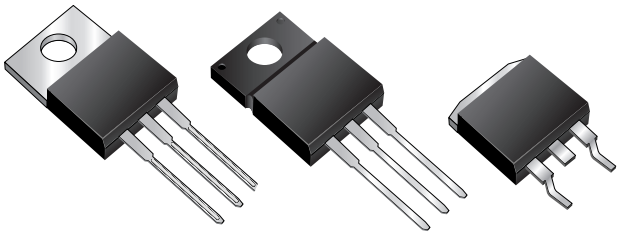
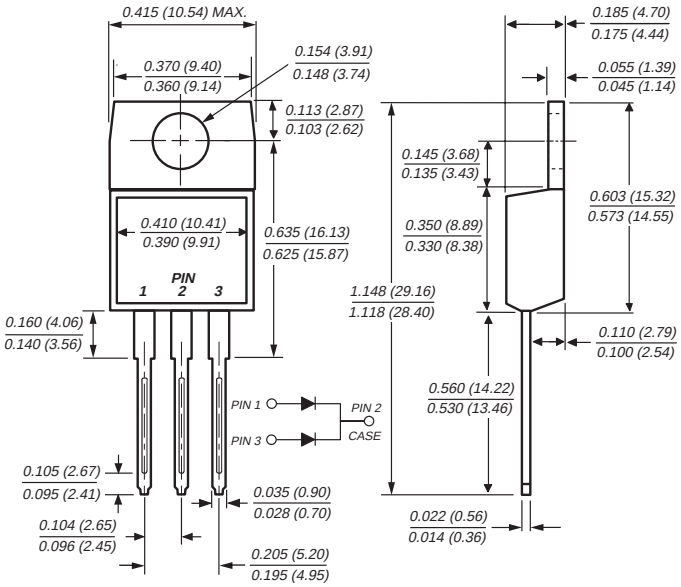
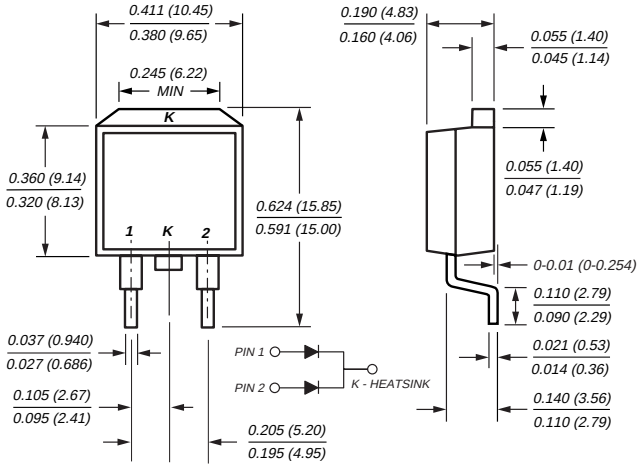
MBR15HxxCT, MBRF15HxxCT & MBRB15HxxCT Series



TO-220AB (MBR15HxxCT)



TO-263AB (MBRB15HxxCT)



Mechanical Data

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

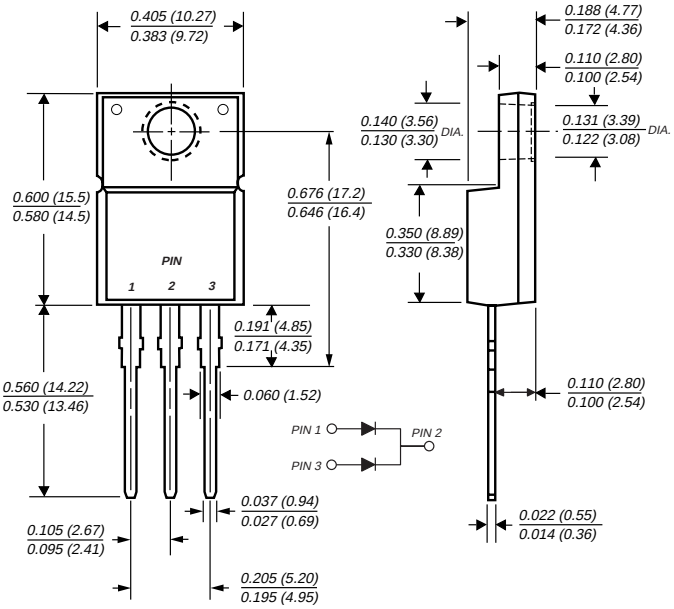
Terminals: Plated leads, solderable per MIL-STD-750, Method 2026

