

# MBR30H80CT, MBRB30H80CT-1

## SWITCHMODE™ Power Rectifier 80 V, 30 A

### Features and Benefits

- Low Power Loss/High Efficiency
- High Surge Capacity
- 30 A Total (15 A Per Diode Leg)
- These are Pb-Free Devices

### 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

### MAXIMUM RATINGS

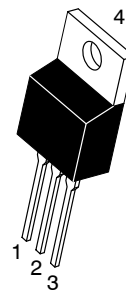
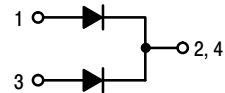
Please See the Table on the Following Page



ON Semiconductor®

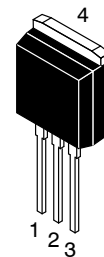
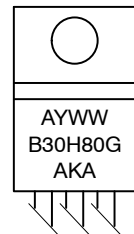
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## SCHOTTKY BARRIER RECTIFIER 30 AMPERES 80 VOLTS

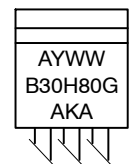


TO-220AB  
CASE 221A  
PLASTIC

### MARKING DIAGRAM



I²PAK (TO-262)  
CASE 418D  
PLASTIC  
STYLE 3



A = Assembly Location  
Y = Year  
WW = Work Week  
B30H80 = Device Code  
G = Pb-Free Package  
AKA = Polarity Designator

### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

# MBR30H80CT, MBRB30H80CT-1

## MAXIMUM RATINGS (Per Diode Leg)

Rating	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	80	V
Average Rectified Forward Current ( $T_C = 130^\circ\text{C}$ ) Per Diode Per Device	$I_{F(AV)}$	15 30	A
Peak Repetitive Forward Current (Square Wave, 20 kHz, $T_C = 130^\circ\text{C}$ )	$I_{FM}$	30	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	$I_{FSM}$	240	A
Storage Temperature	$T_{stg}$	-65 to +175	$^\circ\text{C}$
Operating Junction Temperature (Note 1)	$T_J$	-20 to +150	$^\circ\text{C}$
ESD Ratings: Machine Model = C Human Body Model = 3B		> 400 > 8000	V

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

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance - Junction-to-Case - Junction-to-Ambient	$R_{\theta JC}$ $R_{\theta JA}$	2.0 70	$^\circ\text{C}/\text{W}$

## ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Characteristic	Symbol	Min	Typ	Max	Unit
Maximum Instantaneous Forward Voltage (Note 2) ( $i_F = 3\text{ A}$ , $T_J = 25^\circ\text{C}$ ) ( $i_F = 3\text{ A}$ , $T_J = 25^\circ\text{C}$ ) ( $i_F = 15\text{ A}$ , $T_J = 25^\circ\text{C}$ ) ( $i_F = 15\text{ A}$ , $T_J = 125^\circ\text{C}$ ) ( $i_F = 30\text{ A}$ , $T_J = 25^\circ\text{C}$ ) ( $i_F = 30\text{ A}$ , $T_J = 125^\circ\text{C}$ )	$V_F$	-	0.49 0.37 0.65 0.55 0.77 0.67	0.58 0.45 0.78 0.65 0.88 0.75	V
Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, $T_J = 125^\circ\text{C}$ ) (Rated DC Voltage, $T_J = 25^\circ\text{C}$ )	$i_R$	-	12 0.017	35 0.250	mA

2. Pulse Test: Pulse Width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

## DEVICE ORDERING INFORMATION

Device Order Number	Package Type	Shipping <sup>†</sup>
MBR30H80CTG	TO-220 (Pb-Free)	50 Units / Rail
MBRB30H80CT-1G	I <sup>2</sup> PAK (Pb-Free)	50 Units / Rail

