Dual Schottky Barrier Rectifier

Reverse Voltage 35 to 60V
Forward Current 20A

ITO-220AB (MBRF20HxxCT)

TO-220AB (MBR20HxxCT)
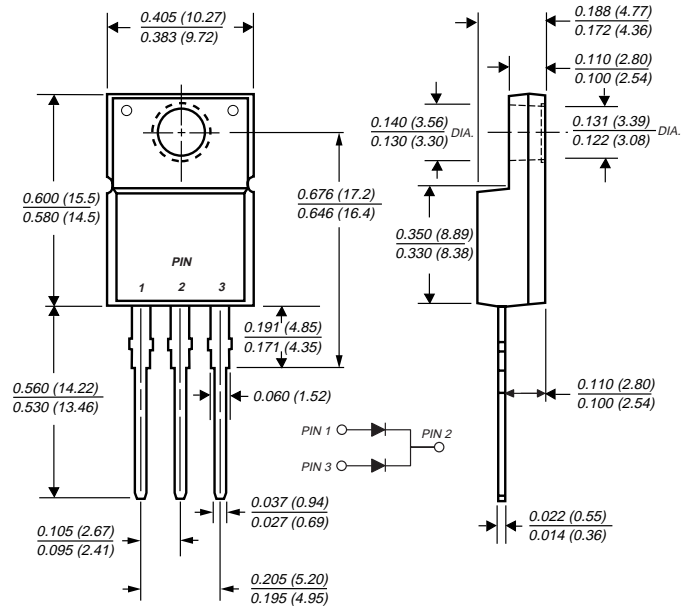
Mounting Pad Layout TO-263AB
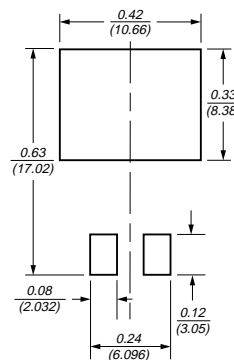
Dimensions in inches and (millimeters)

TO-263AB (MBRB20HxxCT)
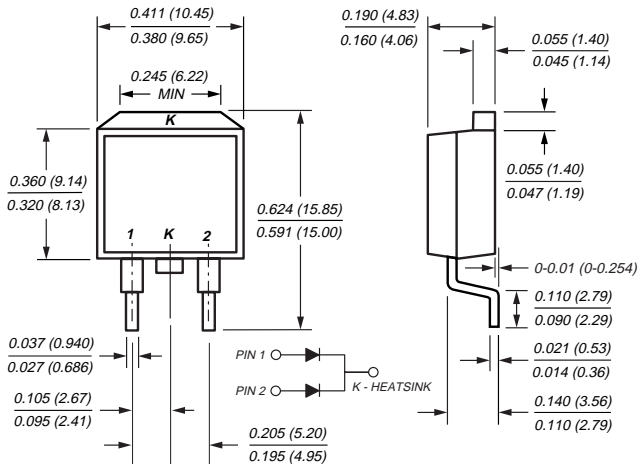
Mechanical Data

Case: JEDEC TO-220AB, ITO-220AB & TO-263AB molded plastic body

Terminals: Plated leads, solderable per MIL-STD-750, Method 2026

Polarity: As marked

Mounting Position: Any

Mounting Torque: 10 in-lbs maximum

Weight: 0.08 oz., 2.24 g

Features

- Plastic package has Underwriters Laboratory Flammability Classification 94 V-0
- Dual rectifier construction, positive center tap
- Metal silicon junction, majority carrier conduction
- Low forward voltage drop, low power loss and high efficiency
- Guardring for overvoltage protection
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Rated for reverse surge and ESD
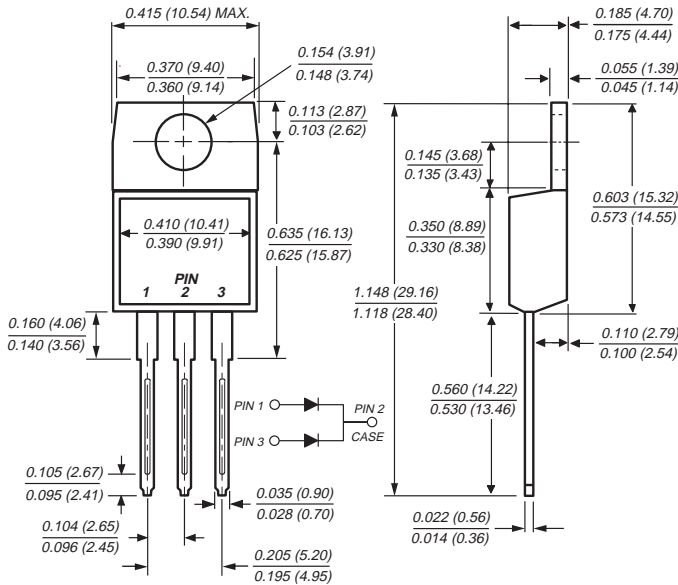- 175 °C maximum operation junction temperature

