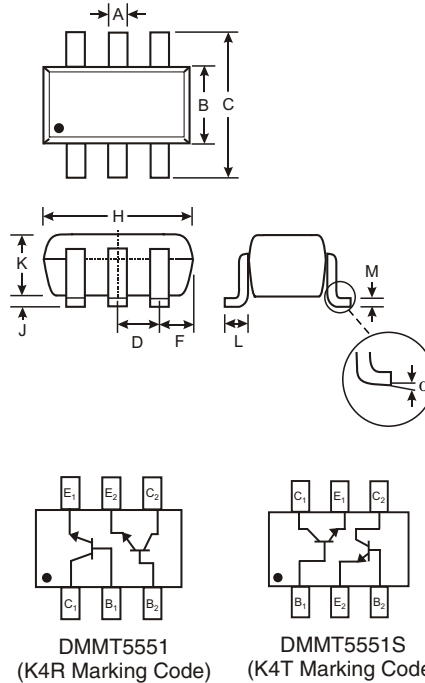


Features

- Epitaxial Planar Die Construction
- Complementary PNP Type Available (DMMT5401)
- Ideal for Medium Power Amplification and Switching
- Intrinsically Matched NPN Pair (Note 1)
- 2% Matched Tolerance, h_{FE} , $V_{CE(SAT)}$, $V_{BE(SAT)}$
- 1% Matched Tolerance, Available (Note 2)
- Also Available in Lead Free Version

Mechanical Data

- Case: SOT-26, Molded Plastic
- Case Material - UL Flammability Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish). Please see Ordering Information, Note 8, on Page 2
- Terminal Connections: See Diagram
- Marking (See Page 2): K4R & K4T
- Ordering & Date Code Information: See Page 2
- Weight: 0.006 grams (approx.)



| SOT-26 | | | |
|----------------------|-------|------|------|
| Dim | Min | Max | Typ |
| A | 0.35 | 0.50 | 0.38 |
| B | 1.50 | 1.70 | 1.60 |
| C | 2.70 | 3.00 | 2.80 |
| D | — | — | 0.95 |
| F | — | — | 0.55 |
| H | 2.90 | 3.10 | 3.00 |
| J | 0.013 | 0.10 | 0.05 |
| K | 1.00 | 1.30 | 1.10 |
| L | 0.35 | 0.55 | 0.40 |
| M | 0.10 | 0.20 | 0.15 |
| α | 0° | 8° | — |
| All Dimensions in mm | | | |

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

| Characteristic | Symbol | Value | Unit |
|--|-----------------|-------------|------------------|
| Collector-Base Voltage | V_{CBO} | 180 | V |
| Collector-Emitter Voltage | V_{CEO} | 160 | V |
| Emitter-Base Voltage | V_{EBO} | 6.0 | V |
| Collector Current - Continuous (Note 3) | I_C | 200 | mA |
| Power Dissipation (Note 3, 4) | P_d | 300 | mW |
| Thermal Resistance, Junction to Ambient (Note 3) | $R_{\theta JA}$ | 417 | K/W |
| Operating and Storage and Temperature Range | T_j, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

- Notes:
1. Built with adjacent die from a single wafer.
 2. Contact the Diodes, Inc. Sales department.
 3. 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>.
 4. Maximum combined dissipation.

