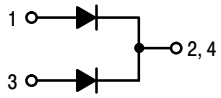
MBR30L45CTG, MBRF30L45CTG

Switch-mode Power Rectifier 45 V, 30 A

ON Semiconductor®

www.onsemi.com

DUAL SCHOTTKY BARRIER RECTIFIERS 30 AMPERES, 45 VOLTS



Features and Benefits

- Low Forward Voltage
- Low Power Loss/High Efficiency
- High Surge Capacity
- 150°C Operating Junction Temperature
- 30 A Total (15 A Per Diode Leg)
- Guard−Ring for Stress Protection

Applications

- Power Supply − Output Rectification
- Power Management
- Instrumentation

Mechanical Characteristics:

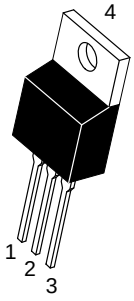
- Case: Epoxy, Molded
- Epoxy Meets UL 94 V−0 @ 0.125 in
- Weight (Approximately): 1.9 Grams
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Shipped 50 Units Per Plastic Tube
- This is a Pb−Free Device*

MAXIMUM RATINGS

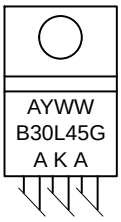
Please See the Table on the Following Page

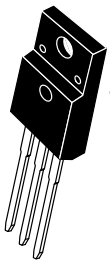
*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

MARKING DIAGRAMS

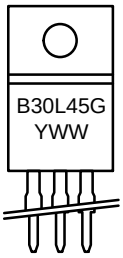


TO−220
CASE 221A
PLASTIC





TO−220 FULLPAK
CASE 221AH



B30L45	= Device Code
A	= Assembly Location
Y	= Year
WW	= Work Week
AKA	= Polarity Designator
G	= Pb−Free Device

ORDERING INFORMATION

Device	Package	Shipping
MBR30L45CTG	TO−220 (Pb−Free)	50 Units/Rail
MBRF30L45CTG	TO−220FP (Pb−Free)	50 Units/Rail

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MAXIMUM RATINGS (Per Diode 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 = 137°C	$I_{F(AV)}$	15	A
Peak Repetitive Forward Current (Rated V_R, Square Wave, 20 kHz)	I_{FRM}	30	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	190	A
Operating Junction Temperature (Note 1)	T_J	−55 to +150	°C
Storage Temperature	T_{stg}	− 55 to +175	°C
Voltage Rate of Change (Rated V_R)	dv/dt	10,000	V/μs
ESD Ratings: Machine Model = C Human Body Model = 3B		> 400 > 8000	V

THERMAL CHARACTERISTICS

Maximum Thermal Resistance				°C/W
(MBR30L45CTG)	Junction−to−Case	$R_{\theta JC}$	1.9	
	Junction−to−Ambient	$R_{\theta JA}$	45	
(MBRF30L45CTG)	Junction−to−Case	$R_{\theta JC}$	2.2	

ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Maximum Instantaneous Forward Voltage (Note 2)	v_F		V
(I_F = 15 A, T_C = 25°C)		0.50	
(I_F = 15 A, T_C = 125°C)		0.44	
(I_F = 30 A, T_C = 25°C)		0.61	
(I_F = 30 A, T_C = 125°C)		0.60	
Maximum Instantaneous Reverse Current (Note 2)	i_R		mA
(Rated DC Voltage, T_C = 25°C)		0.65	
(Rated DC Voltage, T_C = 125°C)		250	

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: $dP_D/dT_J < 1/R_{\theta JA}$.
2. Pulse Test: Pulse Width = 300 μs, Duty Cycle ≤2.0%.

