

MBRJ10L60CTG

Product Preview SWITCHMODE Power Rectifier 60 V, 10 A

Features and Benefits

- Low Forward Voltage
- Low Power Loss/High Efficiency
- High Surge Capability
- 10 A Total (5 A Per Diode Leg)
- Guard-Ring for Stress Protection
- This is a Pb-Free Device

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

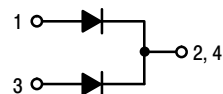
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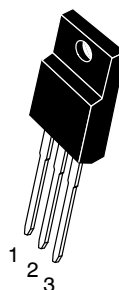
ON Semiconductor®

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SCHOTTKY BARRIER RECTIFIER 10 AMPERES, 60 VOLTS



MARKING DIAGRAM



TO-220 FULLPAK™
CASE 221AH
CT SUFFIX



A = Assembly Location
Y = Year
WW = Work Week
B10L60 = 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.

*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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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
Average Rectified Forward Current (Per Leg) (Rated V_R) $T_C = 140^\circ\text{C}$ (Per Device)	$I_{F(AV)}$	5 10	A
Nonrepetitive Peak Surge Current (Surge applied at rated load conditions halfwave, single phase, 60 Hz)	I_{FSM}	200	A
Operating Junction Temperature (Note 1)	T_J	-55 to +150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65 to +175	$^\circ\text{C}$
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

Rating	Symbol	Value	Unit
Maximum Thermal Resistance Junction-to-Case Junction-to-Ambient	$R_{\theta JC}$ $R_{\theta JA}$	4.3 105	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS (Per Diode Leg)

Rating	Symbol	Typ	Max	Unit
Maximum Instantaneous Forward Voltage (Note 2) ($I_F = 5\text{ A}$, $T_C = 25^\circ\text{C}$) ($I_F = 5\text{ A}$, $T_C = 125^\circ\text{C}$) ($I_F = 10\text{ A}$, $T_C = 25^\circ\text{C}$) ($I_F = 10\text{ A}$, $T_C = 125^\circ\text{C}$)	V_F	0.49 0.43 0.60 0.53	0.57 0.49 0.66 0.61	V
Maximum Instantaneous Reverse Current (Note 2) (Rated DC Voltage, $T_C = 25^\circ\text{C}$) (Rated DC Voltage, $T_C = 125^\circ\text{C}$)	i_R	77 33	220 60	μA mA

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

DEVICE ORDERING INFORMATION

Device Order Number	Package Type	Shipping
MBRJ10L60CTG	TO-220FP (Pb-Free)	50 Units / Rail

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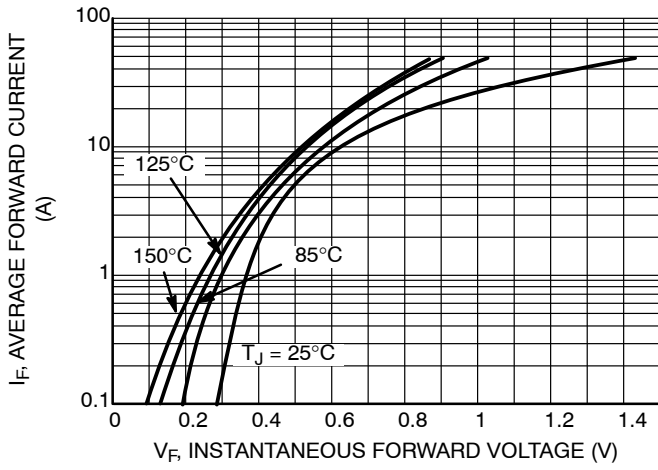


