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## MBR120HW/MBR140HW SURFACE MOUNT SCHOTTKY BARRIER DIODE



### Features

- Low Turn-on Voltage
- Fast Switching
- PN Junction Guard Ring Transient and ESD Protection
- Designed for Surface Mount Application
- Plastic Material —UL Recognition Flammability Classification 94V-0
- Green Products in Compliance with the ROHS Directive
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

### Circuit Diagram



### Mechanical Data

- Case: SOD-123, Molded Plastic
- Terminals: Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Weight: 0.01 grams(approx)

### Maximum Ratings and Electrical Characteristics @T<sub>A</sub>=25°C unless otherwise specified

| Characteristic  | Symbol                            | MBR120HW    | MBR140HW | Unit |
|---|-----------------------------------|-------------|----------|------|
| Peak Repetitive Reverse Voltage   | V <sub>RRM</sub>                  |             |          |      |
| Working Peak Reverse Voltage  | V <sub>RWM</sub>                  | 20          | 40       | V    |
| DC Blocking Voltage   | V <sub>R</sub>                    |             |          |      |
| Forward Continuous Current(Note1)   | I <sub>F</sub>                    | 1.0         |          | A    |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single half sine-wave superimposed on rated load(JEDEC Method) | I <sub>FSM</sub>                  | 25          |          | A    |
| Power Dissipation(Note1)  | P <sub>D</sub>                    | 450         |          | mW   |
| Forward Voltage Drop @I <sub>F</sub> =1.0A  | V <sub>FM</sub>                   | 0.45        | 0.55     | V    |
| Peak Reverse Leakage Current @DC Blocking Voltage   | I <sub>RM</sub>                   | 0.4         | 0.5      | mA   |
| Typical Junction Capacitance(V <sub>R</sub> =4V DC, f=1MHz)   | C <sub>T</sub>                    | 50          |          | pF   |
| Typical Thermal Resistance, Junction to Ambient Air(Note1)  | R <sub>θJA</sub>                  | 222         |          | °C/W |
| Junction and Storage Temperature Range  | T <sub>J</sub> , T <sub>STG</sub> | -65 to +125 |          | °C   |

Note: 1. Valid provided that terminals are kept at ambient temperature.