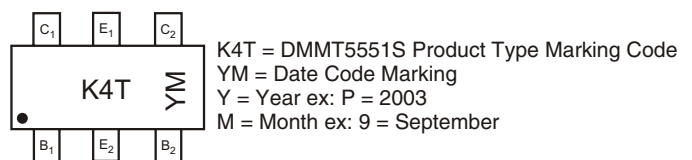
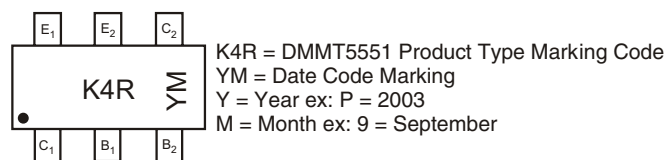
Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic | Symbol | Min | Max | Unit | Test Condition |
|--------------------------------------|---------------|----------------|---------------|------|--|
| OFF CHARACTERISTICS (Note 5) | | | | | |
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | 180 | — | V | $I_C = 100\mu\text{A}, I_E = 0$ |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | 160 | — | V | $I_C = 1.0\text{mA}, I_B = 0$ |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | 6.0 | — | V | $I_E = 10\mu\text{A}, I_C = 0$ |
| Collector Cutoff Current | I_{CBO} | — | 50 | nA | $V_{CB} = 120\text{V}, I_E = 0$ |
| Emitter Cutoff Current | I_{EBO} | — | 50 | nA | $V_{EB} = 4.0\text{V}, I_C = 0$ |
| ON CHARACTERISTICS (Note 5) | | | | | |
| DC Current Gain (Note 6) | h_{FE} | 80 80 30 | — 250 — | — | $I_C = 1.0\text{mA}, V_{CE} = 5.0\text{V}$ $I_C = 10\text{mA}, V_{CE} = 5.0\text{V}$ $I_C = 50\text{mA}, V_{CE} = 5.0\text{V}$ |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | — | 0.15 0.20 | V | $I_C = 10\text{mA}, I_B = 1.0\text{mA}$ $I_C = 50\text{mA}, I_B = 5.0\text{mA}$ |
| Base-Emitter Saturation Voltage | $V_{BE(SAT)}$ | — | 1.0 | V | $I_C = 10\text{mA}, I_B = 1.0\text{mA}$ $I_C = 50\text{mA}, I_B = 5.0\text{mA}$ |
| SMALL SIGNAL CHARACTERISTICS | | | | | |
| Output Capacitance | C_{obo} | — | 6.0 | pF | $V_{CB} = 10\text{V}, f = 1.0\text{MHz}, I_E = 0$ |
| Small Signal Current Gain | h_{FE} | 50 | 250 | — | $V_{CE} = 10\text{V}, I_C = 1.0\text{mA}, f = 1.0\text{kHz}$ |
| Current Gain-Bandwidth Product | f_T | 100 | 300 | MHz | $V_{CE} = 10\text{V}, I_C = 10\text{mA}, f = 100\text{MHz}$ |
| Noise Figure | NF | — | 8.0 | dB | $V_{CE} = 5.0\text{V}, I_C = 200\mu\text{A}, R_S = 1.0\text{k}\Omega, f = 1.0\text{kHz}$ |

Ordering Information (Note 7)

| Device | Packaging | Shipping |
|-------------|-----------|------------------|
| DMMT5551-7 | SOT-26 | 3000/Tape & Reel |
| DMMT5551S-7 | SOT-26 | 3000/Tape & Reel |

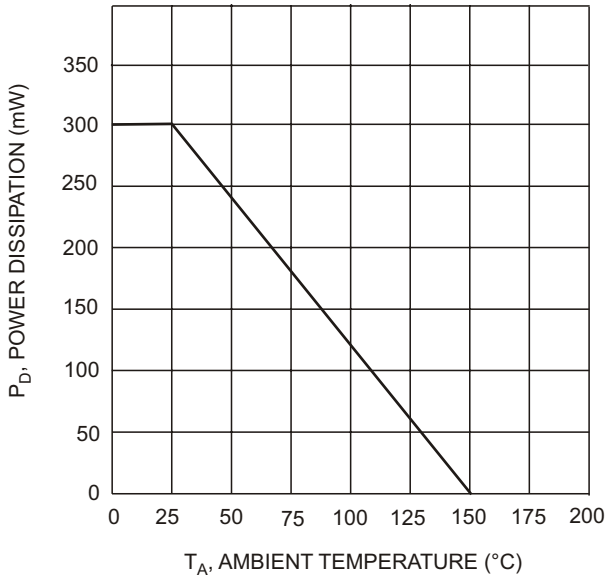
- Notes:
5. Short duration test pulse used to minimize self-heating effect.
 6. The DC Current Gain, h_{FE} , (matched at $I_C = 10\text{mA}$ and $V_{CE} = 5\text{V}$) Collector Emitter Saturation Voltage, $V_{CE(SAT)}$, and Base Emitter Saturation Voltage, $V_{BE(SAT)}$ are matched with typical matched tolerances of 1% and maximum of 2%.
 7. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
 8. For Lead Free version (with Lead Free terminal finish) part number, please add "-F" suffix to part number above.
Example: DMMT5551-7-F.

Marking Information


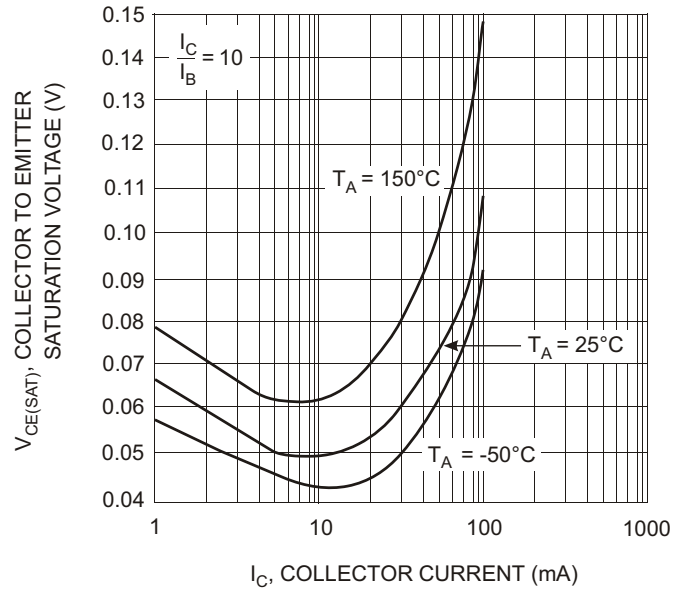
Date Code Key

| Year | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|------|------|------|------|------|------|------|------|
| Code | P | R | S | T | U | V | W |