Polarity: As marked

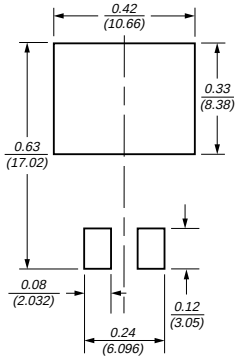
Mounting Position: Any

Mounting Torque: 10 in-lbs maximum

Weight: 0.08 oz., 2.24 g



Mounting Pad Layout TO-263AB



Dimensions in inches and (millimeters)

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
- High temperature soldering guaranteed: 250 °C/10 seconds, 0.25" (6.35 mm) from case
- Rated for reverse surge and ESD
- 175 °C maximum operation junction temperature

Maximum Ratings (T_C = 25 °C unless otherwise noted)

Parameter	Symbol	MBR15H35CT	MBR15H45CT	MBR15H50CT	MBR15H60CT	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 figure 1) *Total device* / *Per leg*	$I_{F(AV)}$	15 7.5				A
Peak repetitive forward current at T_C = 155 °C per leg (rated V_R, 20 KHz sq. wave)	I_{FRM}	15				A
Non-repetitive avalanche energy per leg at 25 °C, I_{AS} = 4A, L = 10 mH	E_{AS}	80				mJ
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load (JEDEC Method)	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 F, 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	MBR15H35CT, MBR15H45CT		MBR15H50CT, MBR15H60CT		Unit
				Typ	Max	Typ	Max	
Maximum instantaneous forward voltage per leg(4)	at I_F = 7.5 A	T_J = 25 °C	V_F	–	0.63	–	0.73	V
	at I_F = 7.5 A	T_J = 125 °C		0.50	0.55	0.58	0.61	
	at I_F = 15 A	T_J = 25 °C		–	0.75	–	0.87	
	at I_F = 15 A	T_J =125 °C		0.61	0.66	0.68	0.72	
Maximum instantaneous reverse current at rated DC blocking voltage per leg(4)		T_J = 25 °C	I_R	–	50	–	50	µA
		T_J =125 °C		3.0	10	2.0	10	mA

Thermal Characteristics (T_C = 25 °C unless otherwise noted)

Parameter	Symbol	MBR	MBRF	MBRB	Unit
Maximum thermal resistance per leg	$R_{\theta JC}$	3.0	5.0	3.0	°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: 300 µs pulse width, 1% duty cycle

Ordering Information

Product	Case	Package Code	Package Option
MBR15H35CT – MBR15H60CT	TO-220AB	45	Anti-Static tube, 50/tube, 2K/carton
MBRF15H35CT – MBRF15H60CT	ITO-220AB	45	Anti-Static tube, 50/tube, 2K/carton
MBRB15H35CT – MBRB15H60CT	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

