

# MBR1040 – MBR1060(LS)

## SCHOTTKY BARRIER RECTIFIERS

**REVERSE VOLTAGE** – 40 to 60 Volts  
**FORWARD CURRENT** – 10 Amperes

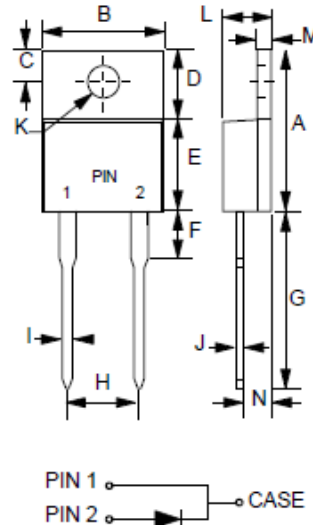
### FEATURES

- Metal of silicon rectifier, majority carrier conduction
- Guard ring for transient protection
- Low power loss, high efficiency
- High current capability, low  $V_F$
- High surge capacity
- Plastic package has UL flammability classification 94V-0
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**

### MECHANICAL DATA

- Package: TO-220AC molded plastic
- Polarity: AS marked on the body
- Weight: 0.08 ounces, 2.24 grams
- Mounting position: Any
- Max. mounting torque = 0.5N.m (5.1Kgf.cm)

### TO-220AC



TO-220AC		
DIM.	MIN.	MAX.
A	14.22	15.88
B	9.65	10.67
C	2.54	3.43
D	5.84	6.86
E	8.26	9.28
F	-	6.35
G	12.70	14.73
H	4.83	5.33
I	0.51	1.14
J	0.30	0.64
K	3.53 $\varnothing$	4.09 $\varnothing$
L	3.56	4.83
M	1.14	1.40
N	2.03	2.92

All Dimensions in millimeter

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

CHARACTERISTICS	SYMBOL	MBR1040	MBR1060	UNIT
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	40	60	V
Maximum RMS Voltage	$V_{RMS}$	28	42	V
Maximum DC Blocking Voltage	$V_{DC}$	40	60	V
Maximum Average Forward Rectified Current (See Fig.1) @ $T_C = 125^\circ\text{C}$	$I_{(AV)}$	10		A
Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	$I_{FSM}$	150		A
Voltage Rate of Change (Rated $V_R$ )	dv/dt	10000		V/us
Maximum Forward Voltage @ $I_F = 20\text{A}$ $T_J = 25^\circ\text{C}$ @ $I_F = 10\text{A}$ $T_J = 125^\circ\text{C}$	$V_F$	0.84 0.57	0.95 0.70	V
Maximum DC Reverse Current at Rated DC Blocking Voltage @ $T_J = 25^\circ\text{C}$ @ $T_J = 125^\circ\text{C}$	$I_R$	0.02 15	0.02 25	mA
Typical Thermal Resistance (Note 3)	$R_{\theta JC}$	2.5		$^\circ\text{C/W}$
Typical Junction Capacitance (Note 4)	$C_J$	400		pF
Operating Temperature Range	$T_J$	-55 to +150		$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-55 to +175		$^\circ\text{C}$

### Notes:

1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Thermal Resistance Junction to Case.
4. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