TYPICAL CHARACTERISTICS

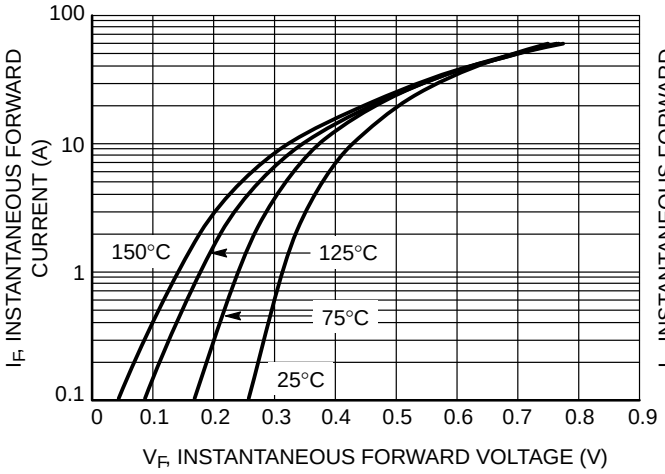


Figure 1. Typical Forward Voltage

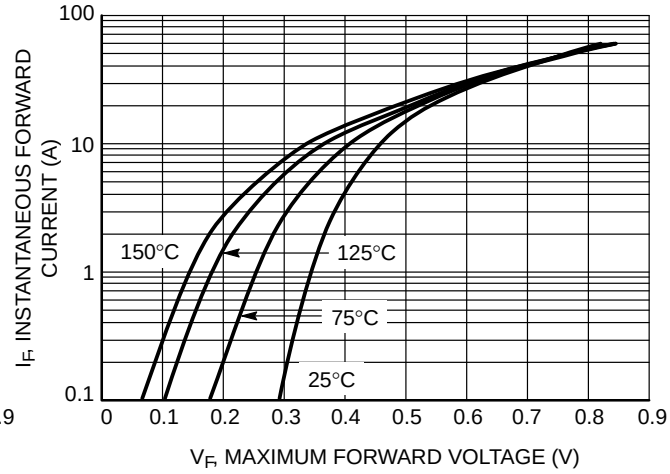


Figure 2. Maximum Forward Voltage

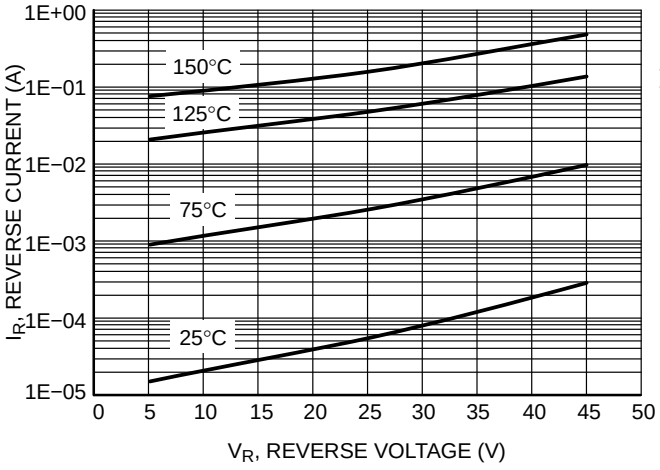


Figure 3. Typical Reverse Current

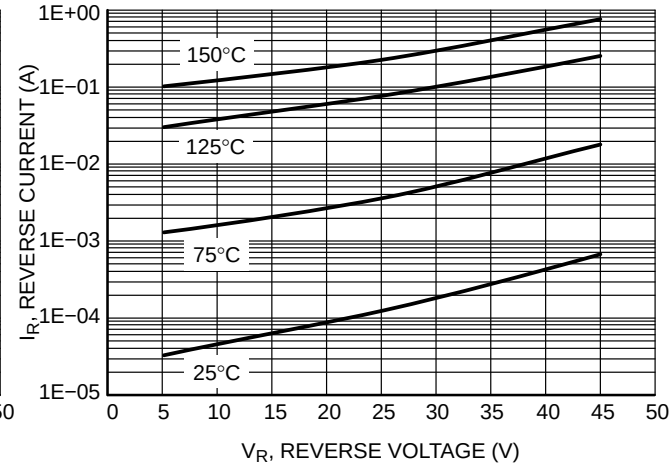


