

# MBR2545CTP

## SWITCHMODE™ Power Rectifier

... using the Schottky Barrier principle with a platinum barrier metal. These state-of-the-art devices have the following features:

- Guardring for Stress Protection
- Low Forward Voltage
- 150°C Operating Junction Temperature

### Mechanical Characteristics:

- Case: Epoxy, Molded
- Weight: 1.9 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 50 units per plastic tube
- Marking: B2545P

### MAXIMUM RATINGS

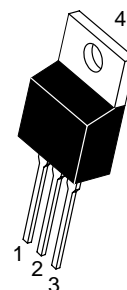
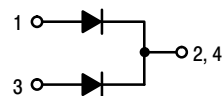
| Rating  | Symbol                          | Value       | Unit             |
|---|---------------------------------|-------------|------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage  | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 45          | V                |
| Average Rectified Forward Current<br>(Rated $V_R$ , $T_C = 130^\circ\text{C}$ )   | $I_{F(AV)}$                     | 30          | A                |
| Peak Repetitive Forward Current<br>(Rated $V_R$ , Square Wave, 20 kHz,<br>$T_C = 130^\circ\text{C}$ ) Per Diode Leg             | $I_{FRM}$                       | 30          | A                |
| Non-Repetitive Peak Surge Current<br>(Surge Applied at Rated Load<br>Conditions Halfwave, Single<br>Phase, 60 Hz) Per Diode Leg | $I_{FSM}$                       | 150         | A                |
| Peak Repetitive Reverse Surge<br>Current (2.0 $\mu\text{s}$ , 1.0 kHz)  | $I_{RRM}$                       | 1.0         | A                |
| Storage Temperature Range   | $T_{stg}$                       | -65 to +175 | °C               |
| Operating Junction Temperature  | $T_J$                           | -65 to +150 | °C               |
| Voltage Rate of Change (Rated $V_R$ )   | dv/dt                           | 10,000      | V/ $\mu\text{s}$ |



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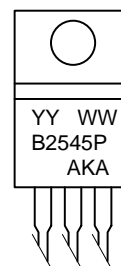
<http://onsemi.com>

### SCHOTTKY BARRIER RECTIFIER 30 AMPERES 45 VOLTS



CASE 221A  
TO-220AB  
PLASTIC

### MARKING DIAGRAM



YY = Year  
WW = Work Week  
B2545P = Device Code  
AKA = Diode Polarity

### ORDERING INFORMATION

| Device     | Package | Shipping      |
|------------|---------|---------------|
| MBR2545CTP | TO-220  | 50 Units/Rail |

# MBR2545CTP

## THERMAL CHARACTERISTICS (Per Diode Leg)

| Characteristic                               | Symbol          | Value | Unit          |
|--|-----------------|-------|---------------|
| Maximum Thermal Resistance, Junction to Case | $R_{\theta JC}$ | 2.0   | $^{\circ}C/W$ |

## ELECTRICAL CHARACTERISTICS (Per Diode Leg)

|  |       |              |       |
|--|-------|--------------|-------|
| Maximum Instantaneous Forward Voltage (Note 1.)<br>( $i_F = 30$ Amps, $T_C = 125^{\circ}C$ )<br>( $i_F = 30$ Amps, $T_C = 25^{\circ}C$ ) | $v_F$ | 0.73<br>0.82 | Volts |
| Maximum Instantaneous Reverse Current (Note 1.)<br>(Rated dc Voltage, $T_C = 125^{\circ}C$ )<br>(Rated dc Voltage, $T_C = 25^{\circ}C$ ) | $i_R$ | 40<br>0.2    | mA    |