**RATING AND CHARACTERISTIC CURVES**

**MBR1040 – MBR1060**

FIG.1 - FORWARD CURRENT DERATING CURVE

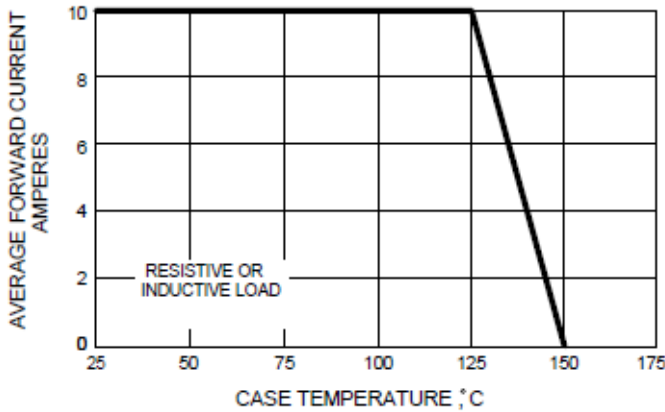


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

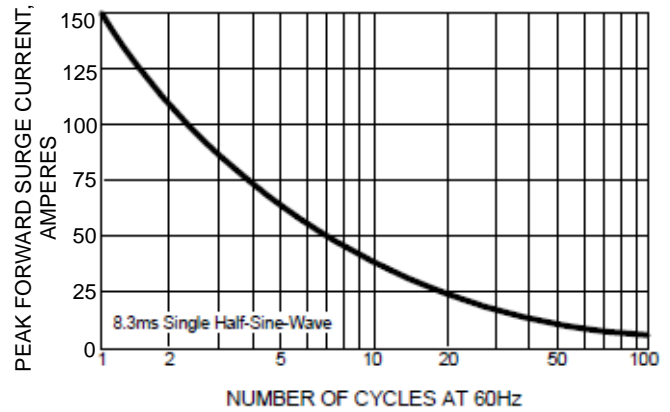


FIG.3 - TYPICAL REVERSE CHARACTERISTICS

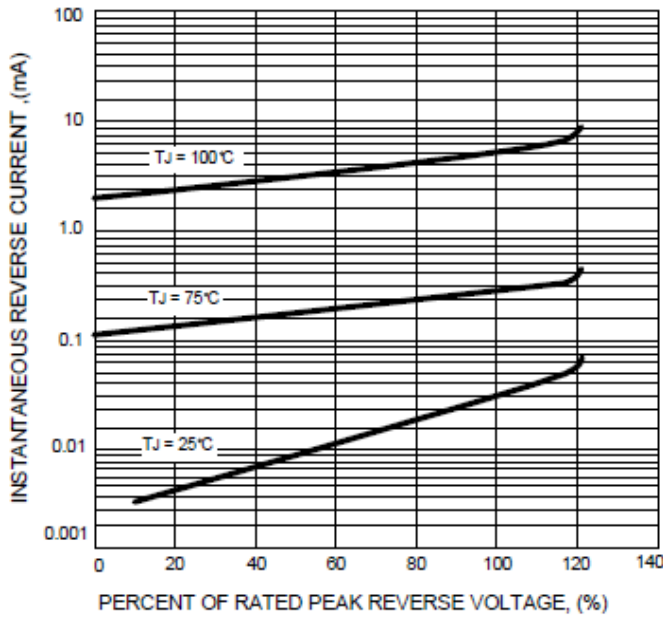


FIG.4 - TYPICAL FORWARD CHARACTERISTICS

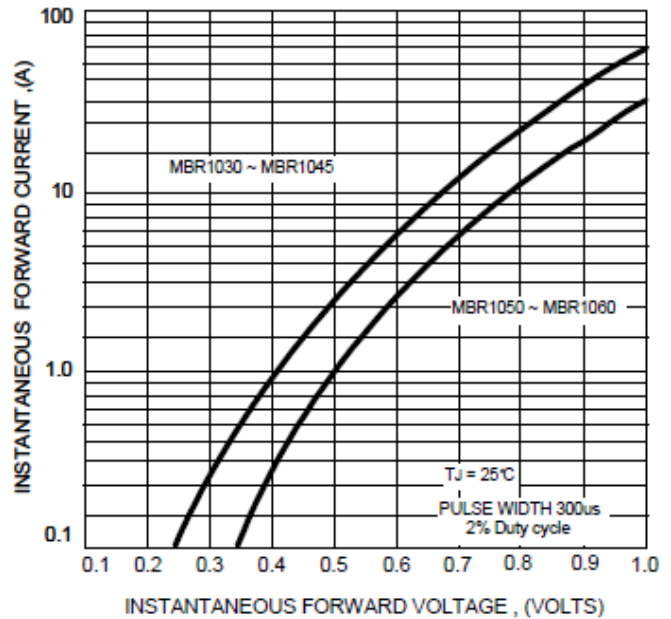
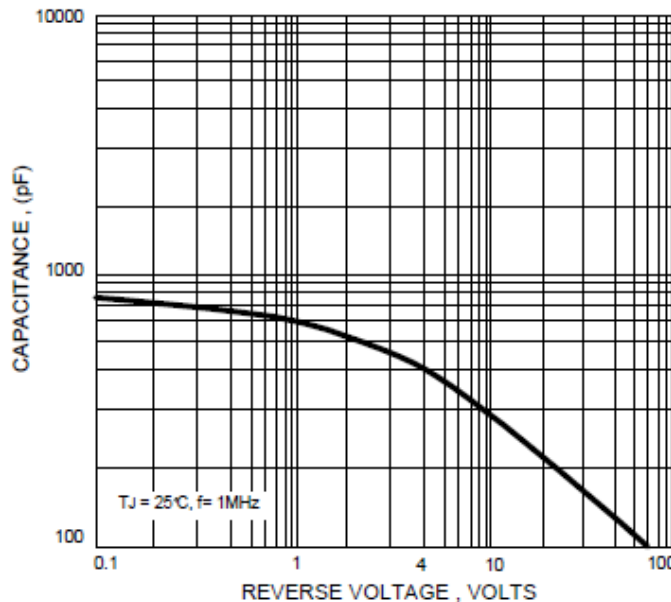


