

Switch-mode Power Rectifier

MBR1535CTG, MBR1545CTG

Features and Benefits

- Center-Tap Configuration
- Low Forward Voltage
- Low Power Loss / High Efficiency
- High Surge Capacity
- 175°C Operating Junction Temperature
- 15 A Total (7.5 A Per Diode Leg)
- These Devices are Pb-Free and are RoHS Compliant*

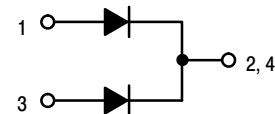
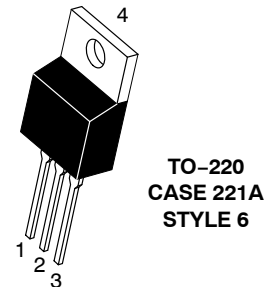
Applications

- Power Supply – Output Rectification
- Power Management
- Instrumentation

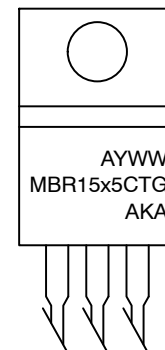
Mechanical Characteristics

- Case: Epoxy, Molded
- Epoxy Meets UL 94, V-0 @ 0.125 in
- 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
- ESD Rating: Human Body Model = 3B
Machine Model = C

SCHOTTKY BARRIER RECTIFIERS 15 AMPERES 35 and 45 VOLTS



MARKING DIAGRAM



A	= Assembly Location
Y	= Year
WW	= Work Week
x	= 3 or 4
G	= Pb-Free Package
AKA	= Diode Polarity

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 4 of this data sheet.

NOTE: Some of the devices on this data sheet have been **DISCONTINUED**. Please refer to the table on page 4.

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

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MAXIMUM RATINGS

Symbol	Rating	Value	Unit
V_{RRM} V_{RWM} V_R	Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage MBR1535CT MBR1545CT	35 45	V
$I_{F(AV)}$	Average Rectified Forward Current ($T_C = 163^\circ\text{C}$) Per Diode Per Device	7.5 15	A
I_{FRM}	Peak Repetitive Forward Current (Square Wave, 20 kHz, $T_C = 161^\circ\text{C}$) Per Diode	15	A
I_{FSM}	Non-Repetitive Peak Surge Current (Surge Applied at Rated Load Conditions Halfwave, Single Phase, 60 Hz)	150	A
I_{RRM}	Peak Repetitive Reverse Surge Current (2.0 μs , 1.0 kHz)	1.0	A
T_{stg}	Storage Temperature Range	-65 to +175	$^\circ\text{C}$
T_J	Operating Junction Temperature (Note 1)	-65 to +175	$^\circ\text{C}$
dv/dt	Voltage Rate of Change (Rated V_R)	1000	V/ μs

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

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 DIODE

Symbol	Characteristic	Value	Unit
$R_{\theta JC}$	Maximum Thermal Resistance, Junction-to-Case (Min. Pad)	3.0	$^\circ\text{C/W}$
$R_{\theta JA}$	Maximum Thermal Resistance, Junction-to-Ambient (Min. Pad)	60	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS PER DIODE

Symbol	Characteristic	Min	Typ	Max	Unit
V_F	Maximum Instantaneous Forward Voltage (Note 2) ($I_F = 7.5$ Amps, $T_J = 125^\circ\text{C}$) ($I_F = 15$ Amps, $T_J = 125^\circ\text{C}$) ($I_F = 15$ Amps, $T_J = 25^\circ\text{C}$)	– – –	0.47 0.63 0.66	0.57 0.72 0.84	V
i_R	Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, $T_J = 125^\circ\text{C}$) (Rated DC Voltage, $T_J = 25^\circ\text{C}$)	– –	10 0.025	15 0.1	mA

