

# Switch-mode Power Rectifier

## MBRB2545CTG, SBRB2545CTG

### D<sup>2</sup>PAK Surface Mount Power Package

The D<sup>2</sup>PAK Power Rectifier is a state-of-the-art device that employs the Schottky Barrier principle with a platinum barrier metal.

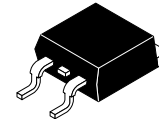
#### Features

- Center-Tap Configuration
- Guardring for Stress Protection
- Low Forward Voltage
- 175 °C Operating Junction Temperature
- Epoxy Meets UL 94 V-0 @ 0.125 in
- Short Heat Sink Tab Manufactured-Not Sheared
- Similar in Size to the Industry Standard TO-220 Package
- AEC-Q101 Qualified and PPAP Capable
- SBRB Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- All Packages are Pb-Free\*

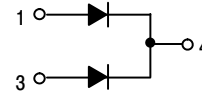
#### Mechanical Characteristics

- Case: Epoxy, Molded, Epoxy Meets UL 94 V-0
- Weight: 1.7 Grams (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260 °C Max. for 10 Seconds
- Device Meets MSL1 Requirements
- ESD Ratings:
  - ◆ Machine Model = C (> 400 V)
  - ◆ Human Body Model = 3B (> 8000 V)

## SCHOTTKY BARRIER RECTIFIER 30 AMPERES, 45 VOLTS



D<sup>2</sup>PAK  
CASE 418B  
STYLE 3



#### MARKING DIAGRAM



|       |                     |
|-------|---------------------|
| A     | = Assembly Location |
| Y     | = Year              |
| WW    | = Work Week         |
| B2545 | = Device Code       |
| G     | = Pb-Free Package   |
| AKA   | = Diode Polarity    |

#### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

\*For additional information on our Pb-Free strategy and soldering details, please download the [onsemi Soldering and Mounting Techniques Reference Manual, SOLDERRM/D](#)

# MBRB2545CTG, SBRB2545CTG

## MAXIMUM RATINGS (Per Leg)

| 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 $V_R$ , $T_C = 164^\circ\text{C}$ ) Total Device                | $I_{F(AV)}$                     | 15<br>30    | A                |
| Peak Repetitive Forward Current<br>(Rated $V_R$ , Square Wave, 20 kHz, $T_C = 160^\circ\text{C}$ )          | $I_{FRM}$                       | 30          | A                |
| Non-Repetitive Peak Surge Current<br>(Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz) | $I_{FSM}$                       | 150         | A                |
| Peak Repetitive Reverse Surge Current (2.0 $\mu\text{s}$ , 1.0 kHz)                                         | $I_{RRM}$                       | 1.0         | A                |
| Storage Temperature Range                                                                                   | $T_{stg}$                       | -65 to +175 | $^\circ\text{C}$ |
| Operating Junction Temperature (Note 1)                                                                     | $T_J$                           | -65 to +175 | $^\circ\text{C}$ |
| Voltage Rate of Change (Rated $V_R$ )                                                                       | $dv/dt$                         | 10,000      | V/ $\mu\text{s}$ |

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

- The heat generated must be less than the thermal conductivity from Junction-to-Ambient:  $dP_D/dT_J < 1/R_{\theta JA}$ .

## THERMAL CHARACTERISTICS (Per Leg)

| Characteristic                                                          | Symbol                             | Value     | Unit               |
|-------------------------------------------------------------------------|------------------------------------|-----------|--------------------|
| Thermal Resistance,<br>Junction-to-Case<br>Junction-to-Ambient (Note 2) | $R_{\theta JC}$<br>$R_{\theta JA}$ | 1.5<br>50 | $^\circ\text{C/W}$ |

- When mounted using minimum recommended pad size on FR-4 board.

