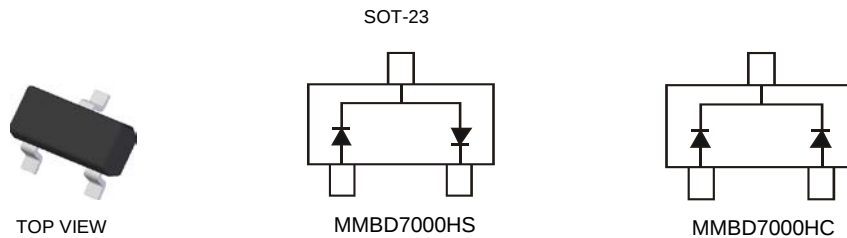


## Features

- Fast Switching Speed
- Surface Mount Package Ideally Suited for Automated Insertion
- For General Purpose Switching Applications
- High Conductance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

- Case: SOT-23
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead-Free Plating) Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.008 grams (Approximate)

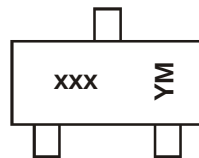


## Ordering Information (Note 4)

| Part Number    | Case   | Packaging        |
|----------------|--------|------------------|
| MMBD7000HS-7-F | SOT-23 | 3000/Tape & Reel |
| MMBD7000HC-7-F | SOT-23 | 3000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  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. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

## Marking Information



xxx = Product Type Marking Code:  
 MMBD7000HC = KHC  
 MMBD7000HS = KHS  
 YM = Date Code Marking  
 Y = Year (ex: G = 2019)  
 M = Month (ex: 9 = September)

### Date Code Key

| Year | 2009 | 2010 | 2011 | ... | 2018 | 2019 | 2020 | 2021 |
|------|------|------|------|-----|------|------|------|------|
| Code | W    | X    | Y    | ... | F    | G    | H    | I    |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

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

| Characteristic                            | Symbol           | Value | Unit |
|-------------------------------------------|------------------|-------|------|
| Peak Repetitive Reverse Voltage           | V <sub>RRM</sub> | 100   | V    |
| Working Peak Reverse Voltage              | V <sub>RWM</sub> |       |      |
| Forward Continuous Current (Note 5)       | I <sub>FM</sub>  | 300   | mA   |
| Non-Repetitive Peak Forward Surge Current | I <sub>FSM</sub> | 2.0   | A    |
|                                           |                  | 1.0   |      |

## Thermal Characteristics

| Characteristic                                      | Symbol                            | Value       | Unit |
|-----------------------------------------------------|-----------------------------------|-------------|------|
| Power Dissipation (Note 5)                          | P <sub>D</sub>                    | 350         | mW   |
| Thermal Resistance Junction to Ambient Air (Note 5) | R <sub>θJA</sub>                  | 357         | °C/W |
| Operating and Storage Temperature Range             | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |

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

| Characteristic                     | Symbol             | Min  | Max  | Unit | Test Condition                                                                                            |
|------------------------------------|--------------------|------|------|------|-----------------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 6) | V <sub>(BR)R</sub> | 100  | —    | V    | I <sub>R</sub> = 100μA                                                                                    |
| Forward Voltage                    | V <sub>F</sub>     | 0.55 | 0.70 | V    | I <sub>F</sub> = 1.0mA                                                                                    |
|                                    |                    | 0.67 | 0.82 |      | I <sub>F</sub> = 10mA                                                                                     |
|                                    |                    | 0.75 | 1.10 |      | I <sub>F</sub> = 50mA                                                                                     |
|                                    |                    | —    | 1.25 |      | I <sub>F</sub> = 150mA                                                                                    |
| Reverse Current (Note 6)           | I <sub>R</sub>     | —    | 1.0  | μA   | V <sub>R</sub> = 50V                                                                                      |
|                                    |                    |      | 3.0  | μA   | V <sub>R</sub> = 100V                                                                                     |
|                                    |                    |      | 100  | μA   | V <sub>R</sub> = 50V, T <sub>J</sub> = 125°C                                                              |
|                                    |                    |      | 25   | nA   | V <sub>R</sub> = 20V                                                                                      |
| Total Capacitance                  | C <sub>T</sub>     | —    | 2.0  | pF   | V <sub>R</sub> = 0, f = 1.0MHz                                                                            |
| Reverse Recovery Time              | t <sub>rr</sub>    | —    | 4.0  | ns   | I <sub>F</sub> = I <sub>R</sub> = 10mA,<br>I <sub>rr</sub> = 0.1 × I <sub>R</sub> , R <sub>L</sub> = 100Ω |