Figure 4. Maximum Reverse Current

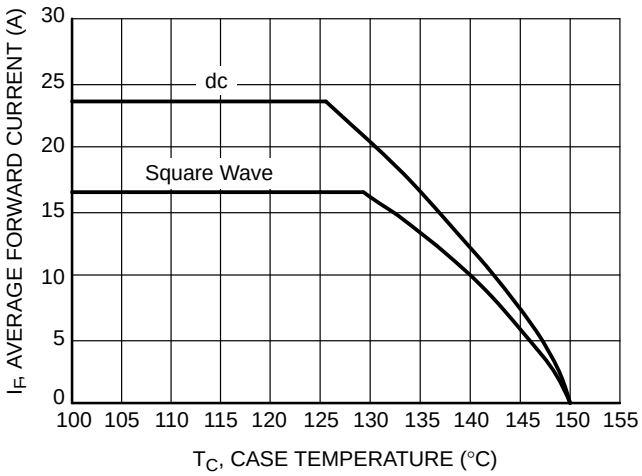


Figure 5. Current Derating

TYPICAL CHARACTERISTICS

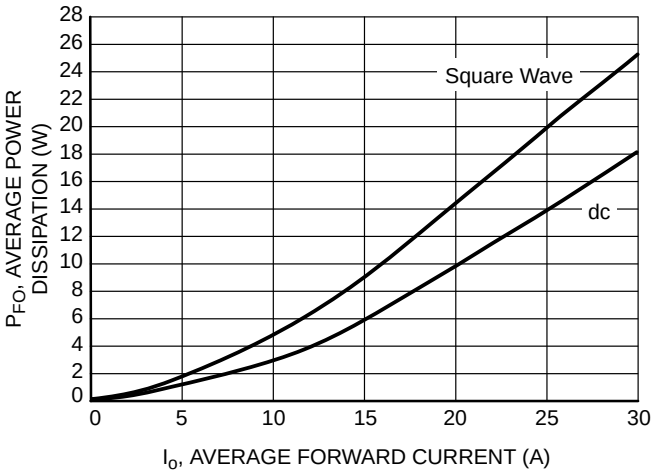


Figure 6. Forward Power Dissipation

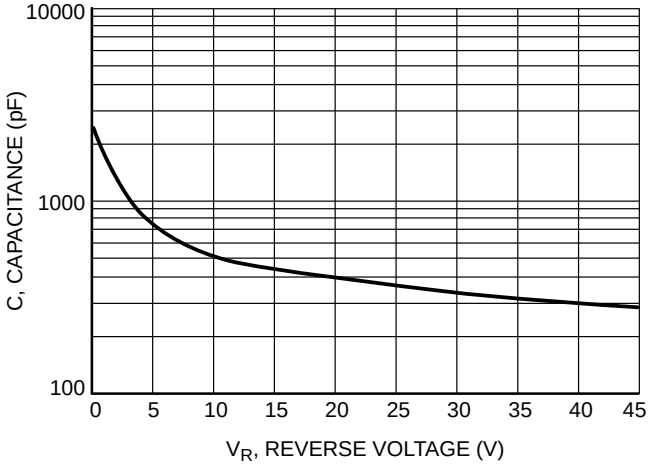


Figure 7. Typical Capacitance