## Ratings and Characteristics Curves

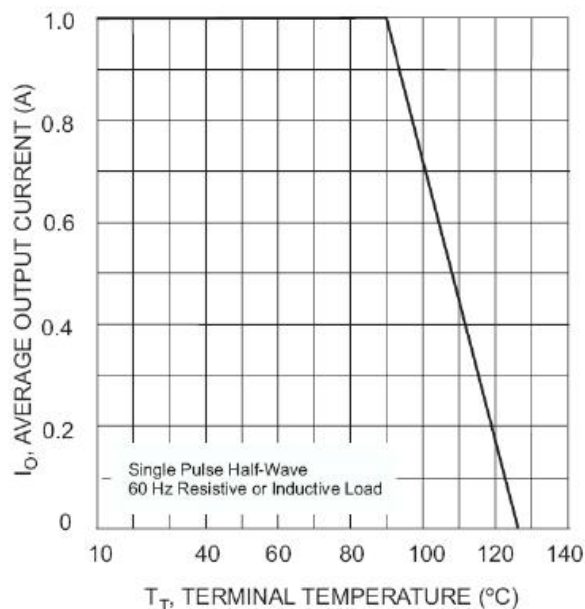


Fig. 1 Forward Current Derating Curve

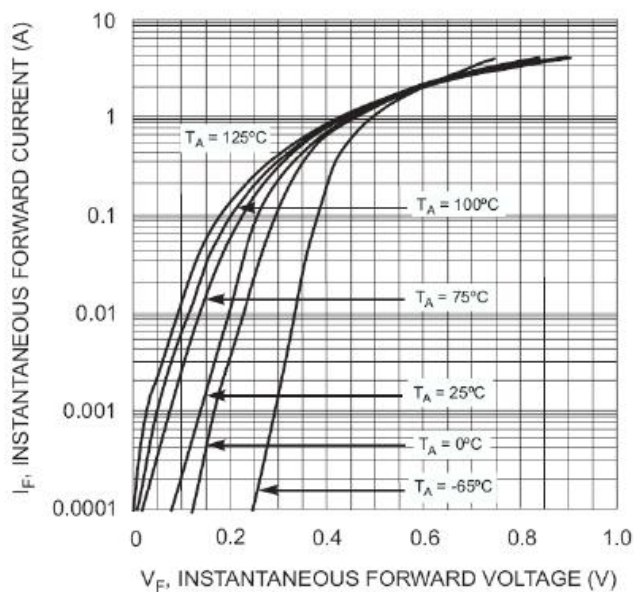


Fig. 2 Typical Forward Characteristics

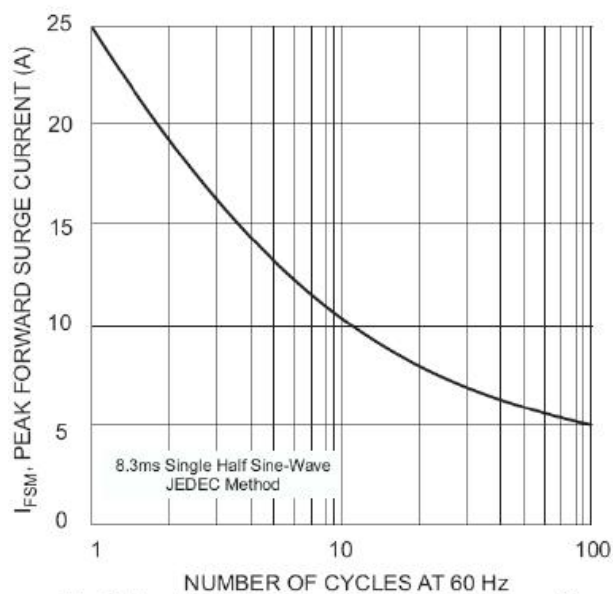


Fig. 3 Maximum Non-Repetitive Peak Fwd Surge Current

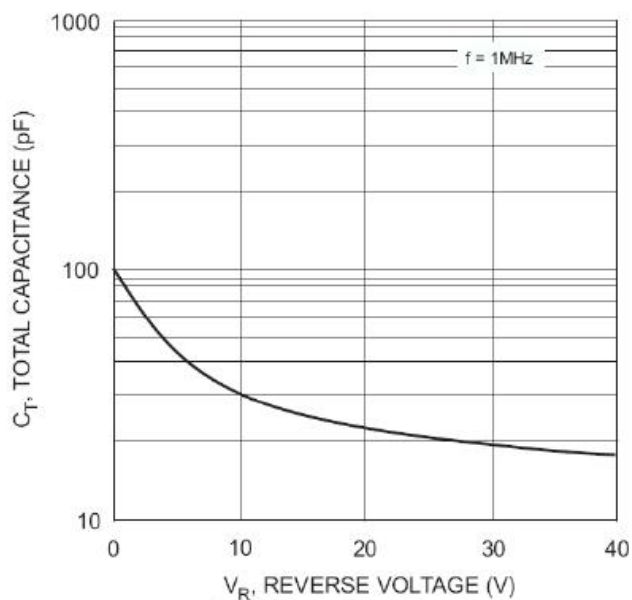
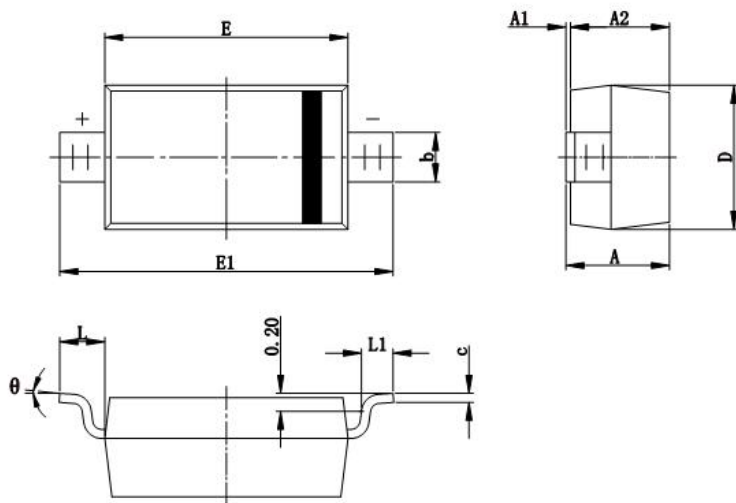


