SWITCHMODE™ Power Rectifier 60 V, 30 A

Features and Benefits

- Low Forward Voltage
- Low Power Loss/High Efficiency
- High Surge Capability
- 30 A Total (15 A Per Diode Leg)
- Guard-Ring for Stress Protection
- 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 (Approximately): 1.9 Grams (TO-220 & TO-220FP)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead Temperature for Soldering Purposes: 260°C Max. for 10 Seconds

MAXIMUM RATINGS

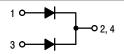
Please See the Table on the Following Page



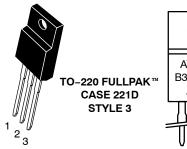
ON Semiconductor®

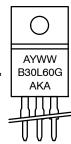
http://onsemi.com

SCHOTTKY BARRIER RECTIFIER 30 AMPERES, 60 VOLTS



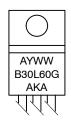
MARKING DIAGRAMS







TO-220AB CASE 221A STYLE 6



A = Assembly Location

Y = Year WW = Work Week B30L60 = Device Code G = Pb-Free Device AKA = Polarity Designator

ORDERING INFORMATION

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

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	60	V
	I _{F(AV)}	15 30	А
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I _{FSM}	240	Α
Operating Junction Temperature (Note 1)	TJ	-55 to +150	°C
Storage Temperature	T _{stg}	-65 to +175	°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.

THERMAL CHARACTERISTICS

Rating		Symbol	Value	Unit
Maximum Thermal Resistance MBR30L60CT MBRF30L60CT	Junction-to-Case Junction-to-Ambient Junction-to-Case	$egin{array}{c} R_{ hetaJC} \ R_{ hetaJA} \ R_{ hetaJC} \end{array}$	2.1 70 5.0	°C/W
WIDTH GOLOGOT	Junction-to-Ambient	$R_{\theta JA}$	75	

ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Rating	Symbol	Тур	Max	Unit
$\label{eq:maximum Instantaneous Forward Voltage (Note 2)} \begin{array}{c} \text{(I}_F = 15 \text{ A, T}_C = 25^\circ\text{C)} \\ \text{(I}_F = 15 \text{ A, T}_C = 125^\circ\text{C)} \\ \text{(I}_F = 30 \text{ A, T}_C = 25^\circ\text{C)} \\ \text{(I}_F = 30 \text{ A, T}_C = 125^\circ\text{C)} \\ \end{array}$	VF	0.57 0.53 0.75 0.70	0.62 0.57 0.81 0.73	٧
Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, T_C = 25°C) (Rated DC Voltage, T_C = 125°C)	i _R	137 62	350 110	μ Α mA

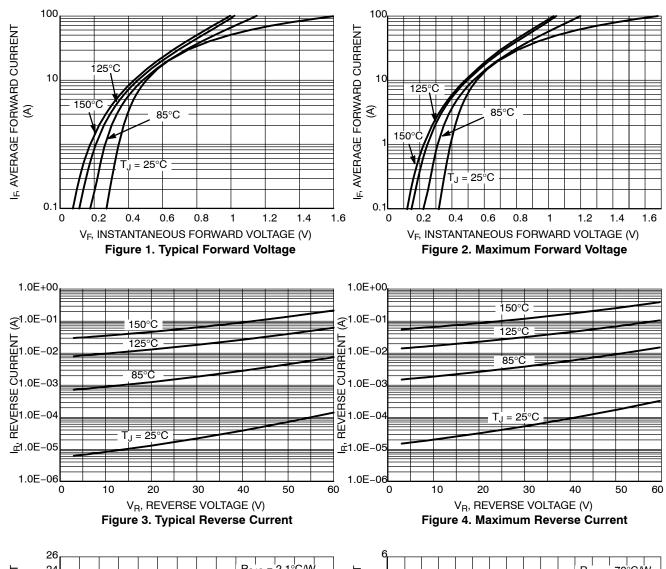
^{2.} Pulse Test: Pulse Width = 300 μ s, Duty Cycle \leq 2.0%.

DEVICE ORDERING INFORMATION

Device Order Number	Package Type	Shipping [†]
MBR30L60CTG	TO-220 (Pb-Free)	50 Units / Rail
MBRF30L60CTG	TO-220FP (Pb-Free)	50 Units / Rail