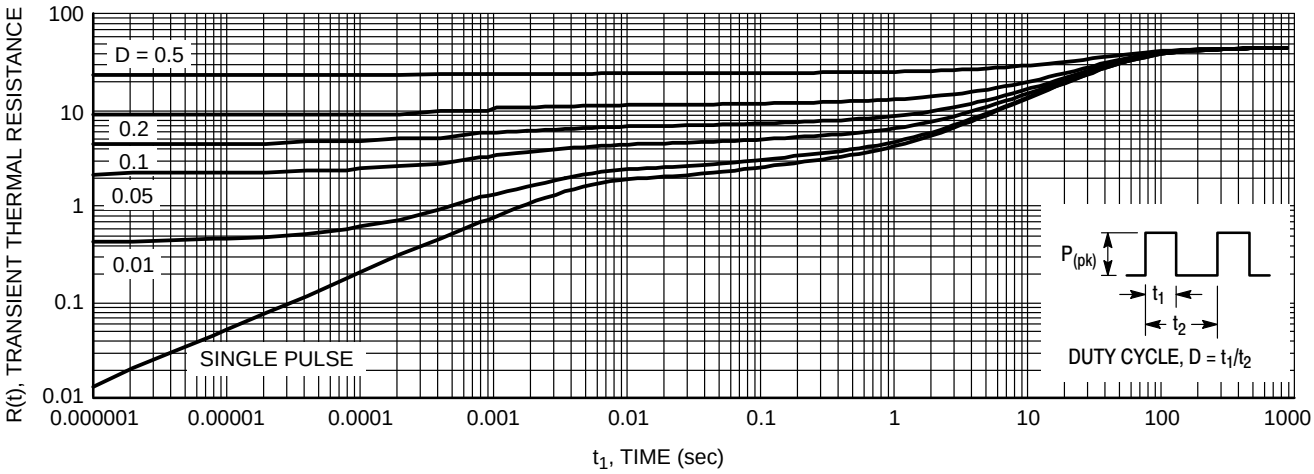


Figure 8. Thermal Response Junction−to−Ambient for MBR30L45CTG

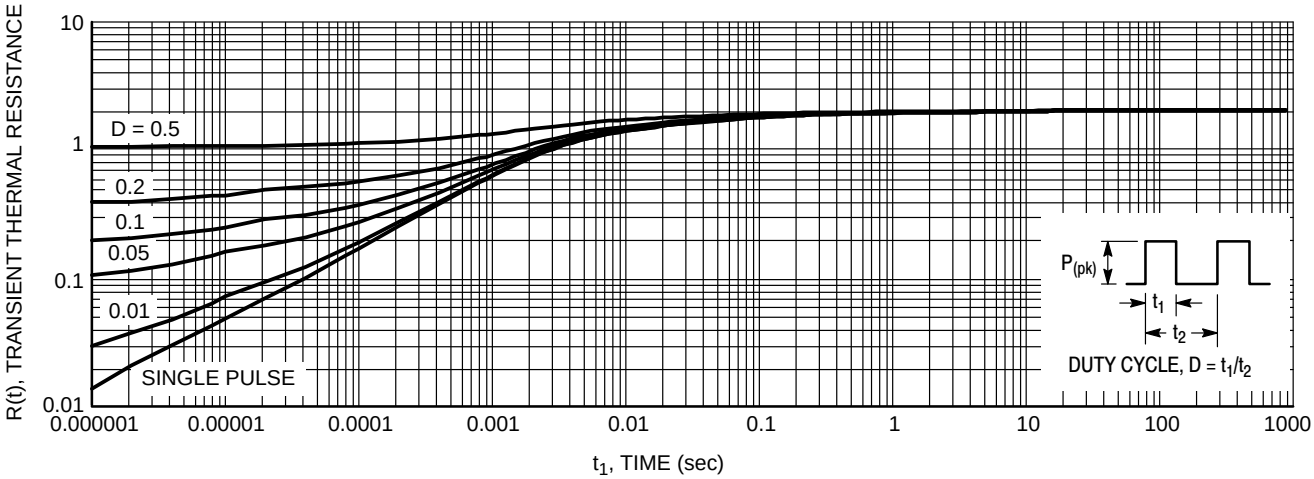


Figure 9. Thermal Response Junction−to−Case for MBR30L45CTG

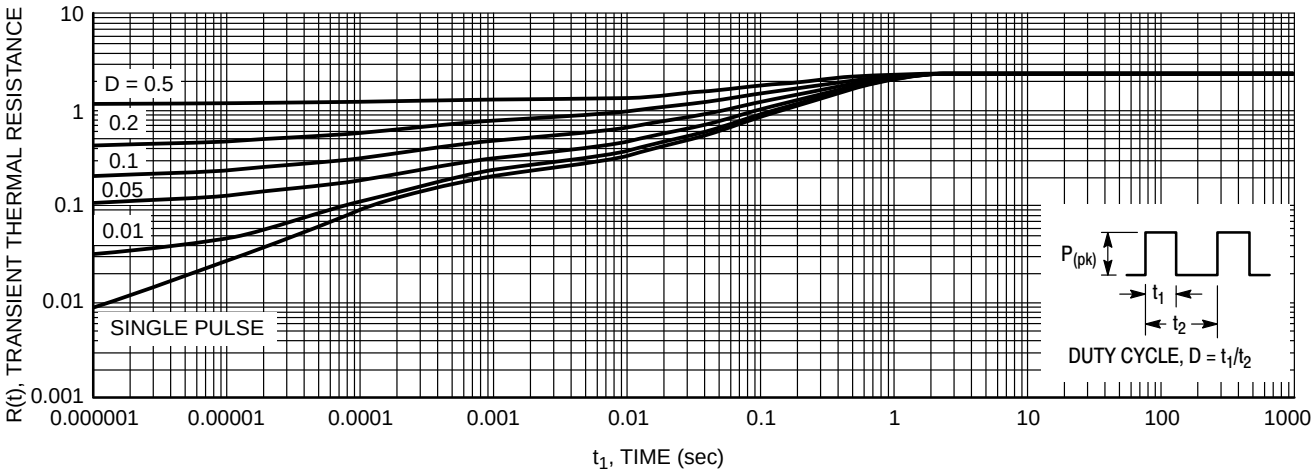
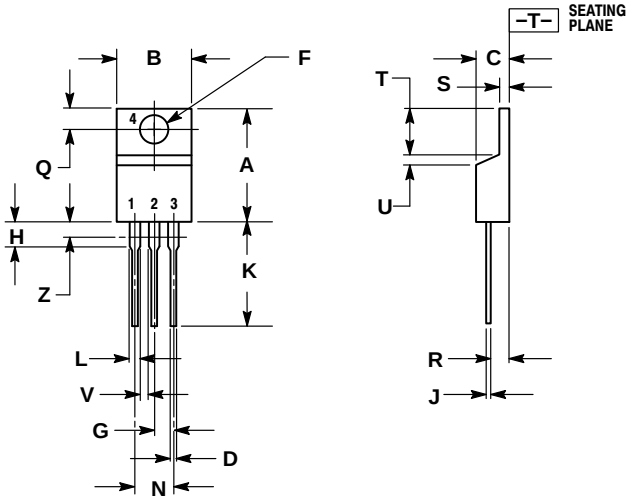


