

350mW, SMD Switching Diode

FEATURES

- Designed for mounting on small surface
- Low Capacitance
- Low forward voltage drop
- Compliant to RoHS directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- On-board DC/DC converter

MECHANICAL DATA

- Case: SOT-23
- Molding compound meets UL 94 V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 8 mg (approximately)

| KEY PARAMETERS | | |
|---------------------|-------------|------|
| PARAMETER | VALUE | UNIT |
| $I_{F(AV)}$ | 200 | mA |
| V_{RRM} | 100 | V |
| I_{FSM} | 2 | A |
| V_F at $I_F=10mA$ | 1 | V |
| T_J Max. | 150 | °C |
| Package | SOT-23 | |
| Configuration | Single dice | |



| ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted) | | | | |
|---|---------------------|-------------|-------------|------|
| PARAMETER | | SYMBOL | PART NUMBER | UNIT |
| Marking code on the device | MMBD4148 | | 5D | |
| | MMBD4148CA | | A1 | |
| | MMBD4148CC | | A4 | |
| | MMBD4148SE | | A7 | |
| Repetitive peak reverse voltage | | V_{RRM} | 75 | V |
| Forward current | | $I_{F(AV)}$ | 200 | mA |
| Repetitive peak forward surge current | | I_{FRM} | 700 | mA |
| Non-repetitive peak forward surge current | at $t=1\mu\text{s}$ | I_{FSM} | 2 | A |
| | at $t=1\text{s}$ | | 1 | |
| Junction temperature range | | T_J | -55 to +150 | °C |
| Storage temperature range | | T_{STG} | -55 to +150 | °C |

| THERMAL PERFORMANCE | | | |
|--|-----------------|--------------|----------------------|
| PARAMETER | SYMBOL | LIMIT | UNIT |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 357 | $^{\circ}\text{C/W}$ |

| ELECTRICAL SPECIFICATIONS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted) | | | | | |
|---|---|---------------|------------|------------|---------------|
| PARAMETER | CONDITIONS | SYMBOL | MIN | MAX | UNIT |
| Forward voltage per diode ⁽¹⁾ | $I_F = 10\text{mA}, T_J = 25^{\circ}\text{C}$ | V_F | - | 1.0 | V |
| Reverse current @ rated V_R per diode ⁽²⁾ | $V_R = 20\text{V}, T_J = 25^{\circ}\text{C}$ | I_R | - | 25.0 | nA |
| | $V_R = 75\text{V}, T_J = 25^{\circ}\text{C}$ | | - | 5.0 | μA |
| | $V_R = 20\text{V}, T_A = 150^{\circ}\text{C}$ | | - | 50.0 | |
| Reverse breakdown voltage | $I_R = 5\mu\text{A}, T_J = 25^{\circ}\text{C}$ | $V_{(BR)}$ | 75 | - | V |
| | $I_R = 100\mu\text{A}, T_J = 25^{\circ}\text{C}$ | | 100 | - | |
| Junction capacitance | 1 MHz, $V_R = 0\text{V}$ | C_J | - | 4.0 | pF |
| Reverse recovery time | $I_F = 10\text{mA}, I_R = 1\text{mA}, R_L = 100\Omega, V_R = 6\text{V}$ | t_{rr} | - | 4.0 | ns |

Notes:

1. Pulse test with $PW = 0.3\text{ ms}$
2. Pulse test with $PW = 30\text{ ms}$

| ORDERING INFORMATION | | | | |
|-----------------------------|---------------------|----------------------------|----------------|----------------|
| PART NO. | PACKING CODE | PACKING CODE SUFFIX | PACKAGE | PACKING |
| MMBD414X (Note 1&2) | RF | G | SOT-23 | 3K / 7" Reel |
| | R5 | | | 10K / 13" Reel |

Notes:

1. Whole series with green compound
2. "XX" is Device code from "8" to "8SE".

| EXAMPLE | | | | |
|--------------------|-----------------|---------------------|----------------------------|--------------------|
| EXAMPLE P/N | PART NO. | PACKING CODE | PACKING CODE SUFFIX | DESCRIPTION |
| MMBD4148 RFG | MMBD4148 | RF | G | Green compound |