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

2. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

MBR1535CTG, MBR1545CTG

TYPICAL CHARACTERISTICS

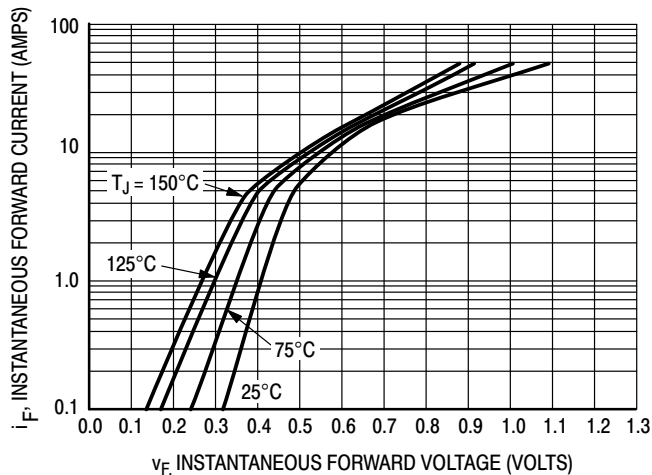


Figure 1. Typical Forward Voltage

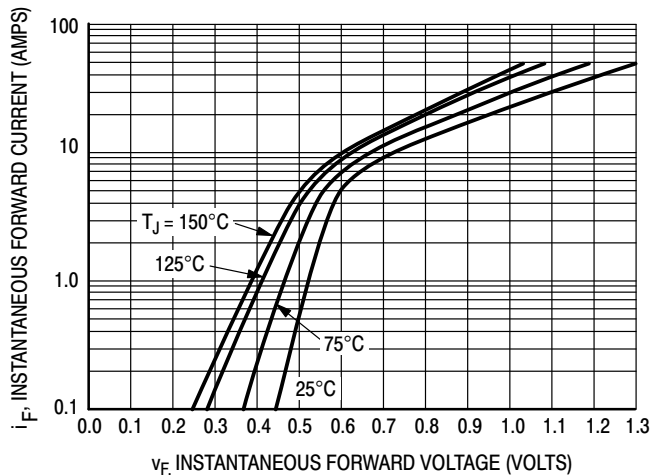


Figure 2. Maximum Forward Voltage

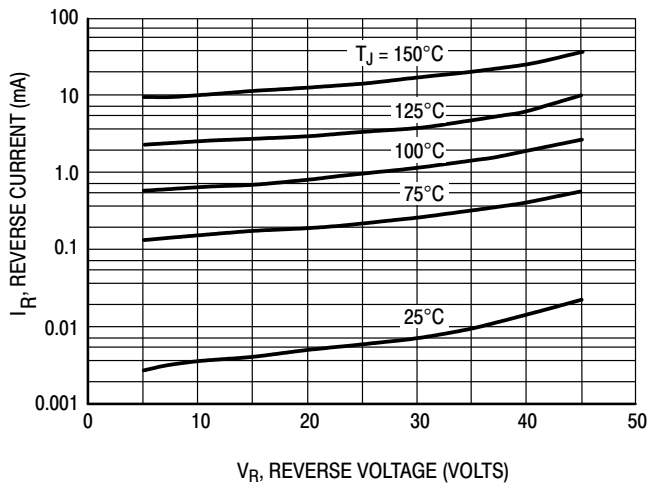


Figure 3. Typical Reverse Current

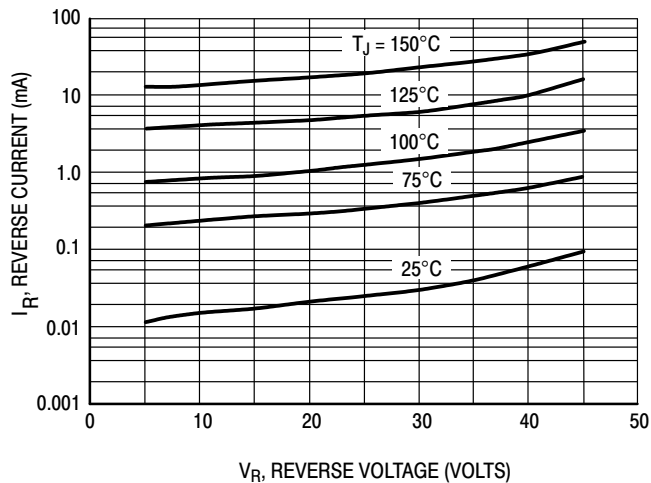


Figure 4. Maximum Reverse Current

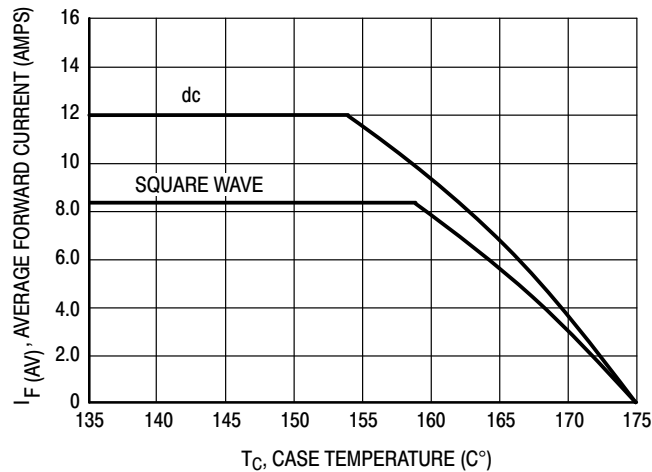


Figure 5. Current Derating, Case Per Leg

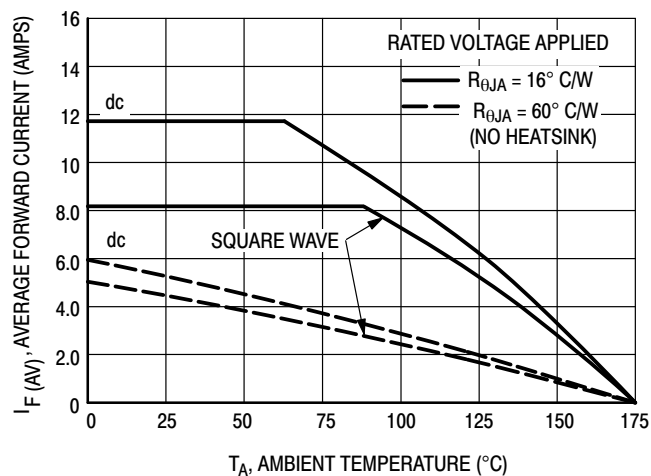


Figure 6. Current Derating, Ambient Per Leg

MBR1535CTG, MBR1545CTG

TYPICAL CHARACTERISTICS (continued)