Fig. 4 Typical Total Capacitance

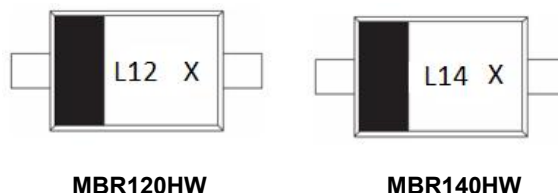
**Mechanical Dimensions SOD-123**


| SYMBOL   | Millimeters |       | Inches     |       |
|----------|-------------|-------|------------|-------|
|          | MIN.        | MAX.  | MIN.       | MAX.  |
| A        | 1.050       | 1.250 | 0.041      | 0.049 |
| A1       | 0.000       | 0.100 | 0.000      | 0.004 |
| A2       | 1.050       | 1.150 | 0.041      | 0.045 |
| b        | 0.450       | 0.650 | 0.018      | 0.026 |
| c        | 0.080       | 0.150 | 0.003      | 0.006 |
| D        | 1.500       | 1.700 | 0.059      | 0.067 |
| E        | 2.600       | 2.800 | 0.102      | 0.110 |
| E1       | 3.550       | 3.850 | 0.140      | 0.152 |
| L        | 0.500 REF.  |       | 0.020 REF. |       |
| L1       | 0.250       | 0.450 | 0.010      | 0.018 |
| $\theta$ | 0°          | 8°    | 0°         | 8°    |

**Ordering Information**

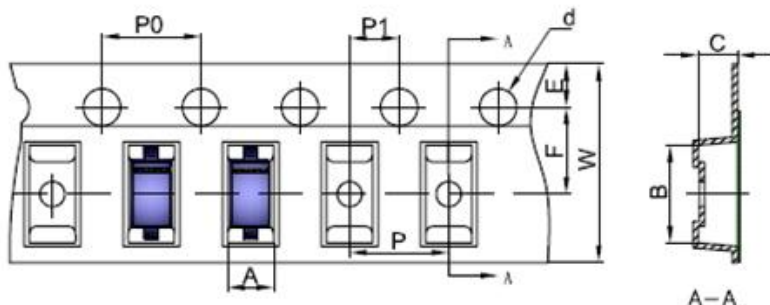
| Device               | Package              | Shipping       |
|----------------------|----------------------|----------------|
| MBR120HW<br>MBR140HW | SOD-123<br>(Pb-Free) | 3000pcs / reel |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

**Marking Diagram**

**MBR120HW**
**MBR140HW**

Where X is Date Code

L12/L14 = Part Name

**Carrier Tape Specification SOD-123**


| SYMBOL | Millimeters |      |
|--------|-------------|------|
|        | Min.        | Max. |
| A      | 1.80        | 1.90 |
| B      | 3.89        | 3.99 |
| C      | 1.52        | 1.62 |
| d      | 1.45        | 1.65 |
| E      | 1.65        | 1.85 |
| F      | 3.40        | 3.60 |
| P      | 3.90        | 4.10 |
| P0     | 3.90        | 4.10 |
| P1     | 1.90        | 2.10 |
| W      | 7.90        | 8.30 |

**Technical Data**  
**Data Sheet N0715, Rev. B**



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