1. Pulse Test: Pulse Width = 300  $\mu s$ , Duty Cycle  $\leq 2.0\%$

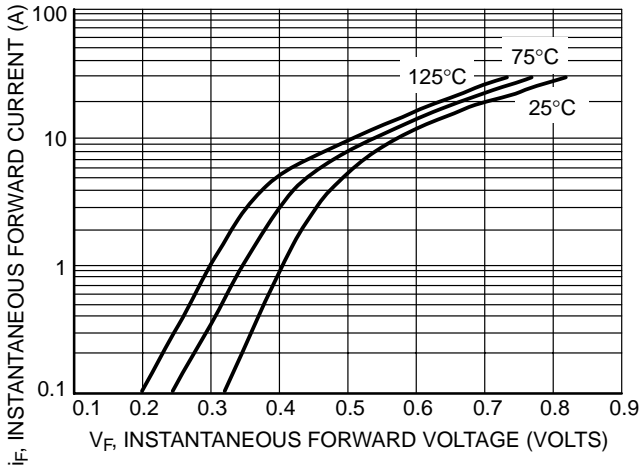


Figure 1. Maximum Forward Voltage

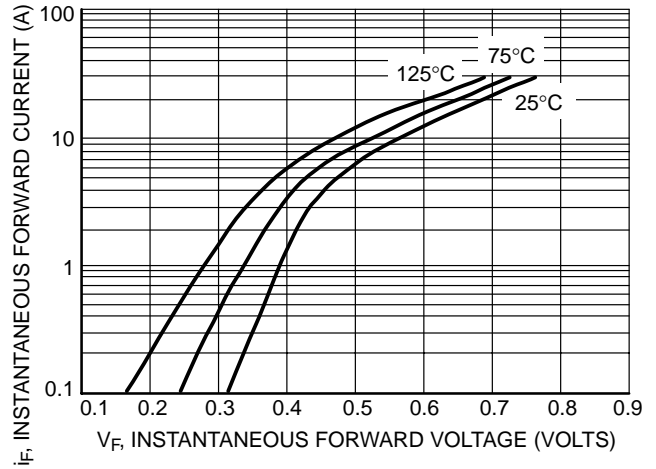


Figure 2. Typical Forward Voltage

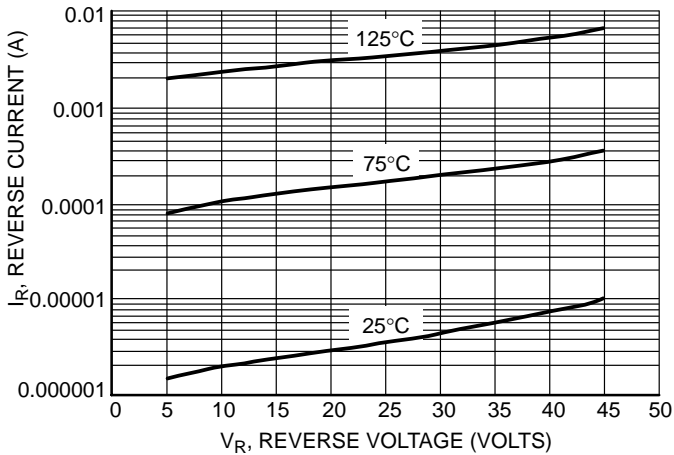


Figure 3. Typical Reverse Current

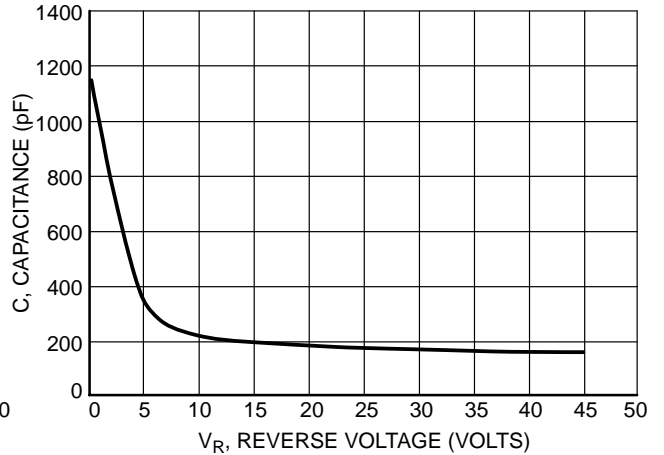


Figure 4. Typical Capacitance

# MBR2545CTP

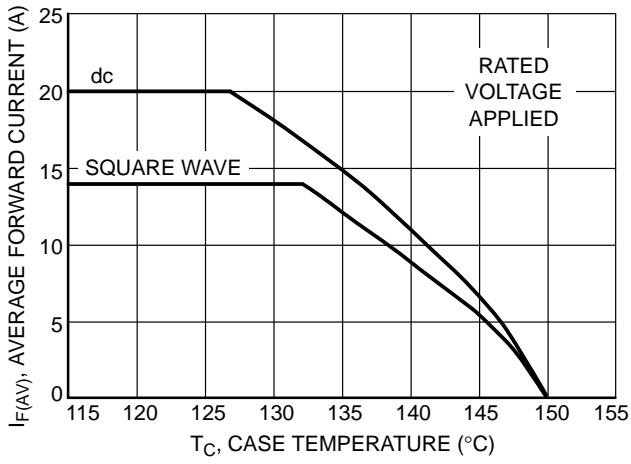


Figure 5. Current Derating, Case, Per Diode

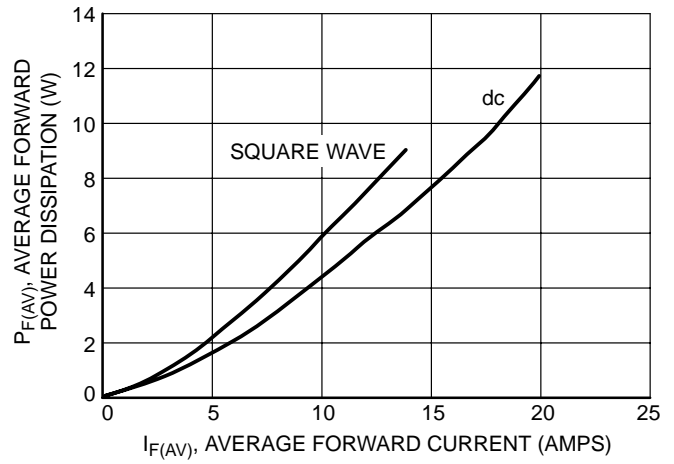
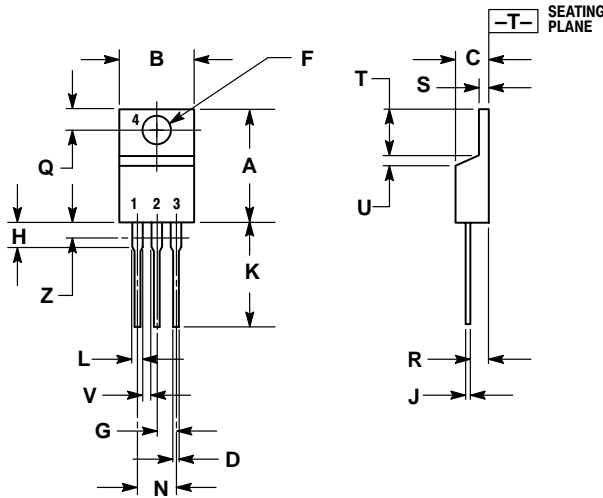


Figure 6. Forward Power Dissipation, Per Diode

# MBR2545CTP

## PACKAGE DIMENSIONS

TO-220 THREE-LEAD  
TO-220AB  
CASE 221A-09  
ISSUE AA




NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

| DIM | INCHES |       | MILLIMETERS |       |
|-----|--------|-------|-------------|-------|
|     | MIN    | MAX   | MIN         | MAX   |