## ELECTRICAL CHARACTERISTICS (Per Diode)

| Symbol | Characteristic                            | Condition                                                                                                                                                                                                      | Min              | Typ                    | Max                          | Unit |
|--------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------|------------------------------|------|
| $V_F$  | Instantaneous Forward Voltage<br>(Note 3) | $I_F = 15\text{ Amp}$ , $T_J = 25^\circ\text{C}$<br>$I_F = 15\text{ Amp}$ , $T_J = 125^\circ\text{C}$<br>$I_F = 30\text{ Amp}$ , $T_J = 25^\circ\text{C}$<br>$I_F = 30\text{ Amp}$ , $T_J = 125^\circ\text{C}$ | –<br>–<br>–<br>– | –<br>0.50<br>–<br>0.65 | 0.62<br>0.57<br>0.82<br>0.72 | V    |
| $I_R$  | Instantaneous Reverse Current<br>(Note 3) | $V_R = 45\text{ Volts}$ , $T_J = 25^\circ\text{C}$<br>$V_R = 45\text{ Volts}$ , $T_J = 125^\circ\text{C}$                                                                                                      | –<br>–           | –<br>9.0               | 0.2<br>25                    | mA   |

- Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

## ORDERING INFORMATION

| Device        | Package                         | Shipping <sup>†</sup>   |
|---------------|---------------------------------|-------------------------|
| MBRB2545CTT4G | D <sup>2</sup> PAK<br>(Pb-Free) | 800 Units / Tape & Reel |

## DISCONTINUED (Note 4)

| Device        | Package                         | Shipping <sup>†</sup>   |
|---------------|---------------------------------|-------------------------|
| MBRB2545CTG   | D <sup>2</sup> PAK<br>(Pb-Free) | 50 Units / Rail         |
| SBRB2545CTG   | D <sup>2</sup> PAK<br>(Pb-Free) | 50 Units / Rail         |
| SBRB2545CTT4G | D <sup>2</sup> PAK<br>(Pb-Free) | 800 Units / Tape & Reel |

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, [BRD8011/D](#).

- DISCONTINUED:** This device is not recommended for new design. Please contact your onsemi representative for information. The most current information on this device may be available on [www.onsemi.com](http://www.onsemi.com).

