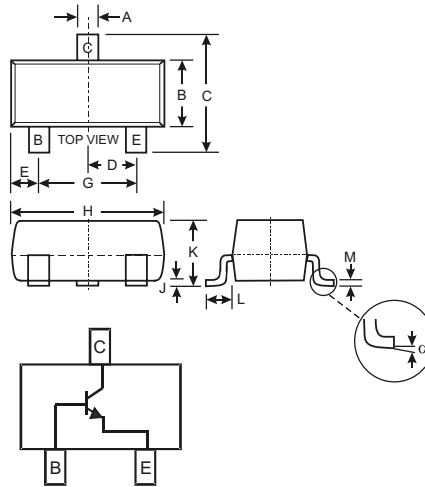


Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (MMBT4126)
- Ideal for Medium Power Amplification and Switching

Mechanical Data

- Case: SOT-23, Molded Plastic
- Case Material - UL Flammability Rating Classification 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Terminal Connections: See Diagram
- Marking (See Page 2): K1B
- Ordering & Date Code Information: See Page 2
- Weight: 0.008 grams (approx.)



| SOT-23 | | |
|----------------------|-------|-------|
| Dim | Min | Max |
| A | 0.37 | 0.51 |
| B | 1.20 | 1.40 |
| C | 2.30 | 2.50 |
| D | 0.89 | 1.03 |
| E | 0.45 | 0.60 |
| G | 1.78 | 2.05 |
| H | 2.80 | 3.00 |
| J | 0.013 | 0.10 |
| K | 0.903 | 1.10 |
| L | 0.45 | 0.61 |
| M | 0.085 | 0.180 |
| α | 0° | 8° |
| All Dimensions in mm | | |

Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | MMBT4124 | Unit |
|--|-----------------|-------------|---------------------------|
| Collector-Base Voltage | V_{CBO} | 30 | V |
| Collector-Emitter Voltage | V_{CEO} | 25 | V |
| Emitter-Base Voltage | V_{EBO} | 5.0 | V |
| Collector Current - Continuous (Note 1) | I_C | 200 | mA |
| Power Dissipation (Note 1) | P_d | 300 | mW |
| Thermal Resistance, Junction to Ambient (Note 1) | $R_{\theta JA}$ | 417 | $^\circ\text{C}/\text{W}$ |
| Operating and Storage and Temperature Range | T_j, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

Notes: 1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

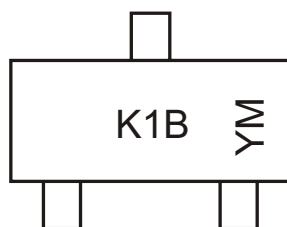
| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|--------------------------------------|---------------|-----------|----------|------|---|
| OFF CHARACTERISTICS (Note 2) | | | | | |
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 30 | — | V | $I_C = 10\mu\text{A}, I_E = 0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 25 | — | V | $I_C = 1.0\text{mA}, I_B = 0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 5.0 | 6.0 | V | $I_E = 10\mu\text{A}, I_C = 0$ |
| Collector Cutoff Current | I_{CBO} | — | 50 | nA | $V_{CB} = 20\text{V}, I_E = 0\text{V}$ |
| Emitter Cutoff Current | I_{EBO} | — | 50 | nA | $V_{EB} = 3.0\text{V}, I_C = 0\text{V}$ |
| ON CHARACTERISTICS (Note 2) | | | | | |
| DC Current Gain | h_{FE} | 120 60 | 360 — | — | $I_C = 2.0\text{mA}, V_{CE} = 1.0\text{V}$ $I_C = 50\text{mA}, V_{CE} = 1.0\text{V}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | — | 0.30 | V | $I_C = 50\text{mA}, I_B = 5.0\text{mA}$ |
| Base- Emitter Saturation Voltage | $V_{BE(SAT)}$ | — | 0.95 | V | $I_C = 50\text{mA}, I_B = 5.0\text{mA}$ |
| SMALL SIGNAL CHARACTERISTICS | | | | | |
| Output Capacitance | C_{obo} | — | 4.0 | pF | $V_{CB} = 5.0\text{V}, f = 1.0\text{MHz}, I_E = 0$ |
| Input Capacitance | C_{ibo} | — | 8.0 | pF | $V_{EB} = 0.5\text{V}, f = 1.0\text{MHz}, I_C = 0$ |
| Small Signal Current Gain | h_{fe} | 120 | 480 | — | $V_{CE} = 1.0\text{V}, I_C = 2.0\text{mA},$ $f = 1.0\text{kHz}$ |
| Current Gain-Bandwidth Product | f_T | 300 | — | MHz | $V_{CE} = 20\text{V}, I_C = 10\text{mA},$ $f = 100\text{MHz}$ |

Ordering Information (Note 3)

| Device | Packaging | Shipping |
|------------|-----------|------------------|
| MMBT4124-7 | SOT-23 | 3000/Tape & Reel |

- Notes: 2. Short duration test pulse used to minimize self-heating effect.
3. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



K1B = Product Type Marking Code
YM = Date Code Marking
Y = Year ex: N = 2002
M = Month ex: 9 = September

Date Code Key

| Year | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | J | K | L | M | N | P | R | S | T | U | V | W |

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