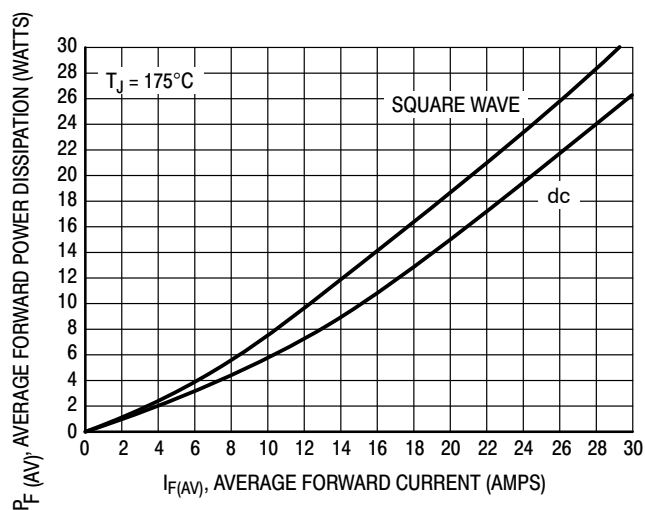


Figure 7. Forward Power Dissipation

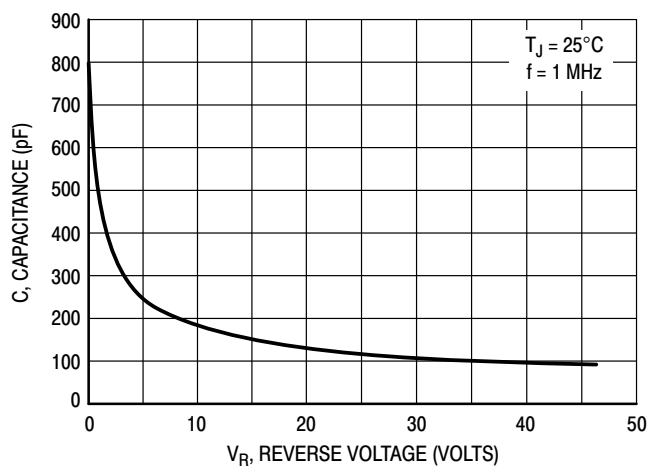


Figure 8. Typical Capacitance

ORDERING INFORMATION

Device	Package	Shipping
MBR1545CTG	TO-220 (Pb-Free)	50 Units / Rail

DISCONTINUED (Note 3)

MBR1535CTG	TO-220 (Pb-Free)	50 Units / Rail
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3. **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.



TO-220-3 10.10x15.12x4.45, 2.54P

CASE 221A

ISSUE AL

DATE 05 FEB 2025



MILLIMETERS			
DIM	MIN	NOM	MAX
A	4.07	4.45	4.83
A1	1.15	1.28	1.41
A2	2.04	2.42	2.79
b	1.15	1.34	1.52
b1	0.64	0.80	0.96
c	0.36	0.49	0.61
D	9.66	10.10	10.53
D1	8.43	8.63	8.83
E	14.48	15.12	15.75
E1	12.58	12.78	12.98
E2	1.27 REF		

MILLIMETERS			
DIM	MIN	NOM	MAX
e	2.42	2.54	2.66
e1	4.83	5.08	5.33
H1	5.97	6.22	6.47
L	12.70	13.49	14.27
L1	2.80	3.45	4.10
Q	2.54	2.79	3.04
øP	3.60	3.85	4.09
Z	---	---	3.48

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

STYLE 1:
PIN 1. BASE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 2:
PIN 1. BASE
2. EMITTER
3. COLLECTOR
4. EMITTER

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

STYLE 4:
PIN 1. MAIN TERMINAL 1
2. MAIN TERMINAL 2
3. GATE
4. MAIN TERMINAL 2

STYLE 5:
PIN 1. GATE
2. DRAIN
3. SOURCE
4. DRAIN

STYLE 6:
PIN 1. ANODE
2. CATHODE
3. ANODE
4. CATHODE

STYLE 7:
PIN 1. CATHODE
2. ANODE
3. CATHODE
4. ANODE

STYLE 8:
PIN 1. CATHODE
2. ANODE
3. EXTERNAL TRIP/DELAY
4. ANODE

STYLE 9:
PIN 1. GATE
2. COLLECTOR
3. EMITTER
4. COLLECTOR

STYLE 10:
PIN 1. GATE
2. SOURCE
3. DRAIN
4. SOURCE

STYLE 11:
PIN 1. DRAIN
2. SOURCE
3. GATE
4. SOURCE

STYLE 12:
PIN 1. MAIN TERMINAL 1
2. MAIN TERMINAL 2
3. GATE
4. NOT CONNECTED

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