MBRB2535CTLG, NRVBB2535CTLG

Preferred Device

SWITCHMODE Power Rectifier

D²PAK Surface Mount Power Package

The D²PAK Power Rectifier employs the Schottky Barrier principle in a large metal−to−silicon power diode. State−of−the−art geometry features epitaxial construction with oxide passivation and metal overlay contact. Ideally suited for use in low voltage, high frequency switching power supplies, free wheeling diodes, and polarity protection diodes. These state−of−the−art devices have the following features:

Features

- Center−Tap Configuration
- Guardring for Stress Protection
- Low Forward Voltage
- 125°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 TO−220 Package
- AEC−Q101 Qualified and PPAP Capable
- NRVBB Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements
- All Packages are Pb−Free*

Mechanical Characteristics

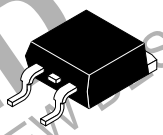
- Case: Epoxy, Molded, Epoxy Meets UL 94, V−0
- Weight: 1.7 grams (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Device Meets MSL1 Requirements
-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

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

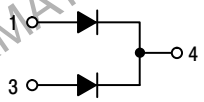
ON Semiconductor®

http://onsemi.com

SCHOTTKY BARRIER RECTIFIER 25 AMPERES, 35 VOLTS



D²PAK
CASE 418B
STYLE 3



MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
B2535L = Device Code
G = Pb−Free Package
AKA = Diode Polarity

ORDERING INFORMATION

Device	Package	Shipping†
MBRB2535CTLG	D²PAK (Pb−Free)	50 Units/Rail
NRVBB2535CTLG	D²PAK (Pb−Free)	50 Units/Rail
MBRB2535CTLT4G	D²PAK (Pb−Free)	800 / Tape & Reel
NRVBB2535CTLT4G	D²PAK (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.

Preferred devices are recommended choices for future use and best overall value.

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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	35	V
Average Rectified Forward Current, (Rated V_R, T_C = 110°C)	$I_{F(AV)}$	12.5	A
Peak Repetitive Forward Current, (Rated V_R, Square Wave, 20 kHz, T_C = 90°C)	I_{FRM}	25	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 +150	°C
Operating Junction Temperature	T_J	−65 to +125	°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 1)	 $R_{\theta JC}$ $R_{\theta JA}$	 1.0 84	°C/W

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

ELECTRICAL CHARACTERISTICS (Per Leg)

Characteristic	Symbol	Value	Unit
Maximum Instantaneous Forward Voltage (Note 2) (i_F = 25 A, T_J = 25°C) (i_F = 12.5 A, T_J = 125°C) (i_F = 12.5 A, T_J = 25°C)	v_F	 0.55 0.41 0.47	V
Maximum Instantaneous Reverse Current (Note 2) (Rated dc Voltage, T_J = 125°C) (Rated dc Voltage, T_J = 25°C)	I_R	 500 10	mA

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

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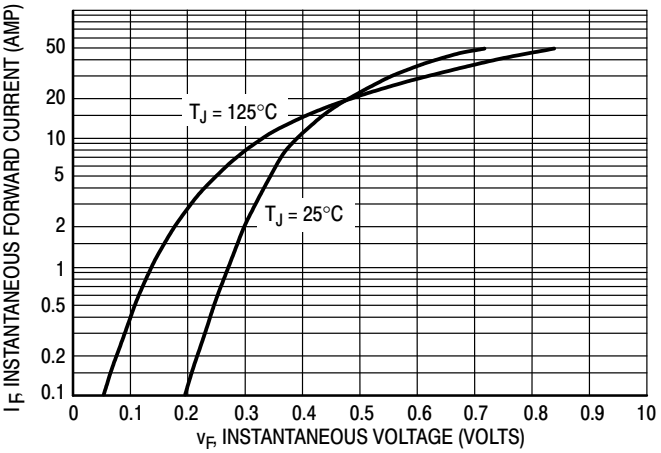


