LITE-ON SEMICONDUCTOR

# MBR1630 thru 1660

**SCHOTTKY BARRIER RECTIFIERS**

REVERSE VOLTAGE **- 30** to **60** Volts
FORWARD CURRENT **- 16** Amperes

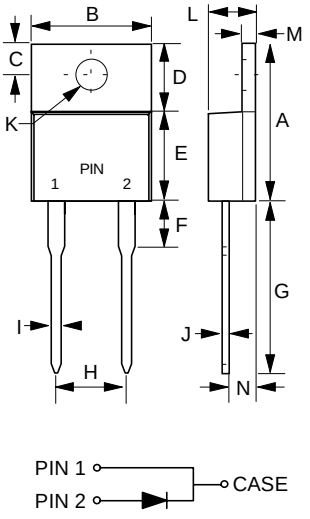
## FEATURES

- Metal of silicon rectifier,majority carrier conducton
- Guard ring for transient protection
- Low power loss, high efficiency
- High current capability, low VF
- High surge capacity
- Plastic package has UL flammability classification 94V-0
- For use in low voltage,high frequency inverters,free whelling,and polarity protection applications

## MECHANICAL DATA

- Case : TO-220AC molded plastic
- Polarity : As marked on the body
- Weight : 0.08 ounces, 2.24 grams
- Mounting position : any

## 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 ∅ | 4.09 ∅ |
| 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℃ ambient temperature unless otherwise specified.
Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%

| CHARACTERISTICS | SYMBOL | MBR1630 | MBR1635 | MBR1640 | MBR1645 | MBR1650 | MBR1660 | UNIT |
|---|---|---|---|---|---|---|---|---|
| Maximum Recurrent Peak Reverse Voltage | $V_{RRM}$ | 30 | 35 | 40 | 45 | 50 | 60 | V |
| Maximum RMS Voltage | $V_{RMS}$ | 21 | 24.5 | 28 | 31.5 | 35 | 42 | V |
| Maximum DC Blocking Voltage | $V_{DC}$ | 30 | 35 | 40 | 45 | 50 | 60 | V |
| Maximum Average Forward Rectified Current (See Fig.1) @$T_C$=125˚C | $I_{(AV)}$ | 16 | | | | | | A |
| Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load (JEDEC METHOD) | $I_{FSM}$ | 150 | | | | | | A |
| Voltage Rate of Change (Rated VR) | dv/dt | 10000 | | | | 1000 | | V/us |
| Maximum Forward Voltage (Note 1) $I_F$=16A @ $T_J$=25˚C | $V_F$ | 0.63 | | | | 0.75 | | V |
| Maximum Forward Voltage (Note 1) $I_F$=16A @ $T_J$=125˚C | $V_F$ | 0.57 | | | | 0.65 | | V |
| Maximum DC Reverse Current at Rated DC Blocking Voltage @$T_J$=25˚C | $I_R$ | 0.2 | | | | 1 | | mA |
| Maximum DC Reverse Current at Rated DC Blocking Voltage @$T_J$=125˚C | $I_R$ | 40 | | | | 50 | | mA |
| Typical Thermal Resistance (Note 2) | $R_{\theta JC}$ | 1.5 | | | | 3 | | ˚C/W |
| Typical Junction Capacitance (Note 3) | $C_J$ | 450 | | | | | | pF |
| Operating Temperature Range | $T_J$ | -55 to +150 | | | | | | ˚C |
| Storage Temperature Range | $T_{STG}$ | -55 to +175 | | | | | | ˚C |

NOTES : 1. 300us Pulse width , 2% duty cycle.
2. Thermal Resistance Junction to Case.
3. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.