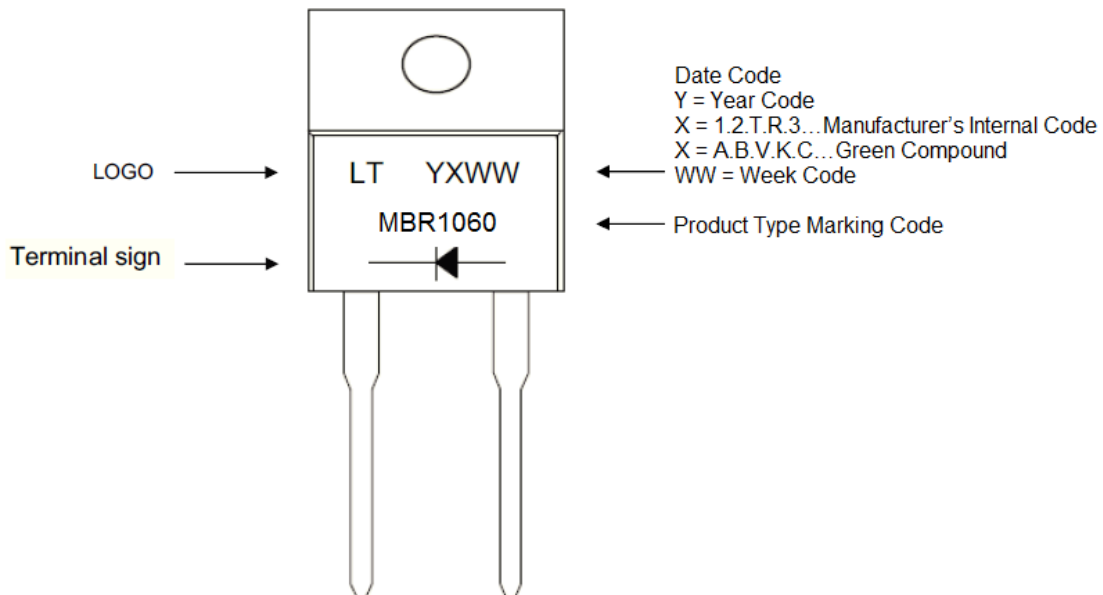
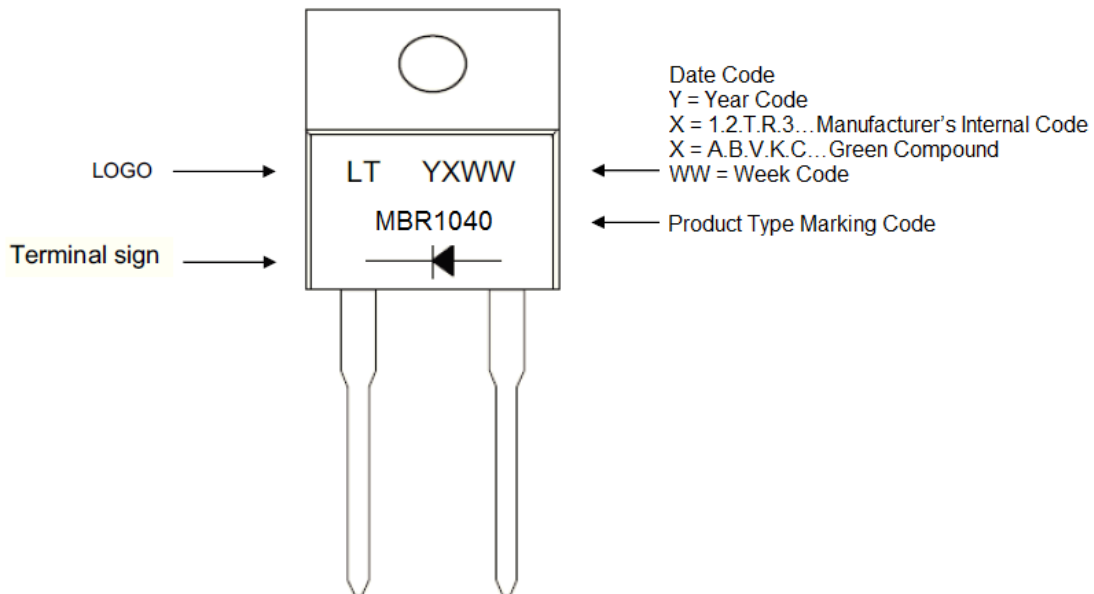
FIG.5 - TYPICAL JUNCTION CAPACITANCE



### Ordering Information:

Part Number		Package	Packing	
Lead Free	Green		Qty.	Carrier
MBR1040-LS	NA	TO-220AC	50 pcs	Tube
MBR1060-LS	NA	TO-220AC	50 pcs	Tube

### Marking Information:



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