Fig. 1 – Forward Current Derating Curve

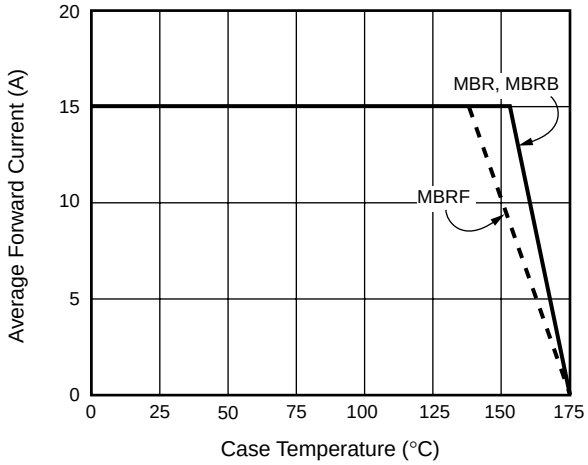


Fig. 2 – Maximum Non-Repetitive Peak Forward Surge Current Per Leg

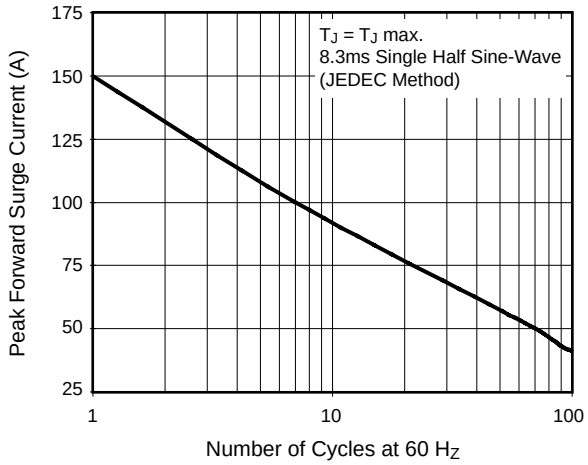


Fig. 3 – Typical Instantaneous Forward Characteristics Per Leg

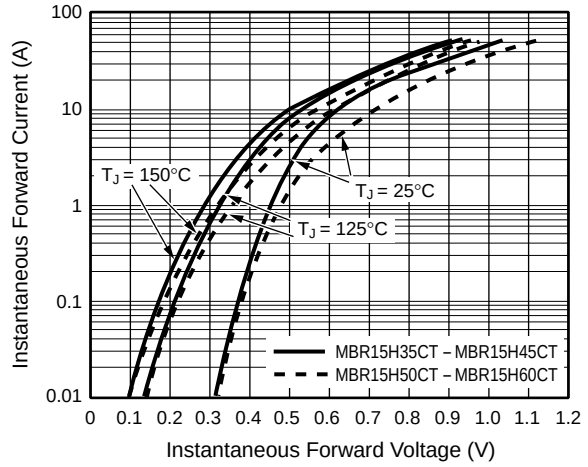


Fig. 4 – Typical Reverse Characteristics Per Leg

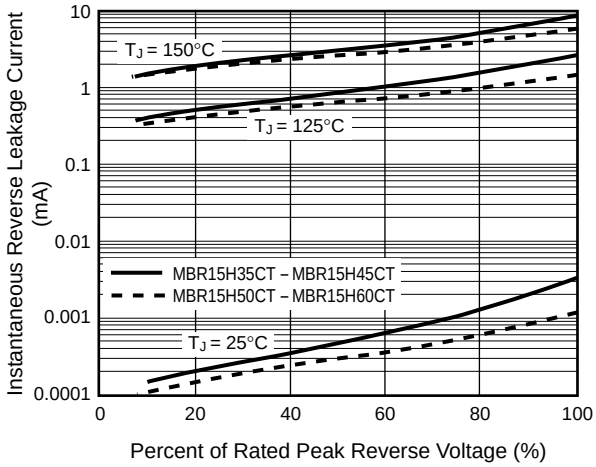


Fig. 5 – Typical Junction Capacitance Per Leg

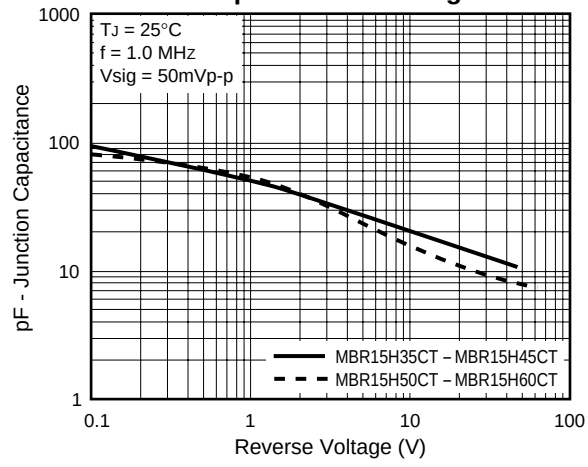


Fig. 6 – Typical Transient Thermal Impedance Per Leg