[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

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



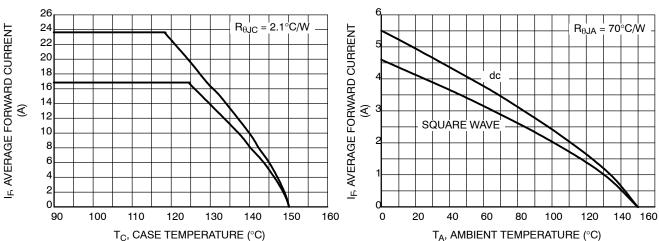


Figure 5. Current Derating, Case per Leg MBR30L60CT

Figure 6. Current Derating, Ambient per Leg MBR30L60CT

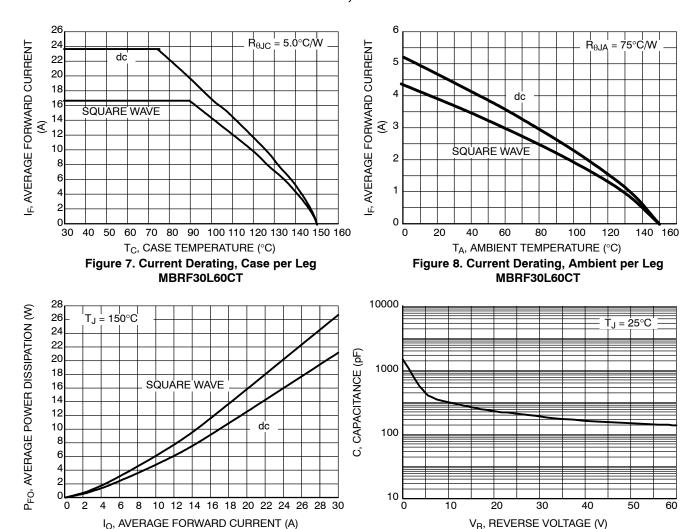


Figure 9. Forward Power Dissipation

Figure 10. Capacitance

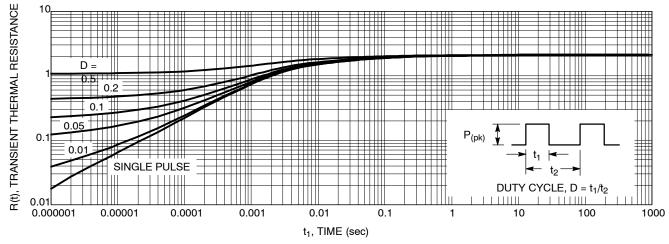


Figure 11. Thermal Response Junction-to-Case, per Leg for MBR30L60CT

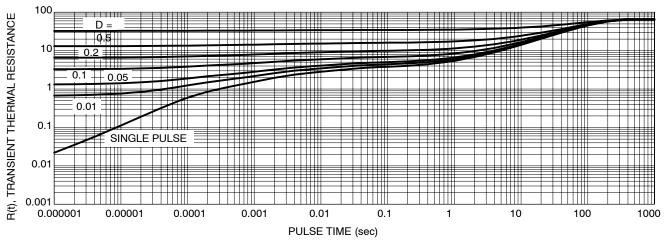


Figure 12. Thermal Response Junction-to-Ambient, per Leg for MBR30L60CT

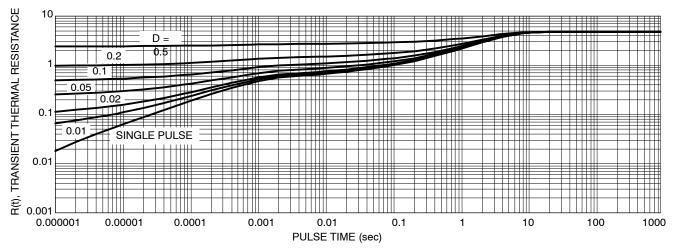


Figure 13. Thermal Response Junction-to-Case, per Leg for MBRF30L60CT

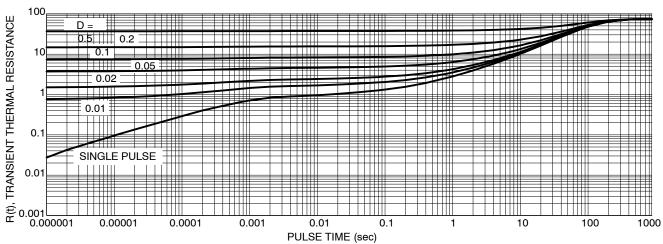
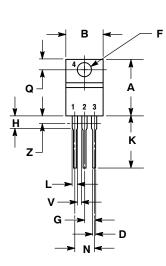
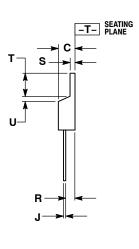


Figure 14. Thermal Response Junction-to-Ambient, per Leg for MBRF30L60CT

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.

	INCHES		MILLIN	IETERS
DIM	MIN	MAX	MIN	MAX
Α	0.570	0.620	14.48	15.75
В	0.380	0.405	9.66	10.28
С	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
Н	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
٧	0.045		1.15	
Z		0.080		2.04

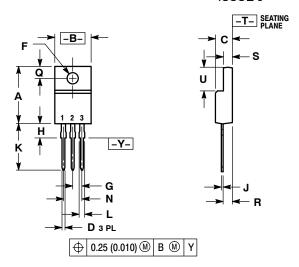
STYLE 6:
PIN 1. ANODE
2. CATHODE
3. ANODE
^ATHODE

- 4. CATHODE

PACKAGE DIMENSIONS

TO-220 FULLPAK

CASE 221D-03 **ISSUE J**



- DIMENSIONING AND TOLERANCING PER ANSI
- CONTROLLING DIMENSION: INCH 221D-01 THRU 221D-02 OBSOLETE, NEW STANDARD 221D-03.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
Α	0.617	0.635	15.67	16.12
В	0.392	0.419	9.96	10.63
С	0.177	0.193	4.50	4.90
D	0.024	0.039	0.60	1.00
F	0.116	0.129	2.95	3.28
G	0.100	0.100 BSC		BSC
Н	0.118	0.135	3.00	3.43
J	0.018	0.025	0.45	0.63
K	0.503	0.541	12.78	13.73
L	0.048	0.058	1.23	1.47
N	0.200 BSC		5.08 BSC	
Q	0.122	0.138	3.10	3.50
R	0.099	0.117	2.51	2.96
S	0.092	0.113	2.34	2.87
U	0.239	0.271	6.06	6.88

STYLE 3:

PIN 1. ANODE

- CATHODE
- 3. ANODE

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Phone: 81-3-5773-3850

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