Figure 10. Thermal Response Junction−to−Case for MBRF30L45CTG

PACKAGE DIMENSIONS

TO−220
CASE 221A−09
ISSUE AH



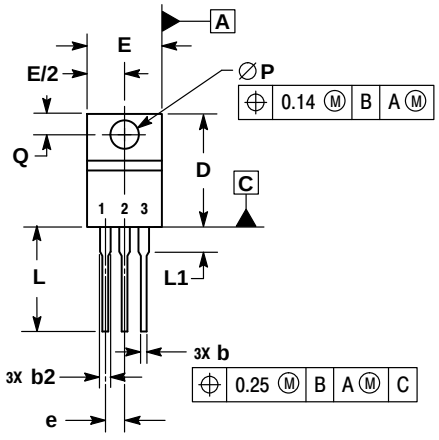
NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION Z DEFINES A ZONE WHERE ALL BODY AND LEAD IRREGULARITIES ARE ALLOWED.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.415	9.66	10.53
C	0.160	0.190	4.07	4.83
D	0.025	0.038	0.64	0.96
F	0.142	0.161	3.61	4.09
G	0.095	0.105	2.42	2.66
H	0.110	0.161	2.80	4.10
J	0.014	0.024	0.36	0.61
K	0.500	0.562	12.70	14.27
L	0.045	0.060	1.15	1.52
N	0.190	0.210	4.83	5.33
Q	0.100	0.120	2.54	3.04
R	0.080	0.110	2.04	2.79
S	0.045	0.055	1.15	1.39
T	0.235	0.255	5.97	6.47
U	0.000	0.050	0.00	1.27
V	0.045	---	1.15	---
Z	---	0.080	---	2.04

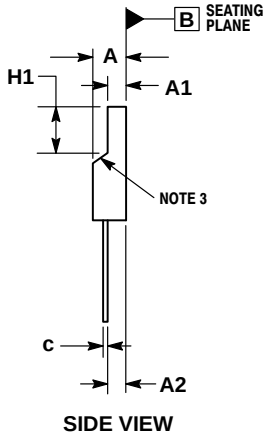
STYLE 6:
PIN 1. ANODE
2. CATHODE
3. ANODE
4. CATHODE

PACKAGE DIMENSIONS

TO−220 FULLPACK, 3−LEAD
CASE 221AH
ISSUE F



FRONT VIEW



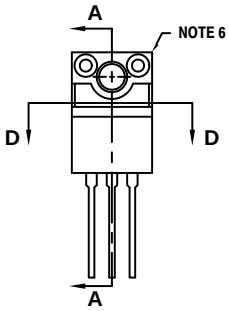
SIDE VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. CONTOUR UNCONTROLLED IN THIS AREA.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH AND GATE PROTRUSIONS. MOLD FLASH AND GATE PROTRUSIONS NOT TO EXCEED 0.13 PER SIDE. THESE DIMENSIONS ARE TO BE MEASURED AT OUTERMOST EXTREME OF THE PLASTIC BODY.
5. DIMENSION b2 DOES NOT INCLUDE DAMBAR PROTRUSION. LEAD WIDTH INCLUDING PROTRUSION SHALL NOT EXCEED 2.00.
6. CONTOURS AND FEATURES OF THE MOLDED PACKAGE BODY MAY VARY WITHIN THE ENVELOP DEFINED BY DIMENSIONS A1 AND H1 FOR MANUFACTURING PURPOSES.

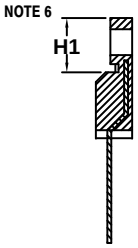
	MILLIMETERS	
DIM	MIN	MAX
A	4.30	4.70
A1	2.50	2.90
A2	2.50	2.90
b	0.54	0.84
b2	1.10	1.40
c	0.49	0.79
D	14.70	15.30
E	9.70	10.30
e	2.54 BSC	
H1	6.60	7.10
L	12.50	14.73
L1	---	2.80
P	3.00	3.40
Q	2.80	3.20



SECTION D−D



ALTERNATE CONSTRUCTION



SECTION A−A

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