Figure 1. Typical Forward Voltage

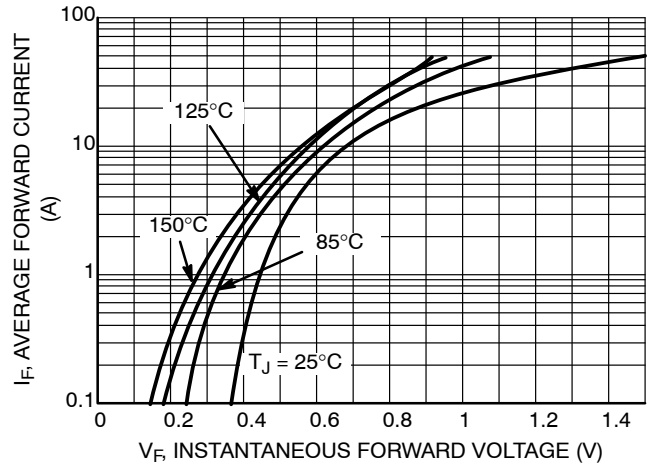


Figure 2. Maximum Forward Voltage

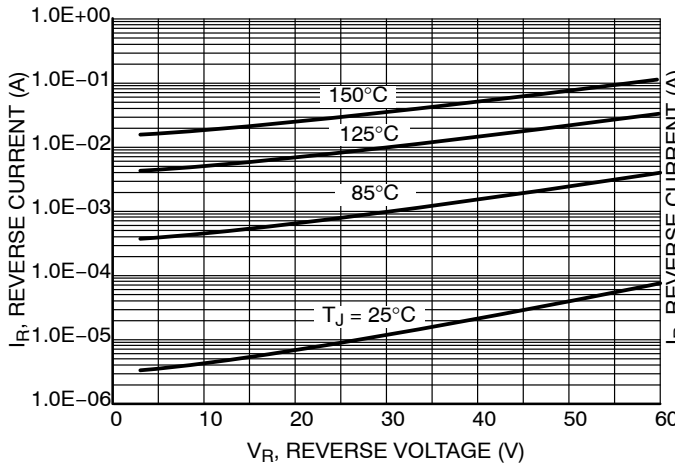


Figure 3. Typical Reverse Current

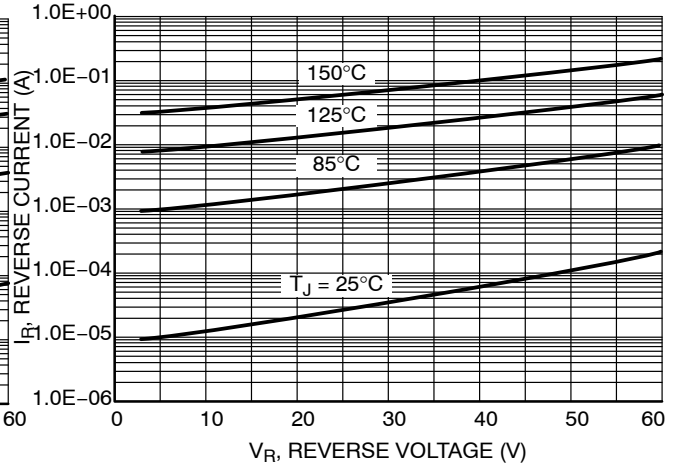


Figure 4. Maximum Reverse Current

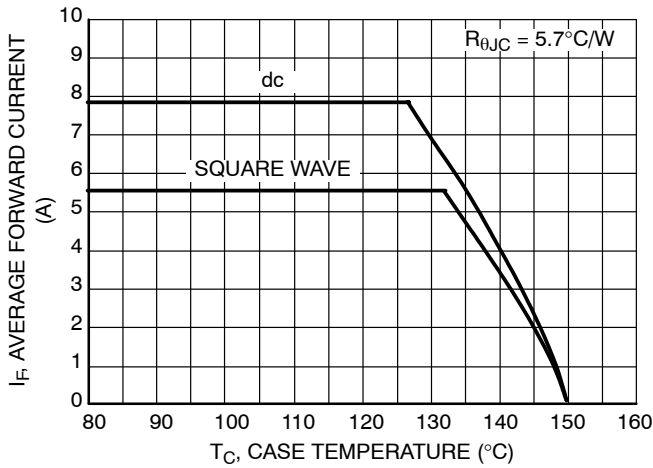


Figure 5. Current Derating, Case per Leg

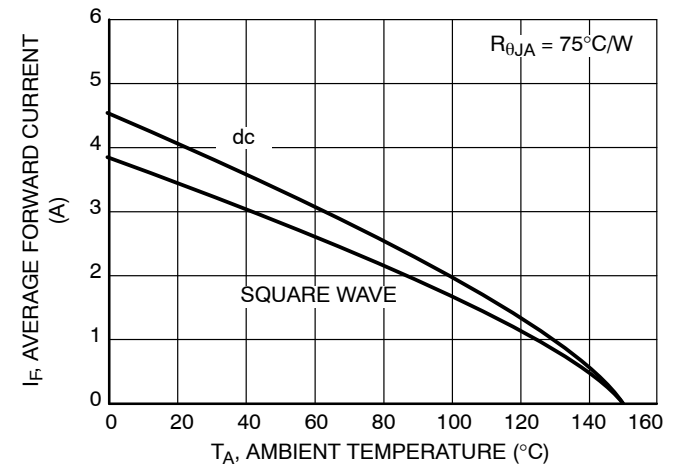


Figure 6. Current Derating, Ambient per Leg

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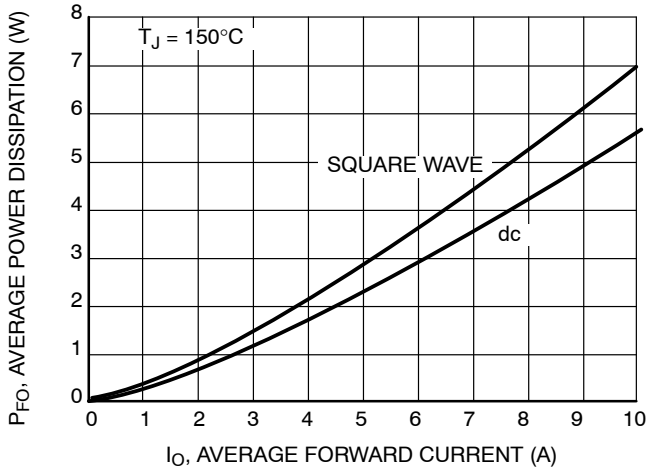


