

## MMBD3004A/C/S

### HIGH VOLTAGE SURFACE MOUNT SWITCHING DIODE

**VOLTAGE** 350 Volt **POWER** 410 mWatt

**SOT-23**

Unit : inch(mm)

#### FEATURES

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automatic Insertion
- High Conductance
- High Reverse Breakdown Voltage Rating
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. . (Halogen Free)

#### MECHANICAL DATA

Case: SOT-23, Plastic

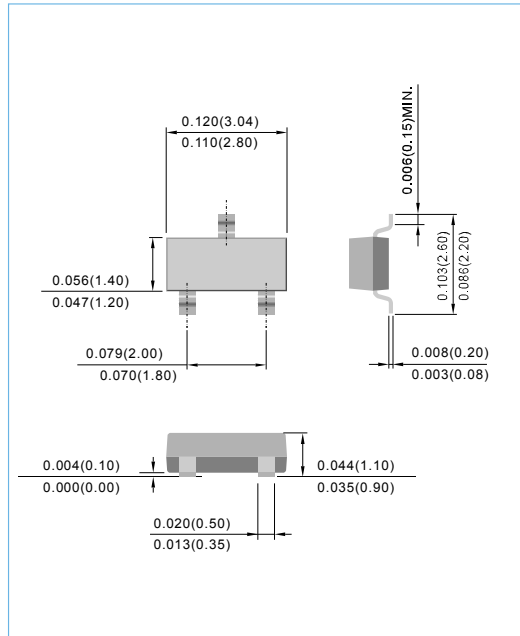
Terminals: Solderable per MIL-STD-750, Method 2026

Approx. Weight: 0.0003 ounces, 0.0084 grams

Marking : MMBD3004A : P11

MMBD3004C : P12

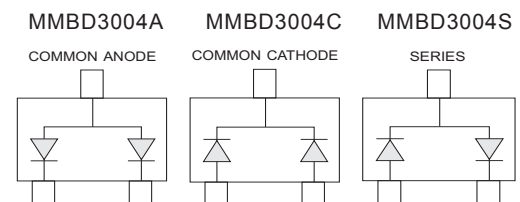
MMBD3004S : P13



#### MAXIMUM RATINGS(T<sub>A</sub>=25°C, unless otherwise specified)

| CHARACTERISTIC                                                      | SYMBOL                              | VALUE        | UNIT |
|---------------------------------------------------------------------|-------------------------------------|--------------|------|
| Repetitive Peak Reverse Voltage                                     | V <sub>RRM</sub>                    | 350          | V    |
| Working Peak Reverse Voltage<br>DC Blocking Voltage                 | V <sub>RFWM</sub><br>V <sub>R</sub> | 240          | V    |
| RMS Reverse Voltage                                                 | V <sub>R(RMS)</sub>                 | 212          | V    |
| Forward Continuous Current (Note 1)                                 | I <sub>F</sub>                      | 225          | mA   |
| Peak Repetitive Forward Current (Note 1)                            | I <sub>FRM</sub>                    | 625          | mA   |
| Non-Repetitive Peak Forward Surge Current @ t=0.001ms<br>@ t=1000ms | I <sub>FSM</sub>                    | 4.0<br>1.0   | A    |
| Power Dissipation (Note 1)                                          | P <sub>d</sub>                      | 410          | mW   |
| Typical Thermal Resistance Junction to Ambient Air (Note 1)         | R <sub>ΘJA</sub>                    | 310          | °C/W |
| Operating and Storage Temperature Range                             | T <sub>J</sub> , T <sub>STG</sub>   | -55 to + 150 | °C   |

Notes : 1. Part mounted on FR-4 board with recommended pad layout.



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### ELECTRICAL CHARACTERISTICS( $T_A=25^{\circ}\text{C}$ , unless otherwise specified, per element)

| CHARACTERISTIC                     | SYMBOL     | MIN | TYP                  | MAX                 | UNIT | TEST CONDITION                                                |
|------------------------------------|------------|-----|----------------------|---------------------|------|---------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 2) | $V_{(BR)}$ | 350 | -                    | -                   | V    | $I_R=150\mu\text{A}$                                          |
| Forward Voltage (Note 2)           | $V_F$      | -   | 0.78<br>0.93<br>1.03 | 0.87<br>1.0<br>1.25 | V    | $I_F=20\text{mA}$<br>$I_F=100\text{mA}$<br>$I_F=200\text{mA}$ |
| Reverse Current (Note 2)           | $I_R$      | -   | 30                   | 100                 | nA   | $V_R=350\text{V}$                                             |
| Total Capacitance                  | $C_T$      | -   | 1.0                  | 5.0                 | pF   | $V_R=0\text{V}, f=1.0\text{MHz}$                              |
| Reverse Recovery Time              | $t_{rr}$   | -   | -                    | 50                  | ns   | $I_F=I_R=30\text{mA}$<br>$I_{rr}=3.0\text{mA}, R_L=100\Omega$ |