# MBR30H80CT, MBRB30H80CT-1

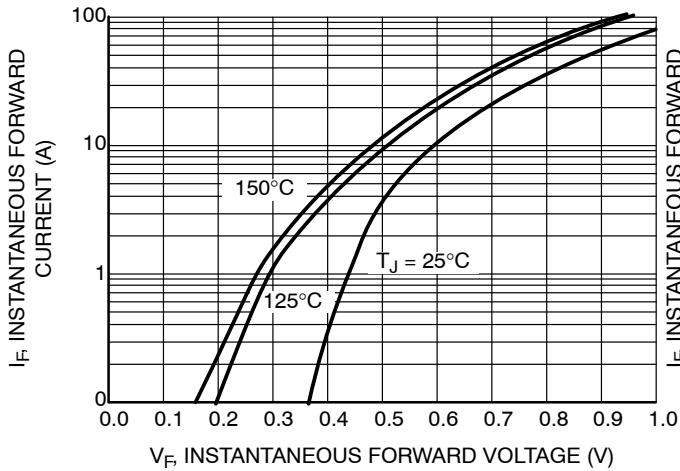


Figure 1. Typical Forward Voltage

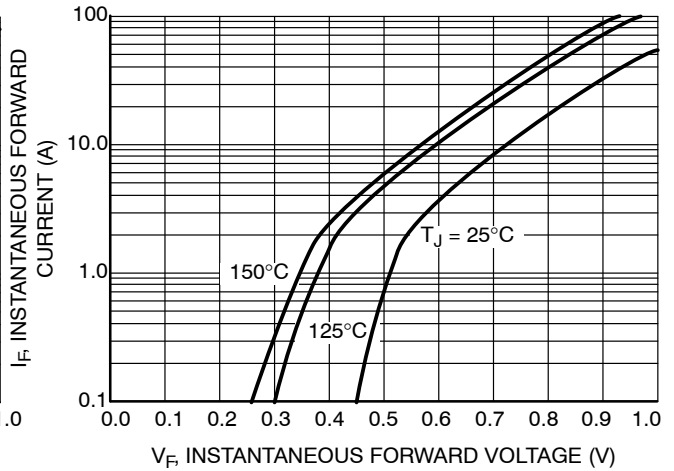


Figure 2. Maximum Forward Voltage

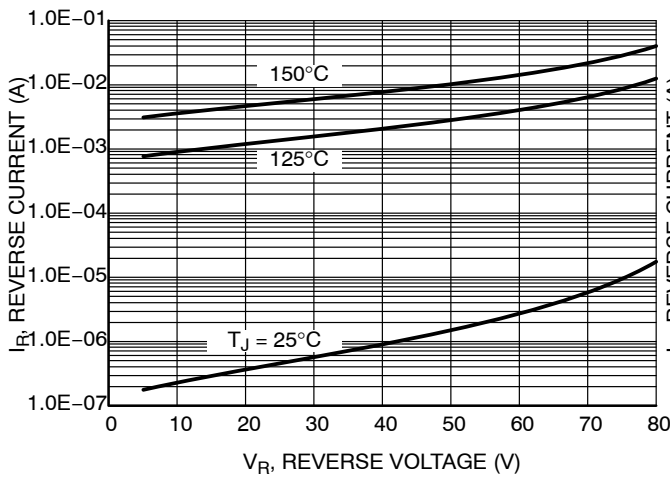


Figure 3. Typical Reverse Current