CHARACTERISTICS CURVES

($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 Power Derating Curve

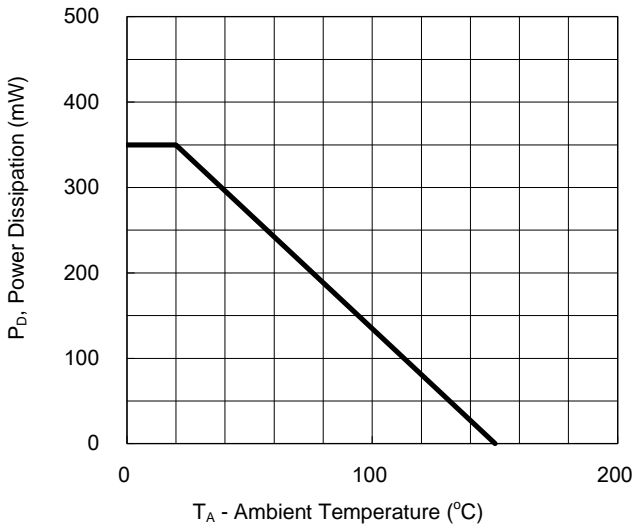


Fig.2 Forward Characteristics

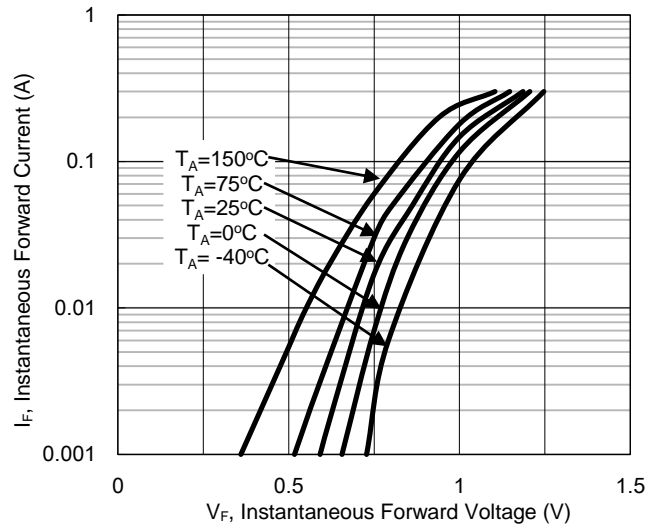


Fig.3 Typical Reverse Characteristics

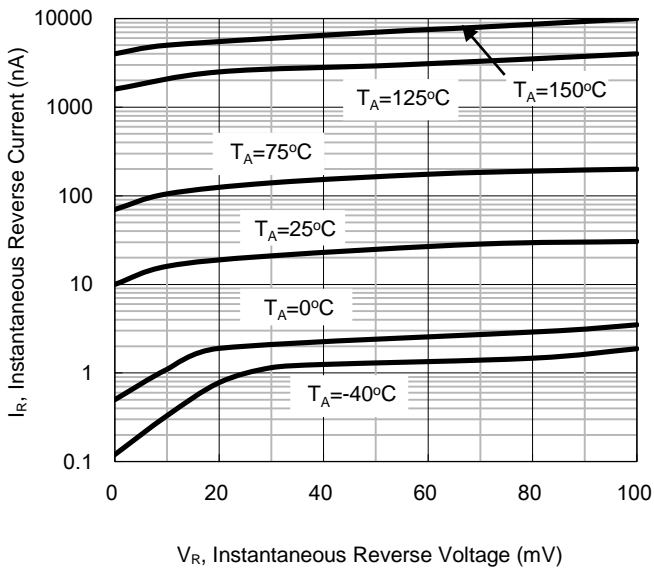
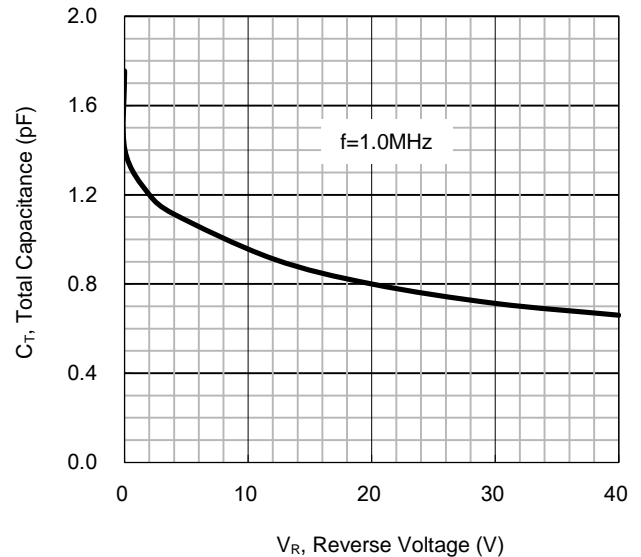
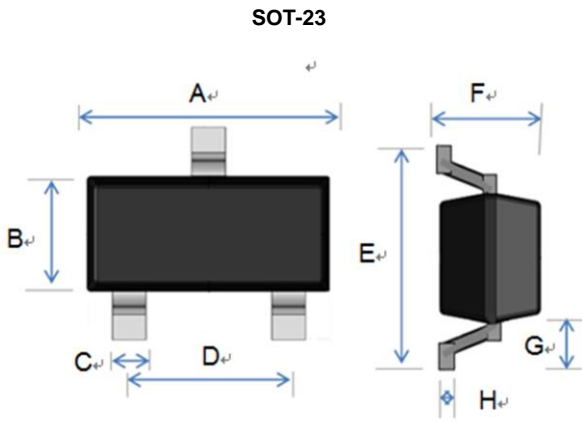


Fig.4 Typical Capacitance vs. Reverse Voltage

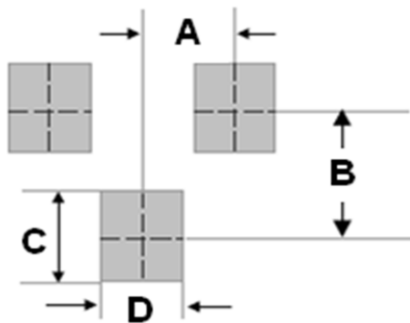


PACKAGE OUTLINE DIMENSION



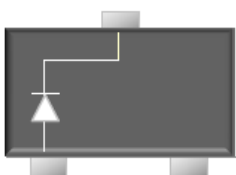
| DIM. | Unit(mm) | | Unit(inch) | |
|------|----------|------|------------|-------|
| | Min | Max | Min | Max |
| A | 2.70 | 3.10 | 0.106 | 0.122 |
