Switch-mode Power Rectifier

MBRB2545CTG, SBRB2545CTG

D²PAK Surface Mount Power Package

The D²PAK Power Rectifier is a state-of-the-art device that employs the Schottky Barrier principle with a platinum barrier metal.

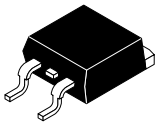
Features

- 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*

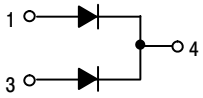
Mechanical Characteristics

- 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)

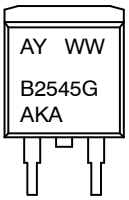
SCHOTTKY BARRIER RECTIFIER 30 AMPERES, 45 VOLTS



D²PAK
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

MAXIMUM RATINGS (Per Leg)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	45	V
Average Rectified Forward Current (Rated V_R, T_C = 164 °C) Total Device	$I_{F(AV)}$	15 30	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz, T_C = 160 °C)	I_{FRM}	30	A
Non−Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I_{FSM}	150	A
Peak Repetitive Reverse Surge Current (2.0 μs, 1.0 kHz)	I_{RRM}	1.0	A
Storage Temperature Range	T_{stg}	−65 to +175	°C
Operating Junction Temperature (Note 1)	T_J	−65 to +175	°C
Voltage Rate of Change (Rated V_R)	dv/dt	10,000	V/μs

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.

1. 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, Junction-to-Case Junction-to-Ambient (Note 2)	 $R_{\theta JC}$ $R_{\theta JA}$	 1.5 50	°C/W

2. 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 (Note 3)	I_F = 15 Amp, T_J = 25°C I_F = 15 Amp, T_J = 125°C I_F = 30 Amp, T_J = 25°C I_F = 30 Amp, T_J = 125°C	– – – –	– 0.50 – 0.65	0.62 0.57 0.82 0.72	V
I_R	Instantaneous Reverse Current (Note 3)	V_R = 45 Volts, T_J = 25°C V_R = 45 Volts, T_J = 125°C	– –	– 9.0	0.2 25	mA

3. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤ 2.0%.

ORDERING INFORMATION

Device	Package	Shipping†
MBRB2545CTT4G	D^2PAK (Pb-Free)	800 Units / Tape & Reel

DISCONTINUED (Note 4)

Device	Package	Shipping†
MBRB2545CTG	D^2PAK (Pb-Free)	50 Units / Rail
SBRB2545CTG	D^2PAK (Pb-Free)	50 Units / Rail
SBRB2545CTT4G	D^2PAK (Pb-Free)	800 Units / Tape & Reel

†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.

4. **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.