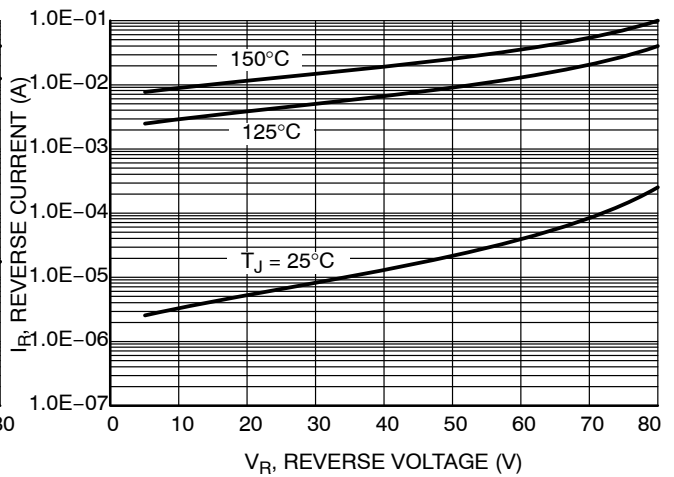


Figure 4. Maximum Reverse Current

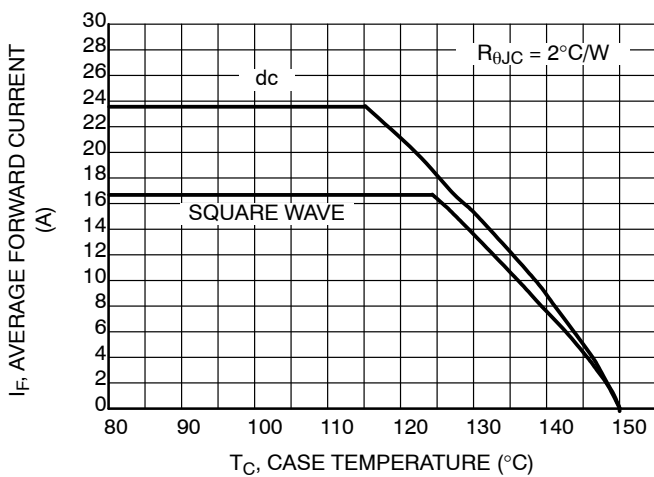


Figure 5. Current Derating, Case per Leg

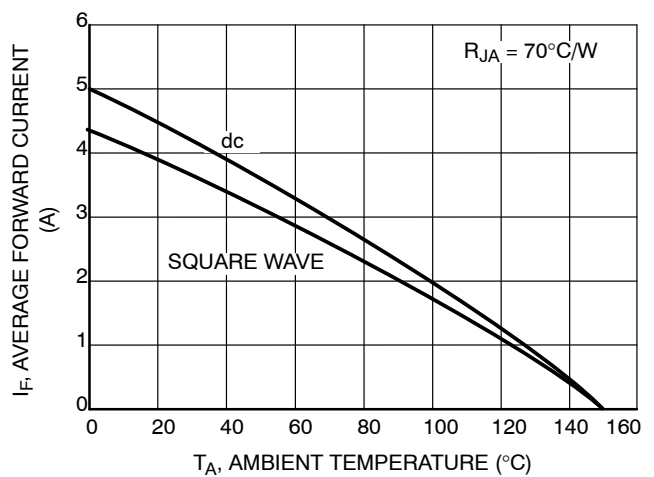
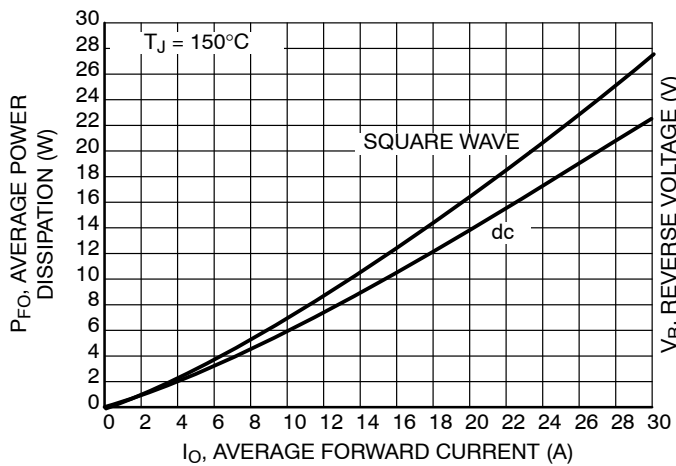
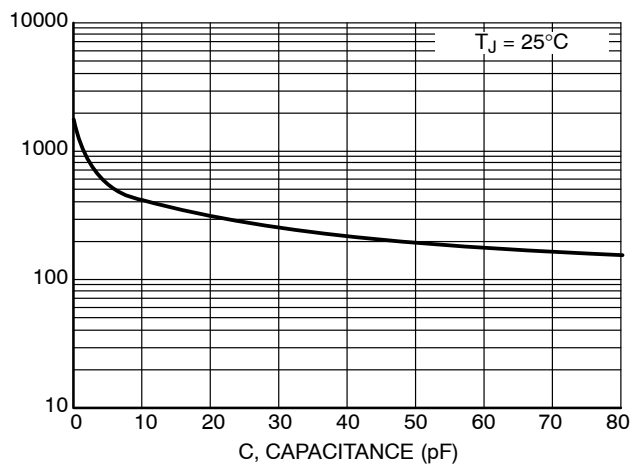