| A   | 0.570  | 0.620 | 14.48       | 15.75 |
| B   | 0.380  | 0.405 | 9.66        | 10.28 |
| C   | 0.160  | 0.190 | 4.07        | 4.82  |
| D   | 0.025  | 0.035 | 0.64        | 0.88  |
| F   | 0.142  | 0.147 | 3.61        | 3.73  |
| G   | 0.095  | 0.105 | 2.42        | 2.66  |
| H   | 0.110  | 0.155 | 2.80        | 3.93  |
| J   | 0.018  | 0.025 | 0.46        | 0.64  |
| K   | 0.500  | 0.562 | 12.70       | 14.27 |
| L   | 0.045  | 0.060 | 1.15        | 1.52  |
| N   | 0.190  | 0.210 | 4.83        | 5.33  |
| Q   | 0.100  | 0.120 | 2.54        | 3.04  |
| R   | 0.080  | 0.110 | 2.04        | 2.79  |
| S   | 0.045  | 0.055 | 1.15        | 1.39  |
| T   | 0.235  | 0.255 | 5.97        | 6.47  |
| U   | 0.000  | 0.050 | 0.00        | 1.27  |
| V   | 0.045  | ---   | 1.15        | ---   |
| Z   | ---    | 0.080 | ---         | 2.04  |

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