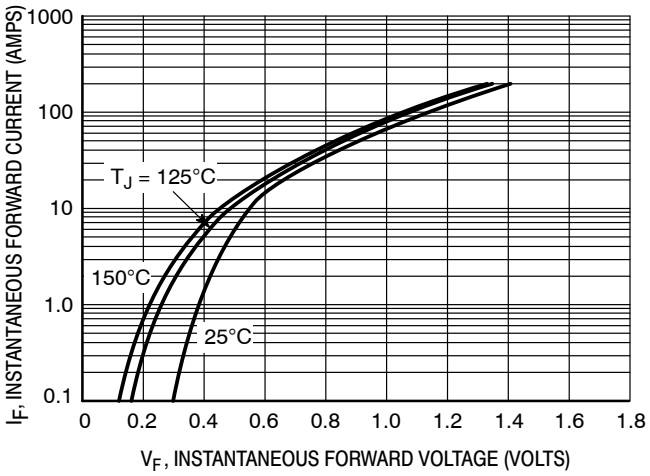


Figure 1. Typical Forward Voltage, Per Leg

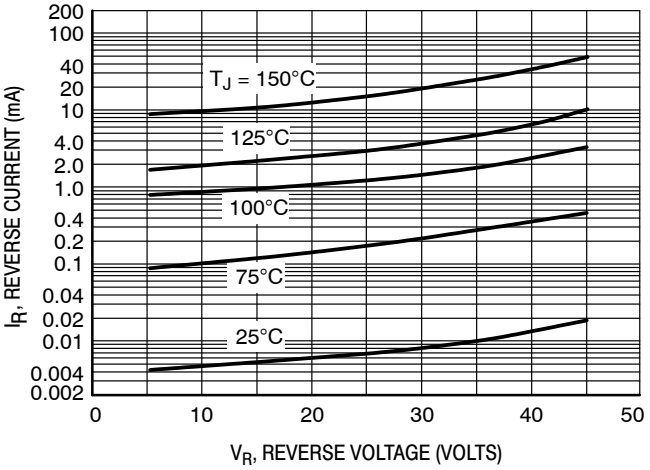


Figure 2. Typical Reverse Current, Per Leg

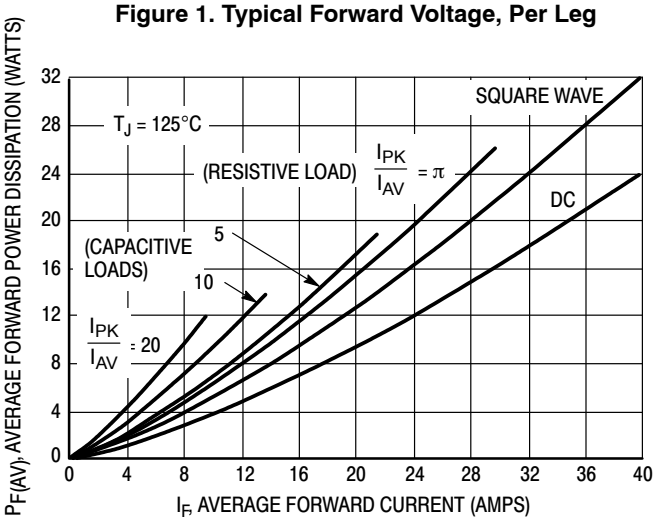


Figure 3. Typical Forward Power Dissipation

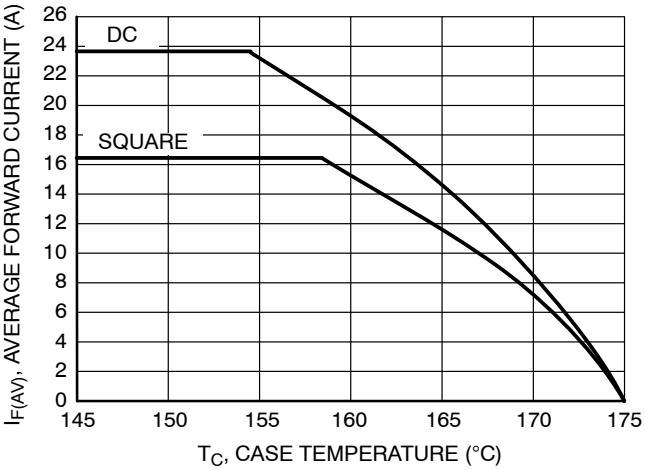
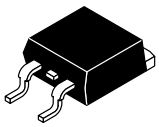


Figure 4. Current Derating, Case per Leg

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



SCALE 1:1

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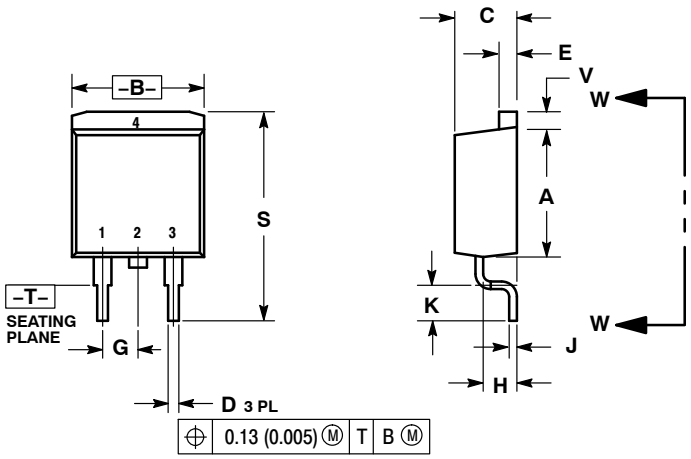
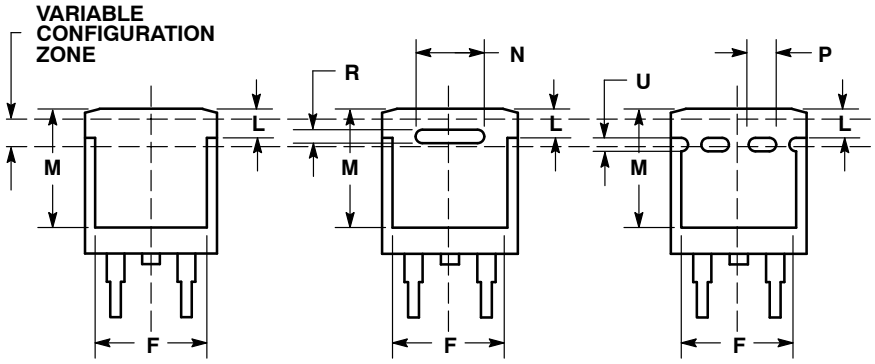
DATE 17 FEB 2015



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.

	INCHES		MILLIMETERS	
DIM	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



VIEW W–W 1 | VIEW W–W 2 | VIEW W–W 3

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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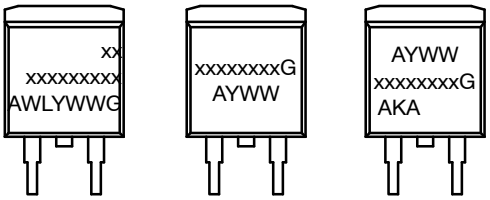
GENERIC MARKING DIAGRAM*

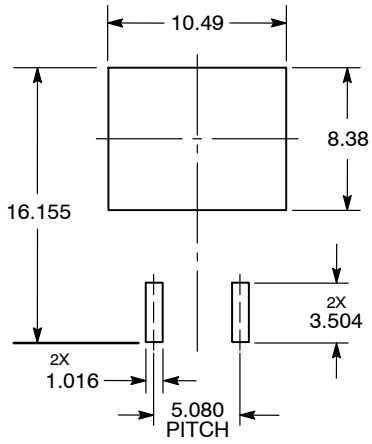


IC **Standard** **Rectifier**

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

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DESCRIPTION:	**D²PAK 3**		**PAGE 2 OF 2**

ADDITIONAL INFORMATION

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