SWITCHMODE Power Rectifier

D²PAK Surface Mount Power Package

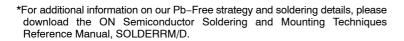
The D²PAK Power Rectifier employs the Schottky Barrier principle with a platinum barrier metal. These state-of-the-art devices have the following features:

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 Heatsink Tab Manufactured Not Sheared
- Similar in Size to the Industry Standard TO220 Package
- SBRB Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable
- These Devices are Pb-Free and are RoHS Compliant*

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)





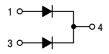
ON Semiconductor®

http://onsemi.com

SCHOTTKY BARRIER RECTIFIER 15 AMPERES 45 VOLTS



D²PAK CASE 418B STYLE 3



MARKING DIAGRAM



B1545 = Device Code
A = Assembly Location
Y = Year
WW = Work Week
G = Pb-Free Package

= Diode Polarity

ORDERING INFORMATION

AKA

Device	Package	Shipping [†]
MBRB1545CTG	D ² PAK (Pb-Free)	50 Units/Rail
SBRB1545CTG	D ² PAK (Pb-Free)	50 Units/Rail
MBRB1545CTT4G	D ² PAK (Pb-Free)	800/Tape & Reel
SBRB1545CTT4G	D ² PAK (Pb-Free)	800/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.

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 , $T_C = 167^{\circ}C$) Total Device	I _{F(AV)}	7.5 15	Α
Peak Repetitive Forward Current (Rated V _R , Square Wave, 20 kHz, T _C = 166°C)	I _{FRM}	15	Α
Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	I _{FSM}	150	Α
Peak Repetitive Reverse Surge Current (2.0 μs, 1.0 kHz)	I _{RRM}	1.0	Α
Storage Temperature Range	T _{stg}	-65 to +175	°C
Operating Junction Temperature (Note 1)	TJ	-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.

THERMAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Thermal Resistance Junction to Case Junction to Ambient (Note 2)	R _{θJC} R _{θJA}	2.0 50	°C/W

^{2.} When mounted using minimum recommended pad size on FR-4 board.

ELECTRICAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
$\label{eq:maximum Instantaneous Forward Voltage (Note 3)} \begin{tabular}{l} (i_F = 7.5 \ Amps, \ T_J = 125^\circ C) \\ (i_F = 15 \ Amps, \ T_J = 125^\circ C) \\ (i_F = 15 \ Amps, \ T_J = 25^\circ C) \end{tabular}$	V _F	0.57 0.72 0.84	V
Maximum Instantaneous Reverse Current (Note 3) (Rated dc Voltage, T _J = 125°C) (Rated dc Voltage, T _J = 25°C)	i _R	15 0.1	mA

^{3.} Pulse Test: Pulse Width = 300 μs , Duty Cycle \leq 2.0%.

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

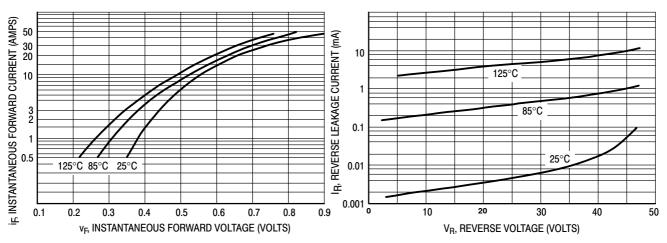


Figure 1. Typical Forward Voltage, Per Leg

Figure 2. Typical Reverse Current, Per Leg

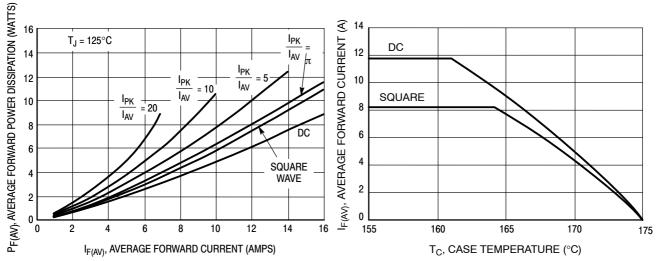
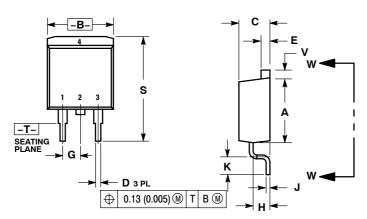


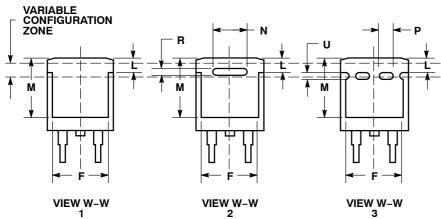
Figure 3. Typical Forward Power Dissipation

Figure 4. Current Derating, Case, Per Leg

PACKAGE DIMENSIONS

D²PAK CASE 418B-04 ISSUE K



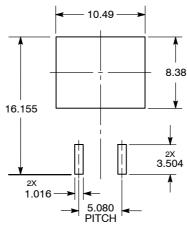


- NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. 418B-01 THRU 418B-03 OBSOLETE, NEW STANDARD 418B-04.

	INCHES		MILLIMETERS		
DIM	MIN	MAX	MIN	MAX	
Α	0.340	0.380	8.64	9.65	
В	0.380	0.405	9.65	10.29	
С	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		
Н	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		
Р	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	

STYLE 3: PIN 1. ANODE 2. CATHODE 3. ANODE 4. CATHODE

SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

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

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