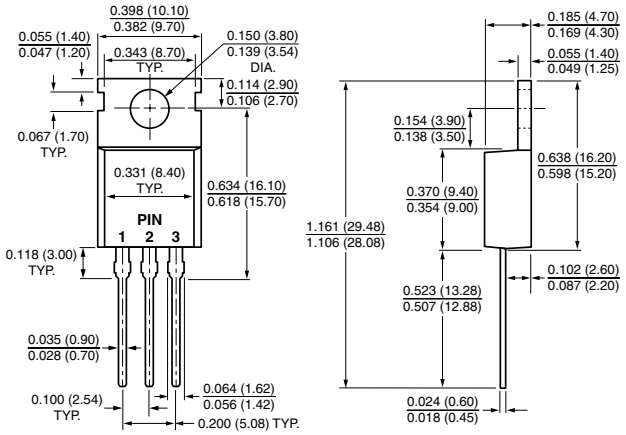


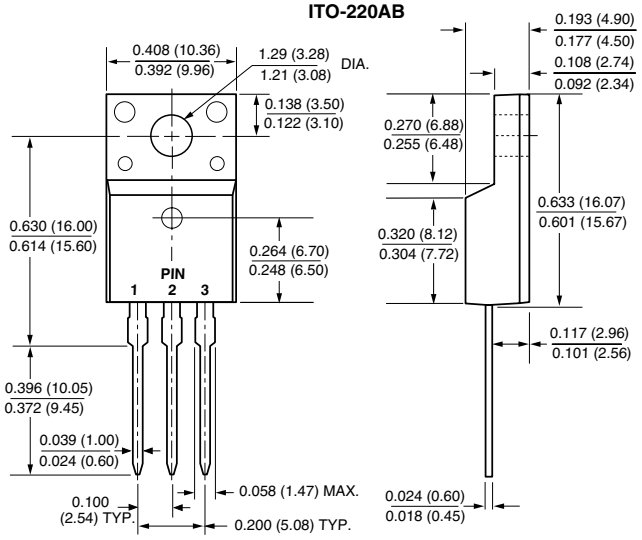
Figure 6. Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS

TO-220AB



ITO-220AB



TO-262AA