REV. 3, 13-Sep-2001, KTHA10

FIG.1 - FORWARD CURRENT DERATING CURVE

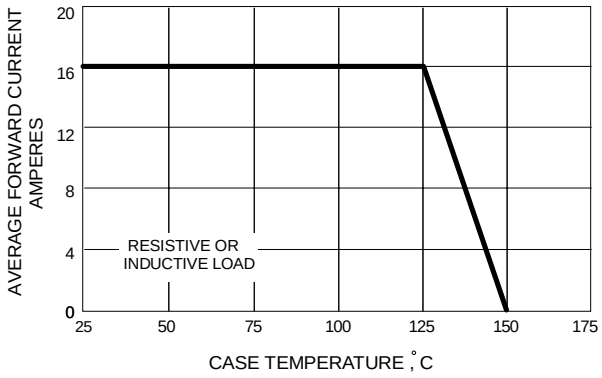



FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

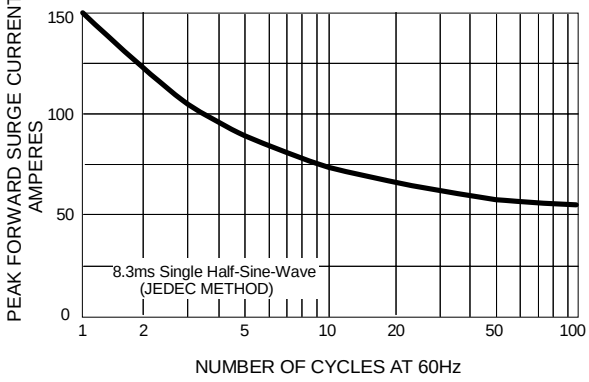



FIG.3 - TYPICAL REVERSE CHARACTERISTICS

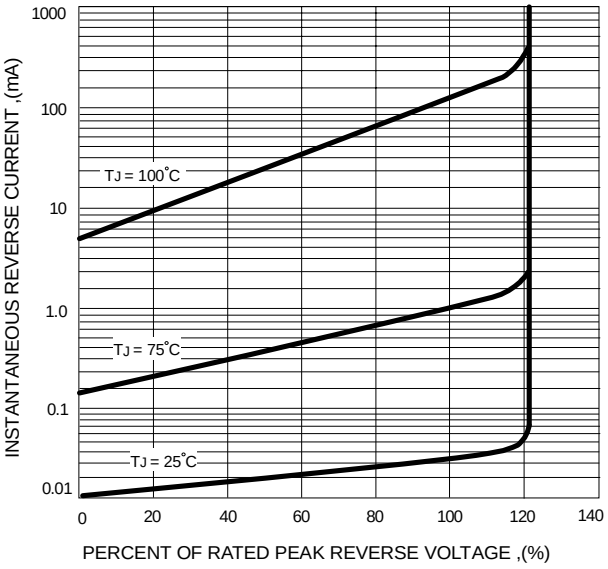



FIG.4 - TYPICAL FORWARD CHARACTERISTICS

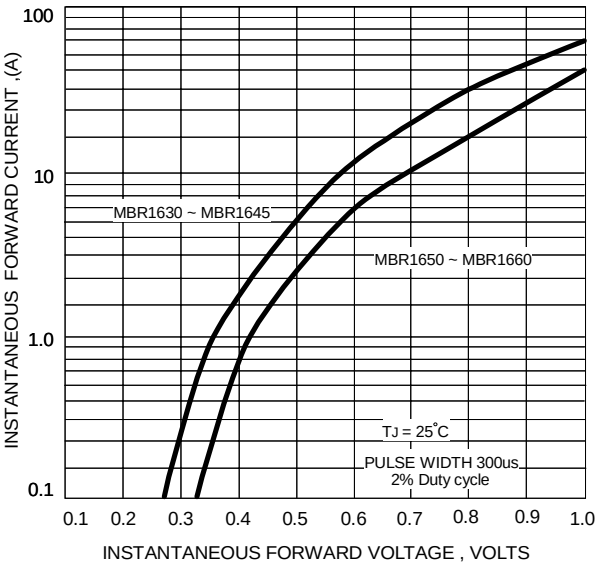



FIG.5 - TYPICAL JUNCTION CAPACITANCE