Figure 6. Current Derating, Ambient per Leg

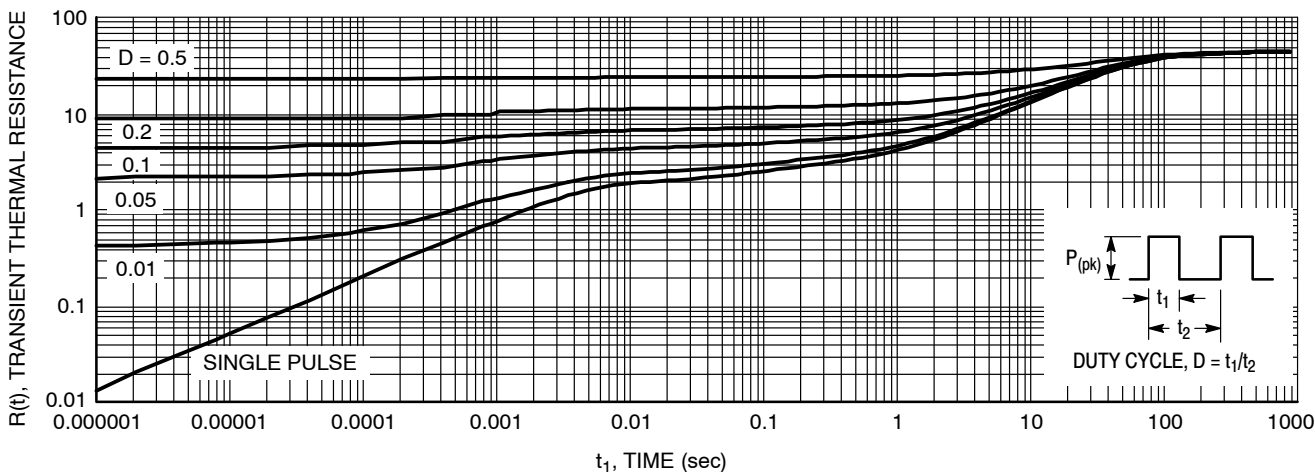
**MBR30H80CT, MBRB30H80CT-1**



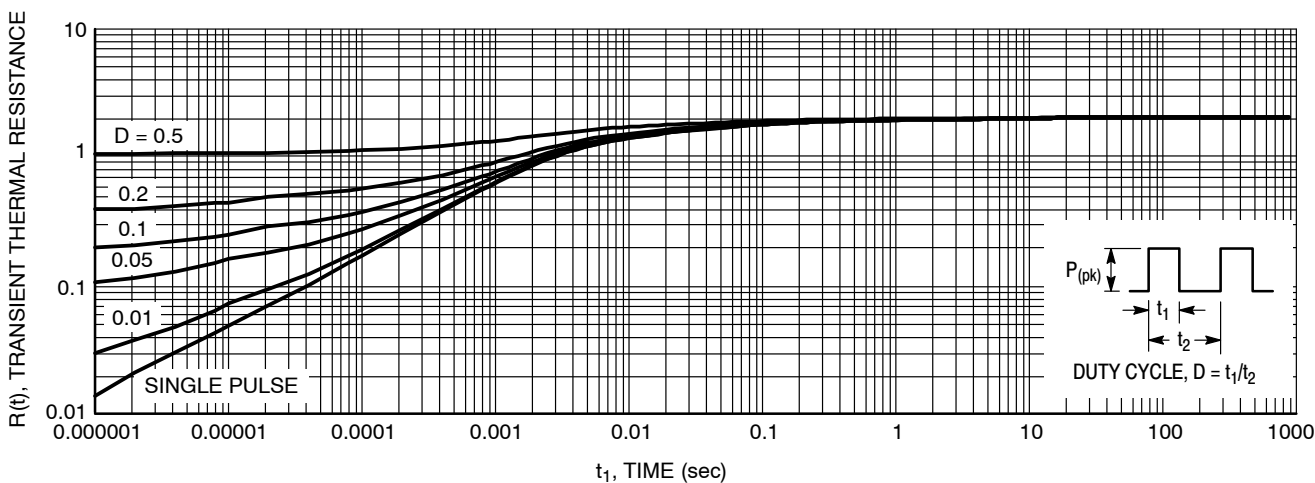
**Figure 7. Forward Power Dissipation**



**Figure 8. Capacitance**



**Figure 9. Thermal Response Junction-to-Ambient**

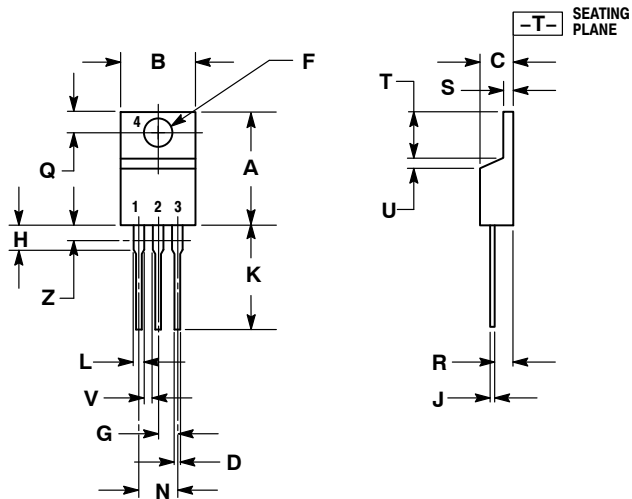


**Figure 10. Thermal Response Junction-to-Case**

# MBR30H80CT, MBRB30H80CT-1

## PACKAGE DIMENSIONS

TO-220  
CASE 221A-09  
ISSUE AF



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.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.570	0.620	14.48	15.75
B	0.380	0.405	9.66	10.28
C	0.160	0.190	4.07	4.82
D	0.025	0.035	0.64	0.88
F	0.142	0.161	3.61	4.09
G	0.095	0.105	2.42	2.66
H	0.110	0.155	2.80	3.93
J	0.014	0.025	0.36	0.64
