

MBR7545 is a  
 Motorola Preferred Device

## Switchmode Power Rectifiers

... employing the Schottky Barrier principle in a large area metal-to-silicon power diode. State-of-the-art geometry features epitaxial construction with oxide passivation and metal overlap contact. Ideally suited for use as rectifiers in low-voltage, high-frequency inverters, free-wheeling diodes, and polarity-protection diodes.

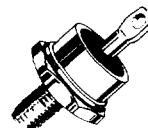
- Extremely Low  $v_F$
- Low Stored Charge, Majority Carrier Conduction
- Low Power Loss/High Efficiency
- High Surge Capacity

### Mechanical Characteristics:

- Case: Welded steel, hermetically sealed
- Weight: 17 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Lead is Readily Solderable
- Solder Heat: The excellent heat transfer property of the heavy duty copper anode terminal which transmits heat away from the die requires that caution be used when attaching wires. Motorola suggests a heat sink be clamped between the eyelet and the body during any soldering operation.
- Stud Torque: 25 lb-in max
- Shipped 25 units per rail
- Marking: B7535, B7545

### SCHOTTKY BARRIER RECTIFIERS

**75 AMPERES**  
**35 AND 45 VOLTS**



CASE 257-01  
 DO-203AB  
 METAL

### MAXIMUM RATINGS

| Rating   | Symbol                          | MBR7535                         | MBR7545 | Unit             |
|--|---------------------------------|---------------------------------|---------|------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                       | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 35                              | 45      | Volts            |
| Peak Repetitive Forward Current<br>(Rated $V_R$ , Square Wave, 20 kHz)                                       | $I_{FRM}$                       | 150<br>$T_C = 90^\circ\text{C}$ |         | Amp              |
| Average Rectified Forward Current<br>(Rated $V_R$ )  | $I_O$                           | 75<br>$T_C = 90^\circ\text{C}$  |         | Amp              |
| Non-repetitive Peak Surge Current<br>(Surge applied at rated load conditions, halfwave, single phase, 60 Hz) | $I_{FSM}$                       | 1000                            |         | Amp              |
| Operating and Storage Junction Temperature Range   | $T_J, T_{stg}$                  | -65 to +150                     |         | $^\circ\text{C}$ |
| Peak Operating Junction Temperature<br>(Forward Current Applied)   | $T_{J(pk)}$                     | 175                             |         | $^\circ\text{C}$ |
| Voltage Rate of Change<br>(Rated $V_R$ )   | $dv/dt$                         | 10000                           |         | V/ $\mu\text{s}$ |

### THERMAL CHARACTERISTICS

| Rating                               | Symbol          | MBR7535 | MBR7545 | Unit               |
|--------------------------------------|-----------------|---------|---------|--------------------|
| Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 0.8     |         | $^\circ\text{C/W}$ |

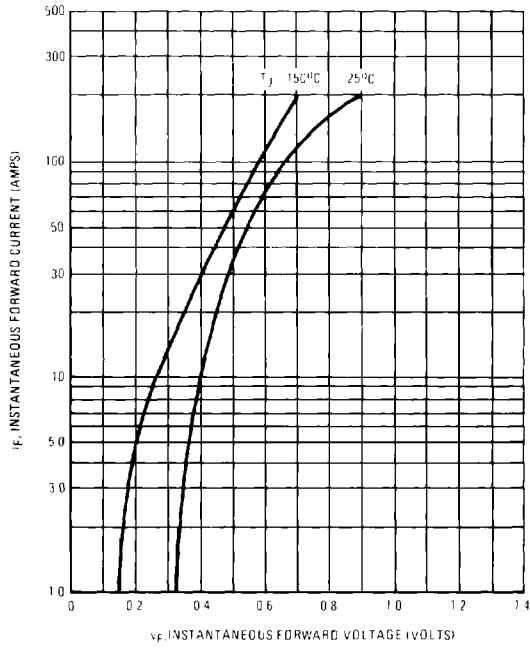
### ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

| Rating   | Symbol | MBR7535      | MBR7545 | Unit  |
|--|--------|--------------|---------|-------|
| Maximum Instantaneous Forward Voltage (1)<br>( $I_F = 60$ Amp, $T_C = 125^\circ\text{C}$ )<br>( $I_F = 220$ Amp, $T_C = 125^\circ\text{C}$ ) | $v_F$  | 0.60<br>0.90 |         | Volts |
| Maximum Instantaneous Reverse Current (1)<br>(Rated dc Voltage, $T_C = 125^\circ\text{C}$ )  | $i_R$  | 150          | 250     | mA    |
| Capacitance<br>( $V_R = 5.0$ Vdc, $100$ kHz $\leq f \leq 1.0$ MHz)   | $C_t$  | 4000         |         | pF    |

(1) Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle = 2.0%.

# MBR7535, MBR7545

FIGURE 1 – TYPICAL FORWARD VOLTAGE



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FIGURE 2 – CURRENT DERATING

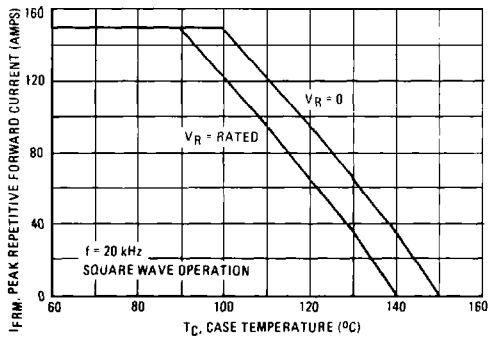


FIGURE 3 – TYPICAL REVERSE OPERATION