Figure 1. Typical Forward Voltage, Per Leg

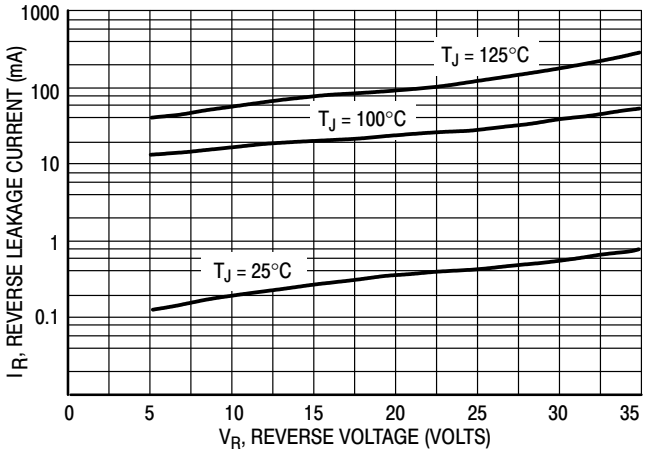


Figure 2. Typical Reverse Current, Per Leg

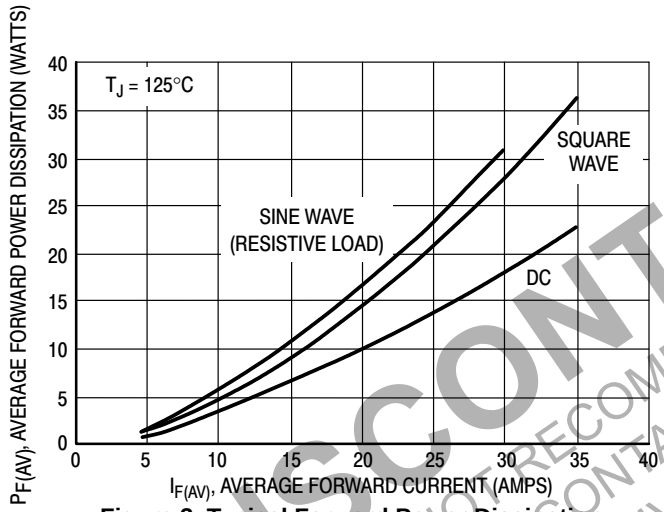


Figure 3. Typical Forward Power Dissipation

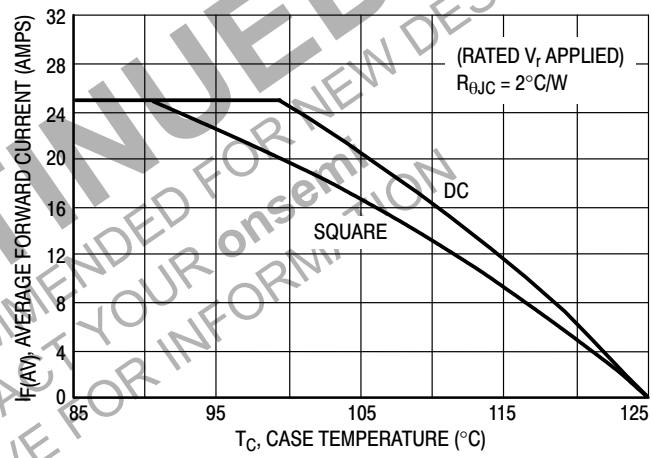
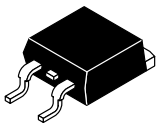


Figure 4. Current Derating, Case

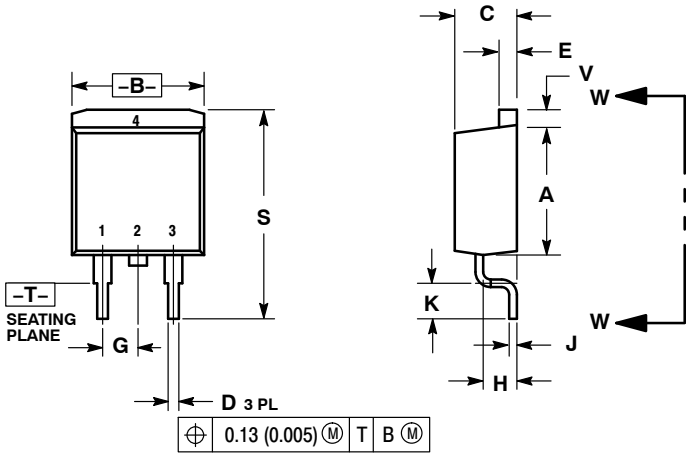
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D²PAK 3
CASE 418B–04
ISSUE L

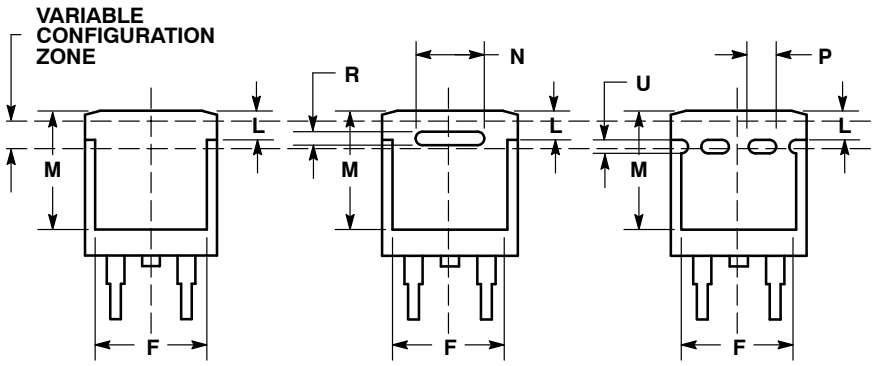
DATE 17 FEB 2015

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.

	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

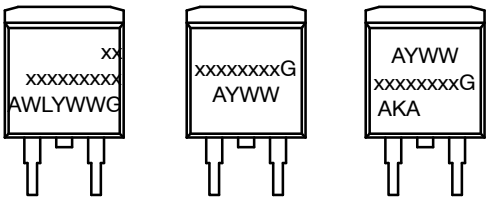
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D²PAK 3
CASE 418B−04
ISSUE L

DATE 17 FEB 2015

GENERIC
MARKING DIAGRAM*

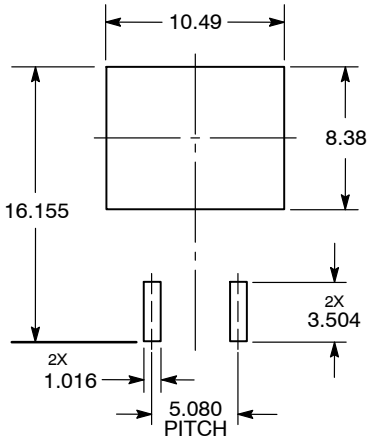


IC **Standard** **Rectifier**

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.

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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