MBR20HxxCT, MBRF20HxxCT & MBRB20HxxCT Series

Vishay Semiconductors
formerly General Semiconductor

Maximum Ratings (T$_C$ = 25 °C unless otherwise noted)

Parameter		Symbol	MBR20H35CT	MBR20H45CT	MBR20H50CT	MBR20H60CT	Unit
Maximum repetitive peak reverse voltage		V$_{RRM}$	35	45	50	60	V
Working peak reverse voltage		V$_{RWM}$	35	45	50	60	V
Maximum DC blocking voltage		V$_{DC}$	35	45	50	60	V
Max. average forward rectified current (see fig. 1)	*Total device* *Per leg*	I$_{F(AV)}$	20 10				A
Peak repetitive forward current at T$_C$ = 150 °C per leg (rated V$_R$, 2.0KHz sq. wave)		I$_{FRM}$	20				A
Non-repetitive avalanche energy per leg at 25 °C, I$_{AS}$ = 4 A, L = 10 mH		E$_{AS}$	80				mJ
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method) per leg		I$_{FSM}$	150				A
Peak repetitive reverse surge current per leg at t$_p$ = 2.0 μs, 1 KHz		I$_{RRM}$	1.0		0.5		A
Peak non-repetitive reverse energy (8/20 μs waveform)		E$_{RSM}$	20		10		mJ
Electrostatic discharge capacitor voltage Human body model: C = 100 pF, R = 1.5 kΩ		V$_C$	25				kV
Voltage rate of change (rated V$_R$)		dv/dt	10,000				V/μs
Operating junction temperature range		T$_J$	−65 to +175				°C
Storage temperature range		T$_{STG}$	−65 to +175				°C
RMS Isolation voltage (MBRF type only) from terminals to heatsink with t = 1.0 second, RH ≤ 30%		V$_{ISOL}$	4500[1] 3500[2] 1500[3]				V

Electrical Characteristics (T$_C$ = 25 °C unless otherwise noted)

Parameter			Symbol	MBR20H35CT, MBR20H45CT		MBR20H50CT, MBR20H60CT		Unit
				Typ	Max	Typ	Max	
Maximum instantaneous forward voltage per leg[4]	at I$_F$ = 10 A at I$_F$ = 10 A at I$_F$ = 20 A at I$_F$ = 20 A	T$_J$ = 25 °C T$_J$ = 125 °C T$_J$ = 25 °C T$_J$ =125 °C	V$_F$	− 0.49 − 0.62	0.63 0.55 0.75 0.68	− 0.57 − 0.68	0.71 0.61 0.85 0.71	V
Maximum instantaneous reverse current at rated DC blocking voltage per leg[4]	T$_J$ = 25 °C T$_J$ =125 °C		I$_R$	− 4.0	100 12	− 2.0	100 12	μA mA

Thermal Characteristics (T$_C$ = 25 °C unless otherwise noted)

Parameter	Symbol	MBR	MBRF	MBRB	Unit
Thermal resistance from junction to case per leg	R$_{θJC}$	2.0	4.0	2.0	°C/W

Notes:
(1) Clip mounting (on case), where lead does not overlap heatsink with 0.110" offset
(2) Clip mounting (on case), where leads do overlap heatsink
(3) Screw mounting with 4-40 screw, where washer diameter is ≤ 4.9 mm (0.19")
(4) Pulse test: 300μs pulse width, 1% duty cycle

Ordering Information

Product	Case	Package Code	Package Option
MBR20H35CT – MBR20H60CT	TO-220AB	45	Anti-Static tube, 50/tube, 2K/carton
MBRF20H35CT – MBRF20H60CT	ITO-220AB	45	Anti-Static tube, 50/tube, 2K/carton
MBRB20H35CT – MBRB20H60CT	TO-263AB	31 45 81	13" reel, 800/reel, 4.8K/carton Anti-Static tube, 50/tube, 2K/carton Anti-Static 13" reel, 800/reel, 4.8K/carton

Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

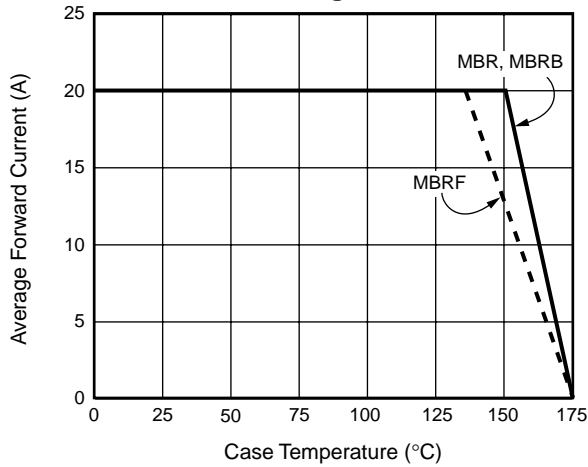**Fig. 1 – Forward Current Derating Curve**

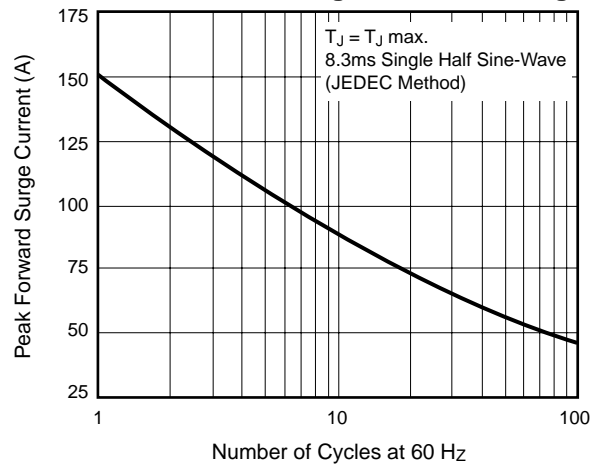**Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current Per Leg**

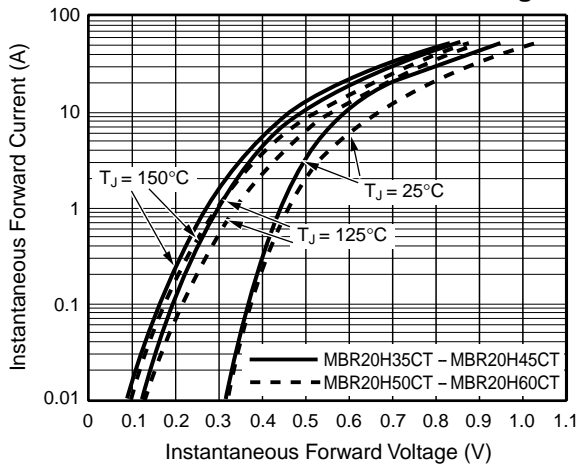**Fig. 3 – Typical Instantaneous Forward Characteristics Per Leg**

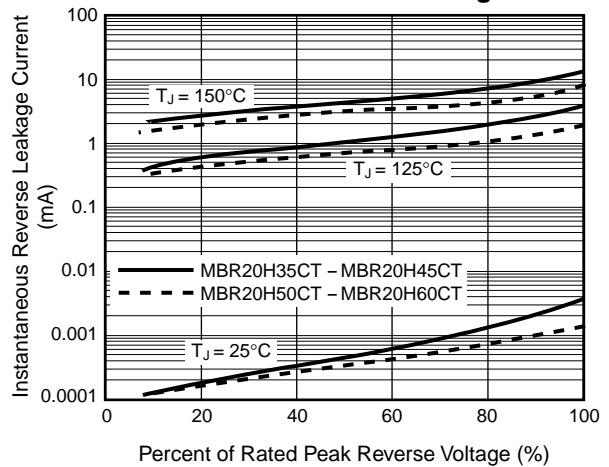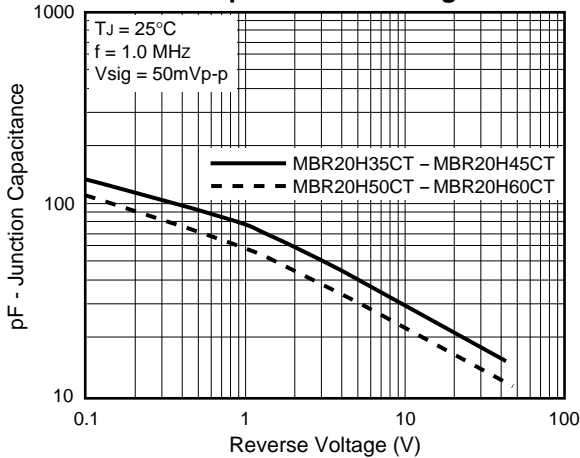**Fig. 4 – Typical Reverse Characteristics Per Leg**

Fig. 5 – Typical Junction Capacitance Per Leg

Fig. 6 – Typical Transient Thermal Impedance Per Leg