# MBRB2545CTG, SBRB2545CTG

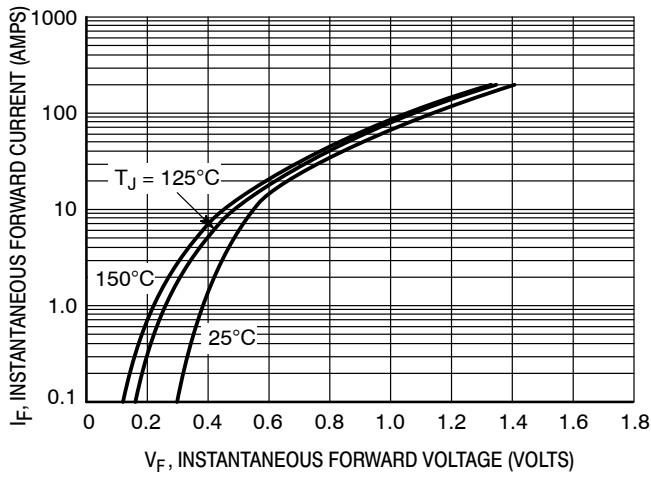


Figure 1. Typical Forward Voltage, Per Leg

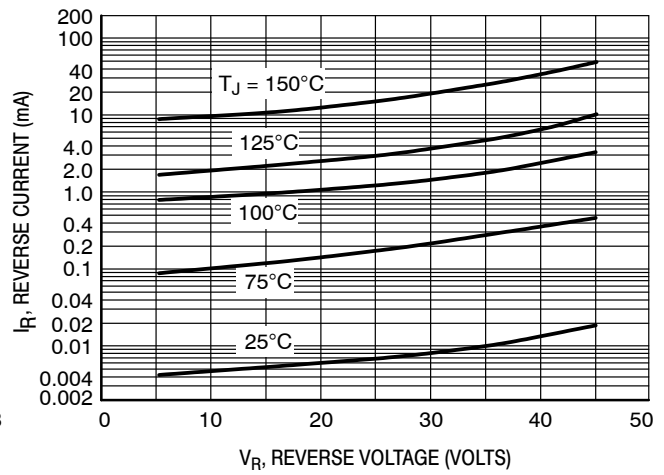


Figure 2. Typical Reverse Current, Per Leg

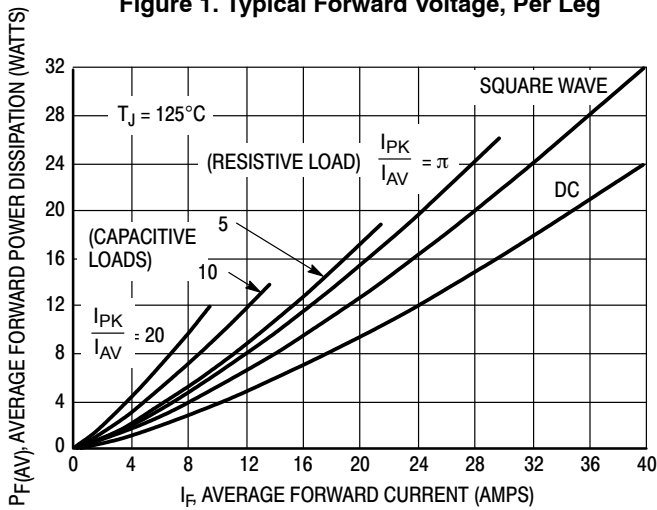


Figure 3. Typical Forward Power Dissipation

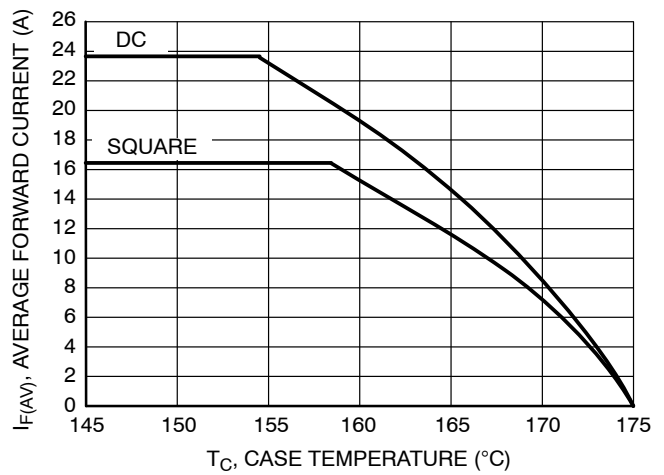
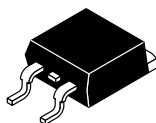


Figure 4. Current Derating, Case per Leg

## MBRB2545CTG, SBRB2545CTG

### REVISION HISTORY

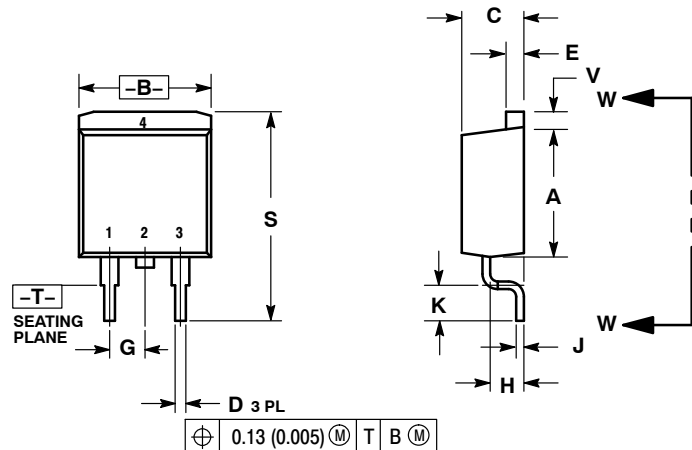
| Revision | Description of Changes                                                                                          | Date     |
|----------|-----------------------------------------------------------------------------------------------------------------|----------|
| 13       | MBRB2545CTG, SBRB2545CTG, SBRB2545CTT4G OPN Marked as Discontinued + Re-branded the Data Sheet to onsemi format | 7/2/2025 |



D<sup>2</sup>PAK 3  
CASE 418B-04  
ISSUE L

DATE 17 FEB 2015

SCALE 1:1

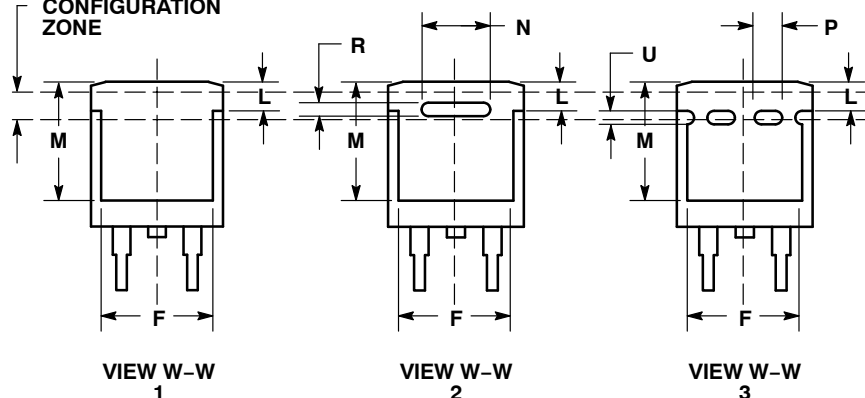


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 418B-01 THRU 418B-03 OBSOLETE, NEW STANDARD 418B-04.