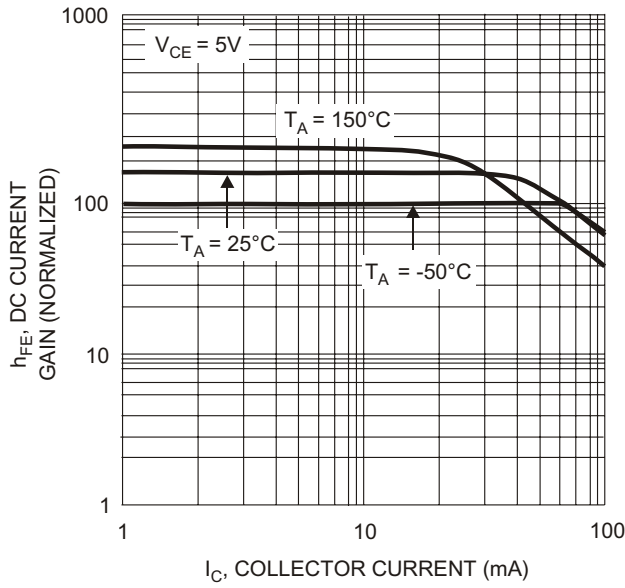
| Month | Jan | Feb | March | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | O | N | D |



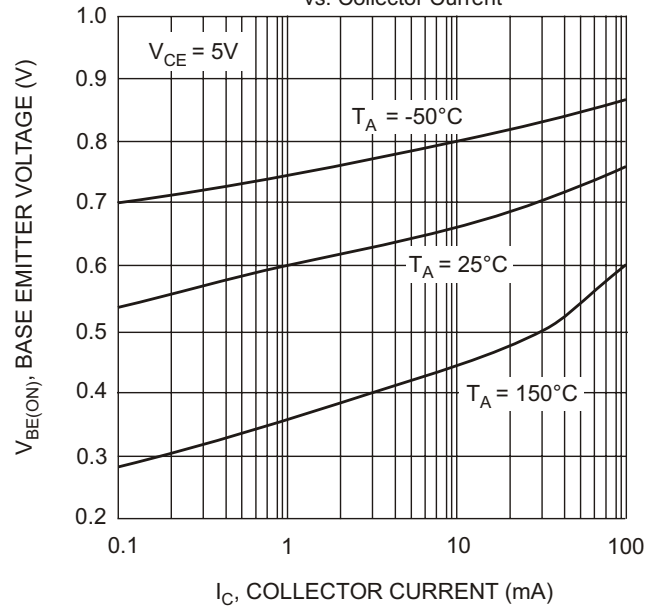
T_A, AMBIENT TEMPERATURE (°C)
Fig. 1, Max Power Dissipation vs Ambient Temperature



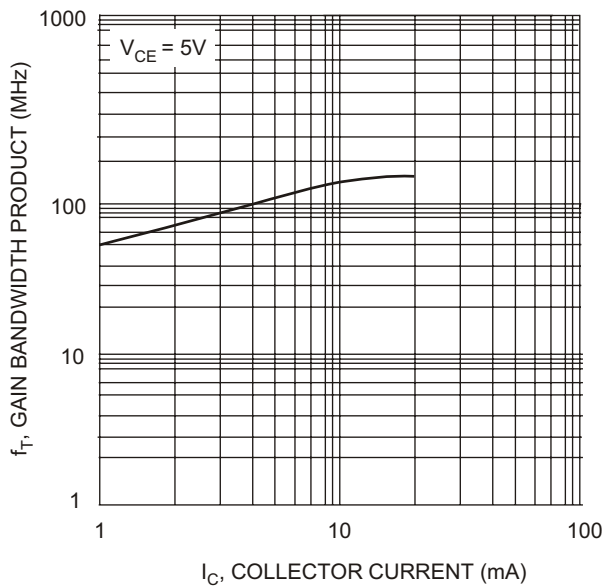
I_C, COLLECTOR CURRENT (mA)
Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current



I_C, COLLECTOR CURRENT (mA)
Fig. 3, DC Current Gain vs Collector Current



I_C, COLLECTOR CURRENT (mA)
Fig. 4, Base Emitter Voltage vs. Collector Current



I_C, COLLECTOR CURRENT (mA)
Fig. 5, Gain Bandwidth Product vs. Collector Current