Notes : 2. Short duration test pulse used to minimize self-heating effect

### ELECTRICAL CHARACTERISTICS CURVES

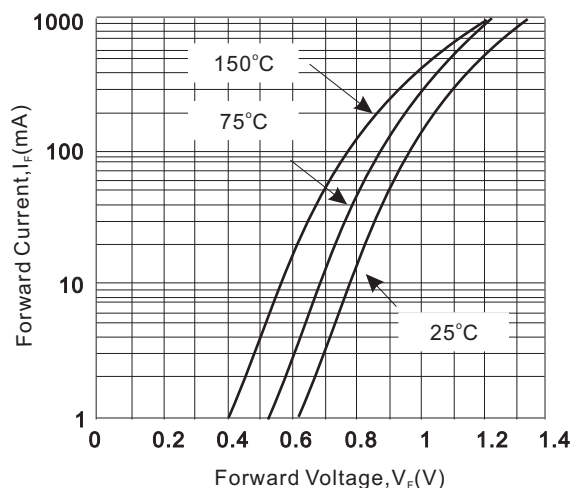


FIG.1 Typical Forward

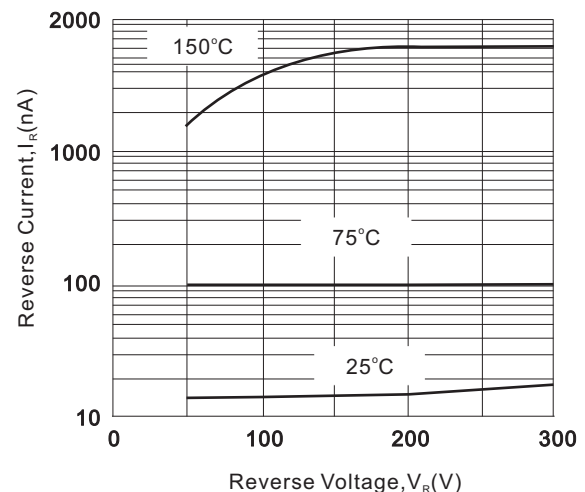


FIG.2 Typical Reverse

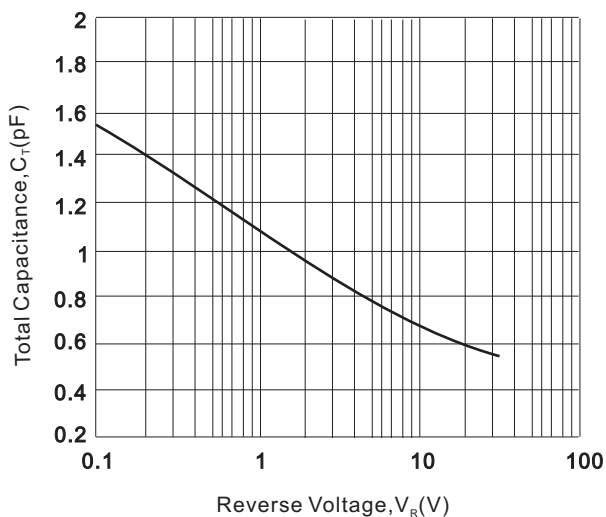


FIG.3 Typical Capacitance

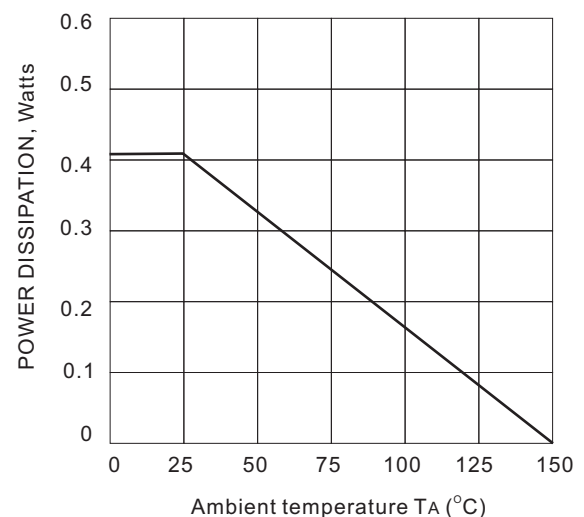
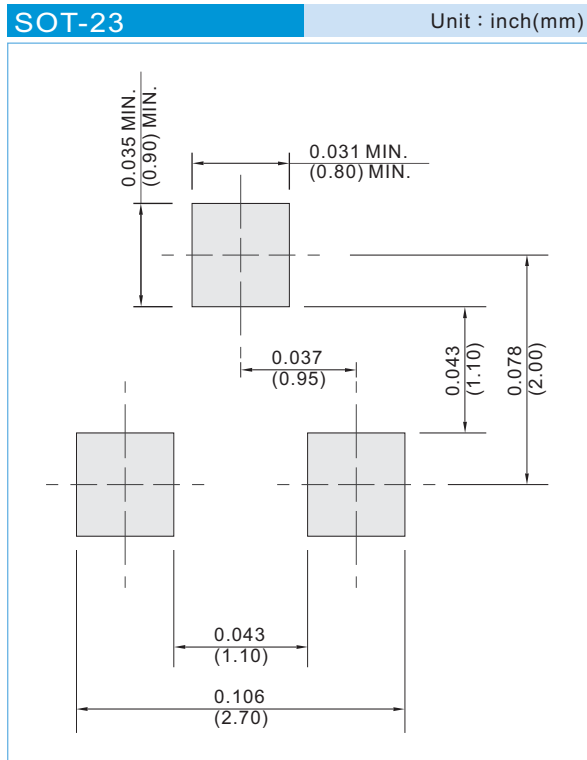


FIG.4 Forward current derating curve

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### MOUNTING PAD LAYOUT



### ORDER INFORMATION

- Packing information
  - T/R - 12K per 13" plastic Reel
  - T/R - 3K per 7" plastic Reel

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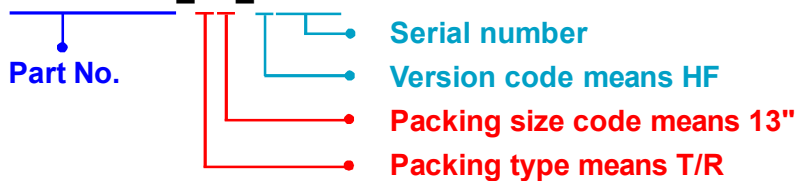
### Part No\_packing code\_Version

MMBD3004A\_R1\_00001

MMBD3004A\_R2\_00001

For example :

**RB500V-40\_R2\_00001**



| Packing Code <b>XX</b>               |                      |                                  |                      | Version Code <b>XXXXX</b> |                      |                                       |
|--------------------------------------|----------------------|----------------------------------|----------------------|---------------------------|----------------------|---------------------------------------|
| Packing type                         | 1 <sup>st</sup> Code | Packing size code                | 2 <sup>nd</sup> Code | HF or RoHS                | 1 <sup>st</sup> Code | 2 <sup>nd</sup> ~5 <sup>th</sup> Code |
| Tape and Ammunition Box (T/B)        | <b>A</b>             | N/A                              | <b>0</b>             | <b>HF</b>                 | <b>0</b>             | serial number                         |
| Tape and Reel (T/R)                  | <b>R</b>             | 7"                               | <b>1</b>             | <b>RoHS</b>               | <b>1</b>             | serial number                         |
| Bulk Packing (B/P)                   | <b>B</b>             | 13"                              | <b>2</b>             |                           |                      |                                       |
| Tube Packing (T/P)                   | <b>T</b>             | 26mm                             | <b>X</b>             |                           |                      |                                       |
| Tape and Reel (Right Oriented) (TRR) | <b>S</b>             | 52mm                             | <b>Y</b>             |                           |                      |                                       |
| Tape and Reel (Left Oriented) (TRL)  | <b>L</b>             | PANASERT T/B CATHODE UP (PBCU)   | <b>U</b>             |                           |                      |                                       |
| FORMING                              | <b>F</b>             | PANASERT T/B CATHODE DOWN (PBCD) | <b>D</b>             |                           |                      |                                       |