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

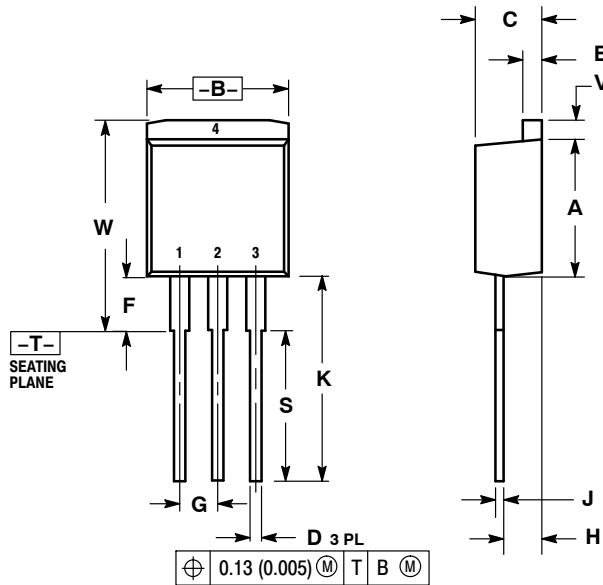
STYLE 6:

- PIN 1. ANODE  
2. CATHODE  
3. ANODE  
4. CATHODE

# MBR30H80CT, MBRB30H80CT-1

## PACKAGE DIMENSIONS

I<sup>2</sup>PAK (TO-262)  
CASE 418D-01  
ISSUE D



- NOTES:  
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.  
2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.335	0.380	8.51	9.65
B	0.380	0.406	9.65	10.31
C	0.160	0.185	4.06	4.70
D	0.026	0.035	0.66	0.89
E	0.045	0.055	1.14	1.40
F	0.122 REF		3.10 REF	
G	0.100 BSC		2.54 BSC	
H	0.094	0.110	2.39	2.79
J	0.013	0.025	0.33	0.64
K	0.500	0.562	12.70	14.27
S	0.390 REF		9.90 REF	
V	0.045	0.070	1.14	1.78
W	0.522	0.551	13.25	14.00

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

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