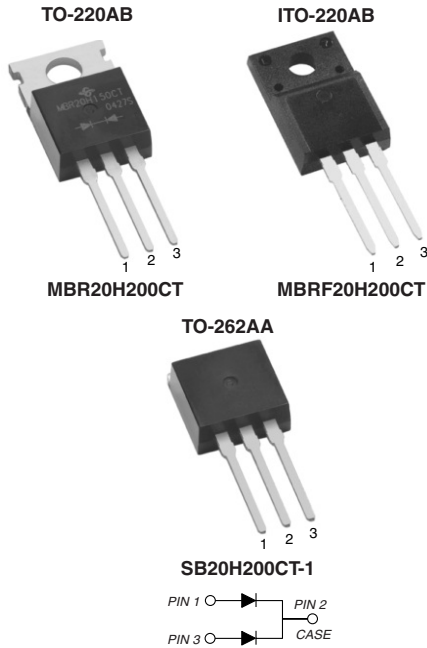




KERSEMI

MBR20H200CT, MBRF20H200CT & SB20H200CT-1



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

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

MAXIMUM RATINGS ($T_C = 25\text{ °C}$ 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 $t_p = 2\text{ }\mu\text{s}$, 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, $I_{AS} = 2.0\text{ A}$, $L = 10\text{ mH}$	E_{AS}	20	mJ
Electrostatic discharge capacitor voltage human body model air discharge: $C = 100\text{ pF}$, $R = 0.15\text{ k}\Omega$	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 $t = 1\text{ minute}$	V_{AC}	1500	V

ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)						
PARAMETER	TEST		SYMBOL	TYP.	MAX.	UNIT
Maximum instantaneous forward voltage per diode ⁽¹⁾	$I_F = 10\text{ A}$	$T_C = 25\text{ }^{\circ}\text{C}$	V_F	0.81	0.88	V
	$I_F = 10\text{ A}$	$T_C = 125\text{ }^{\circ}\text{C}$		0.65	0.75	
	$I_F = 20\text{ A}$	$T_C = 25\text{ }^{\circ}\text{C}$		0.87	0.97	
	$I_F = 20\text{ A}$	$T_C = 125\text{ }^{\circ}\text{C}$		0.74	0.85	
Maximum reverse current per diode at working peak reverse voltage ⁽¹⁾		$T_J = 25\text{ }^{\circ}\text{C}$ $T_J = 125\text{ }^{\circ}\text{C}$	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 ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)					
PARAMETER	SYMBOL	MBR	MBRF	SB	UNIT
Typical thermal resistance per diode	$R_{\theta JC}$	2.0	4.0	2.0	$^{\circ}\text{C/W}$

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

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

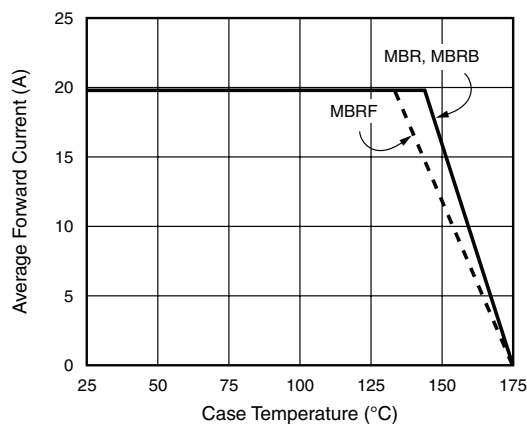


Figure 1. Forward Derating Curve (Total)