| DIM | INCHES |       | MILLIMETERS |       |
|-----|--------|-------|-------------|-------|
|     | MIN    | MAX   | MIN         | MAX   |
| A   | 0.340  | 0.380 | 8.64        | 9.65  |
| B   | 0.380  | 0.405 | 9.65        | 10.29 |
| C   | 0.160  | 0.190 | 4.06        | 4.83  |
| D   | 0.020  | 0.035 | 0.51        | 0.89  |
| E   | 0.045  | 0.055 | 1.14        | 1.40  |
| F   | 0.310  | 0.350 | 7.87        | 8.89  |
| G   | 0.100  | BSC   | 2.54        | BSC   |
| H   | 0.080  | 0.110 | 2.03        | 2.79  |
| J   | 0.018  | 0.025 | 0.46        | 0.64  |
| K   | 0.090  | 0.110 | 2.29        | 2.79  |
| L   | 0.052  | 0.072 | 1.32        | 1.83  |
| M   | 0.280  | 0.320 | 7.11        | 8.13  |
| N   | 0.197  | REF   | 5.00        | REF   |
| P   | 0.079  | REF   | 2.00        | REF   |
| R   | 0.039  | REF   | 0.99        | REF   |
| S   | 0.575  | 0.625 | 14.60       | 15.88 |
| V   | 0.045  | 0.055 | 1.14        | 1.40  |

VARIABLE  
CONFIGURATION  
ZONE



STYLE 1:

- PIN 1. BASE  
2. COLLECTOR  
3. EMITTER  
4. COLLECTOR

STYLE 2:

- PIN 1. GATE  
2. DRAIN  
3. SOURCE  
4. DRAIN

STYLE 3:

- PIN 1. ANODE  
2. CATHODE  
3. ANODE  
4. CATHODE

STYLE 4:

- PIN 1. GATE  
2. COLLECTOR  
3. EMITTER  
4. COLLECTOR

STYLE 5:

- PIN 1. CATHODE  
2. ANODE  
3. CATHODE  
4. ANODE

STYLE 6:

- PIN 1. NO CONNECT  
2. CATHODE  
3. ANODE  
4. CATHODE

MARKING INFORMATION AND FOOTPRINT ON PAGE 2

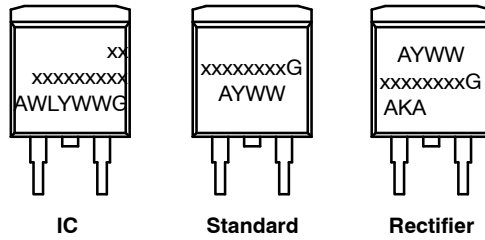
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**D<sup>2</sup>PAK 3**  
CASE 418B-04  
ISSUE L

DATE 17 FEB 2015

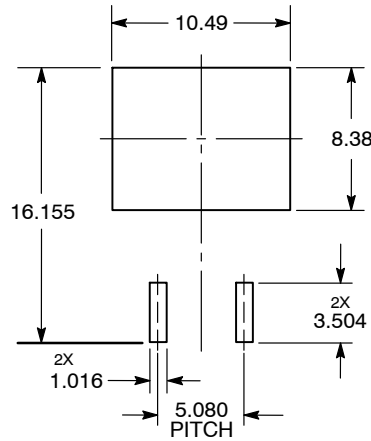
**GENERIC  
MARKING DIAGRAM\***



xx = Specific Device Code  
A = Assembly Location  
WL = Wafer Lot  
Y = Year  
WW = Work Week  
G = Pb-Free Package  
AKA = Polarity Indicator

\*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

**SOLDERING FOOTPRINT\***



DIMENSIONS: MILLIMETERS

\*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

|                         |                           |                                                                                                                                                                                     |
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