Figure 7. Forward Power Dissipation

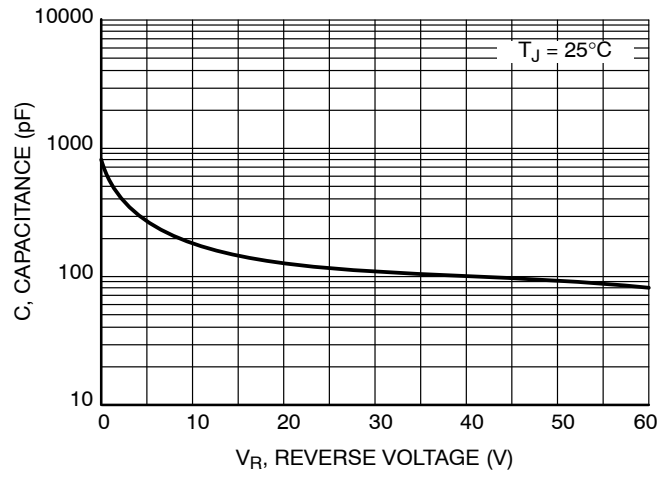


Figure 8. Capacitance

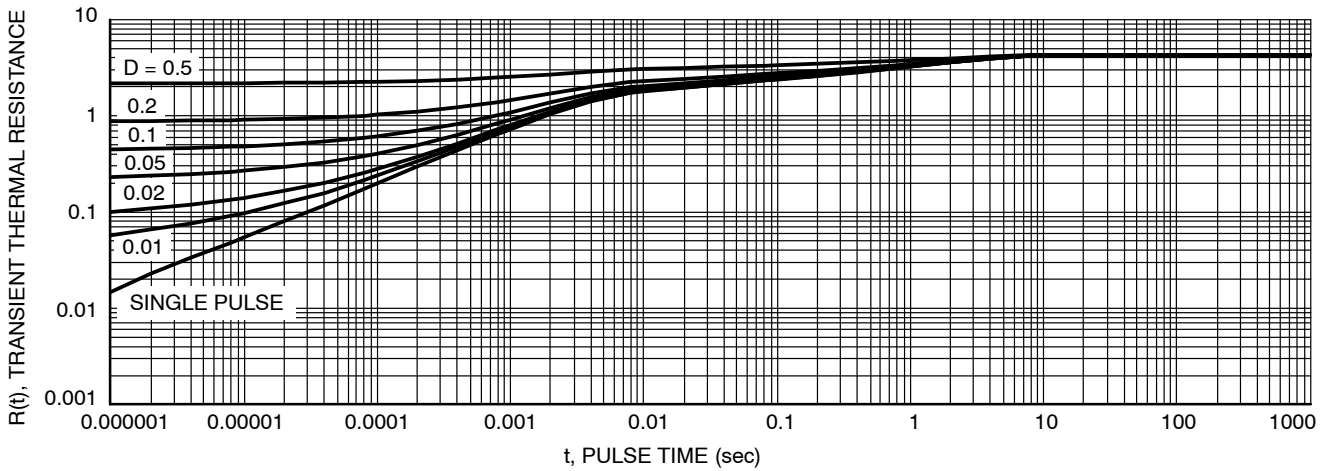
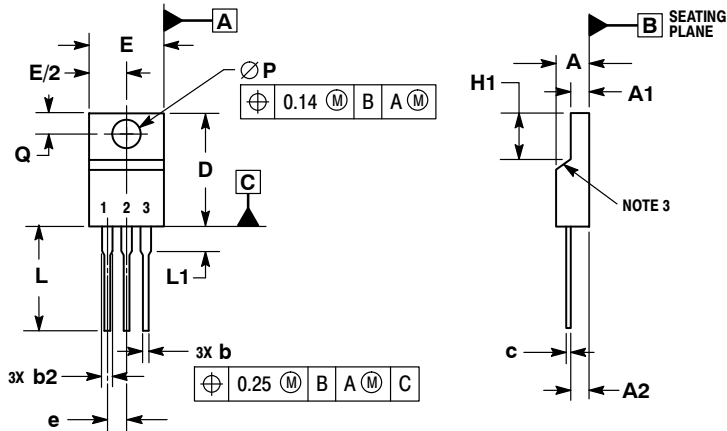


Figure 9. Typical Transient Thermal Response, Junction-to-Case

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PACKAGE DIMENSIONS

TO-220 FULLPACK, 3-LEAD CASE 221AH ISSUE C



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.

DIM	MILLIMETERS	
	MIN	MAX
A	4.30	4.70
A1	2.50	2.90
A2	2.50	2.70
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	6.70	7.10
L	12.70	14.73
L1	---	2.80
P	3.00	3.40
Q	2.80	3.20

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