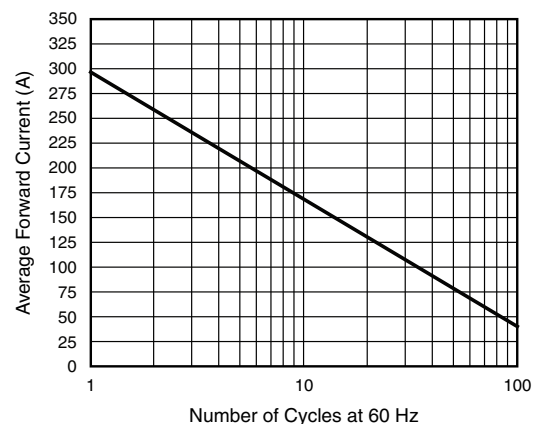


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current Per Diode



MBR20H200CT, MBRF20H200CT & SB20H200CT-1

KERSEMI

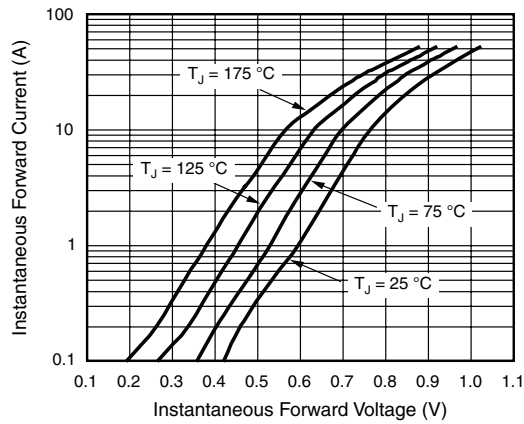


Figure 3. Typical Instantaneous Forward Characteristics Per Diode

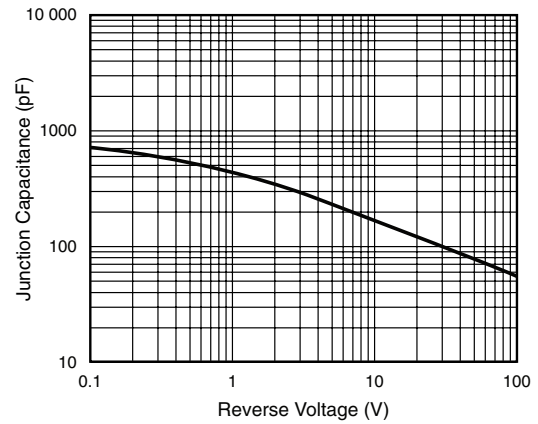


Figure 5. Typical Junction Capacitance Per Diode

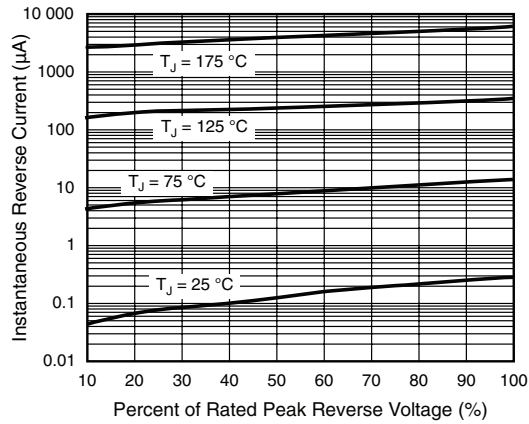


Figure 4. Typical Reverse Characteristics Per Diode

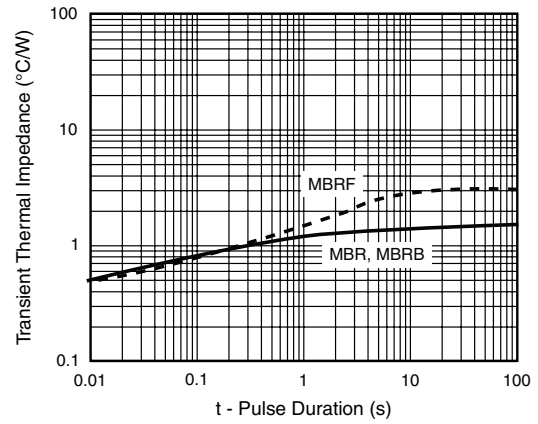


Figure 6. Typical Transient Thermal Impedance Per Diode

PACKAGE OUTLINE DIMENSIONS