| B | 1.10 | 1.50 | 0.043 | 0.059 |
| C | 0.30 | 0.51 | 0.012 | 0.020 |
| D | 1.78 | 2.04 | 0.070 | 0.080 |
| E | 2.10 | 2.64 | 0.083 | 0.104 |
| F | 0.89 | 1.30 | 0.035 | 0.051 |
| G | 0.55 REF | | 0.022 REF | |
| H | 0.10 REF | | 0.004 REF | |

SUGGEST PAD LAYOUT

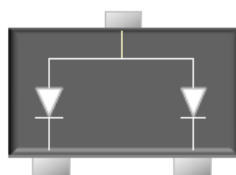


| DIM. | Unit(mm) | Unit(inch) |
|------|----------|------------|
| | TYP | TYP |
| A | 0.95 | 0.037 |
| B | 2.00 | 0.079 |
| C | 0.90 | 0.035 |
| D | 0.80 | 0.031 |

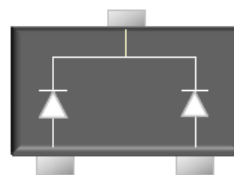
PIN CONFIGURATION



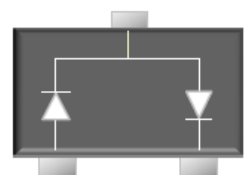
MMBD4148



MMBD4148CA



MMBD4148CC



MMBD4148SE

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