Notes: 5. Part mounted on FR-4 substrate printed circuit board with 1 inch square 2oz copper pad area.  
6. Short duration pulse test used to minimize self-heating effect.

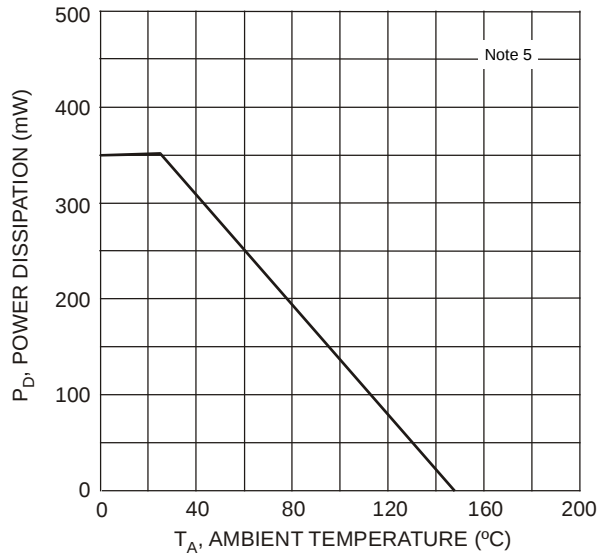


Fig. 1 Power Derating Curve, Total Package

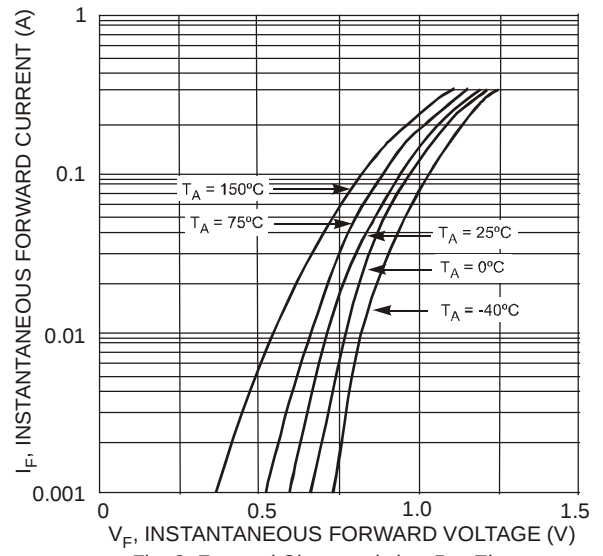


Fig. 2 Forward Characteristics, Per Element

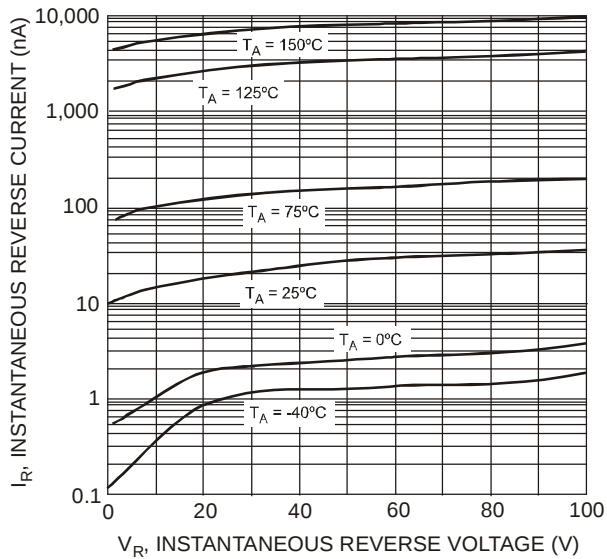


Fig. 3 Typical Reverse Characteristics, Per Element

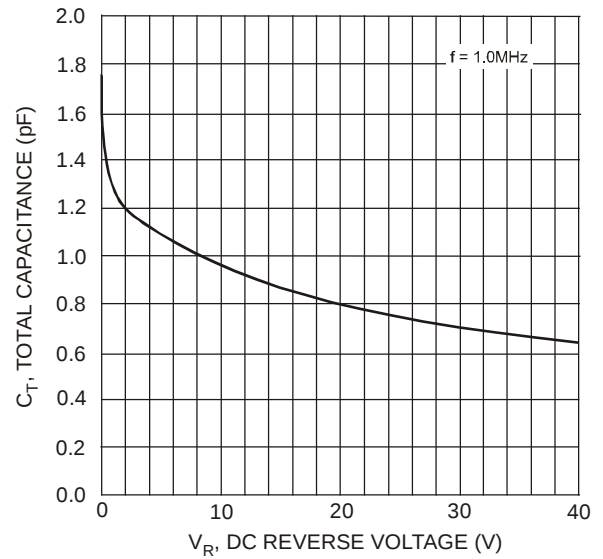
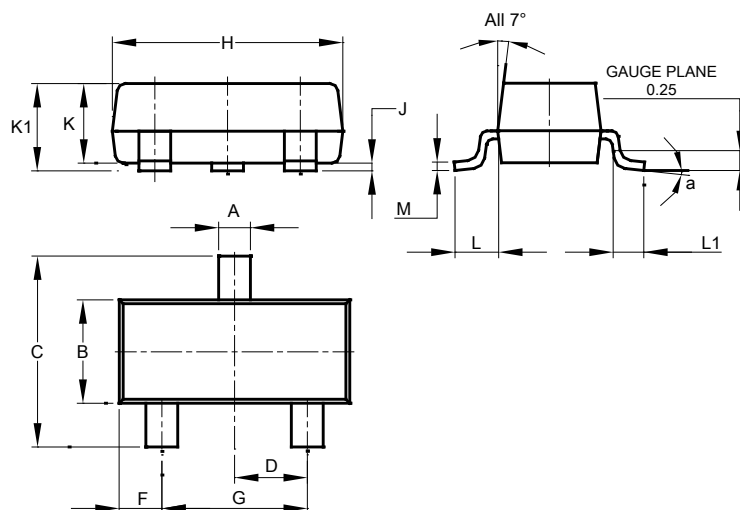


Fig. 4 Total Capacitance vs. Reverse Voltage, Per Element

## Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT23**

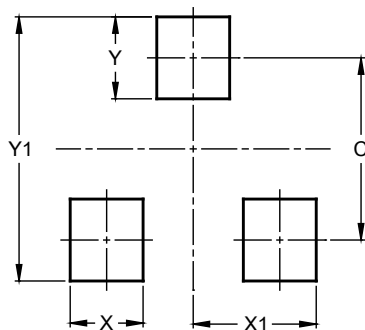


| SOT23                |       |       |       |
|----------------------|-------|-------|-------|
| Dim                  | Min   | Max   | Typ   |
| A                    | 0.37  | 0.51  | 0.40  |
| B                    | 1.20  | 1.40  | 1.30  |
| C                    | 2.30  | 2.50  | 2.40  |
| D                    | 0.89  | 1.03  | 0.915 |
| F                    | 0.45  | 0.60  | 0.535 |
| G                    | 1.78  | 2.05  | 1.83  |
| H                    | 2.80  | 3.00  | 2.90  |
| J                    | 0.013 | 0.10  | 0.05  |
| K                    | 0.890 | 1.00  | 0.975 |
| K1                   | 0.903 | 1.10  | 1.025 |
| L                    | 0.45  | 0.61  | 0.55  |
| L1                   | 0.25  | 0.55  | 0.40  |
| M                    | 0.085 | 0.150 | 0.110 |
| a                    | 0°    | 8°    | --    |
| All Dimensions in mm |       |       |       |

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**SOT23**



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 2.0           |
| X          | 0.8           |
| X1         | 1.35          |
| Y          | 0.9           |
| Y1         | 2.9           |

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