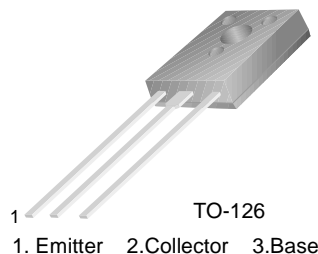


BD175/177/179

Medium Power Linear and Switching Applications

- Complement to BD 176/178/180 respectively



NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|-----------|--|------------|------------------|
| V_{CBO} | *Collector-Base Voltage : BD175 | 45 | V |
| | : BD177 | 60 | V |
| | : BD179 | 80 | V |
| V_{CEO} | Collector-Emitter Voltage : BD175 | 45 | V |
| | : BD177 | 60 | V |
| | : BD179 | 80 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current (DC) | 3 | A |
| I_{CP} | *Collector Current (Pulse) | 7 | A |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 30 | W |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | - 65 ~ 150 | $^\circ\text{C}$ |

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|------------------------|--|---|----------|------|------|---------------|
| $V_{CEO(sus)}$ | * Collector-Emitter Sustaining Voltage : BD175 | $I_C = 100\text{mA}, I_B = 0$ | 45 | | | V |
| | : BD177 | | 60 | | | V |
| | : BD179 | | 80 | | | V |
| I_{CBO} | Collector Cut-off Current : BD175 | $V_{CB} = 45\text{V}, I_E = 0$ | | | 100 | μA |
| | : BD177 | $V_{CB} = 60\text{V}, I_E = 0$ | | | 100 | μA |
| | : BD179 | $V_{CB} = 80\text{V}, I_E = 0$ | | | 100 | μA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 5\text{V}, I_C = 0$ | | | 1 | mA |
| h_{FE1} h_{FE2} | * DC Current Gain | $V_{CE} = 2\text{V}, I_C = 150\text{mA}$ $V_{CE} = 2\text{V}, I_C = 1\text{A}$ | 40 15 | | 250 | |
| $V_{CE(sat)}$ | * Collector-Emitter Saturation Voltage | $I_C = 1\text{A}, I_B = 0.1\text{A}$ | | | 0.8 | V |
| $V_{BE(on)}$ | * Base-Emitter On Voltage | $V_{CE} = 2\text{V}, I_C = 1\text{A}$ | | | 1.3 | V |
| f_T | Current Gain Bandwidth Product | $V_{CE} = 10\text{V}, I_C = 250\text{mA}$ | 3 | | | MHz |

* Pulse Test: PW=300 μs , duty Cycle=1.5% Pulsed

h_{FE} Classification

| Classification | 6 | 10 | 16 |
|----------------|----------|----------|-----------|
| h_{FE1} | 40 ~ 100 | 63 ~ 160 | 100 ~ 250 |

* Classification 16: Only BD175

Typical Characteristics

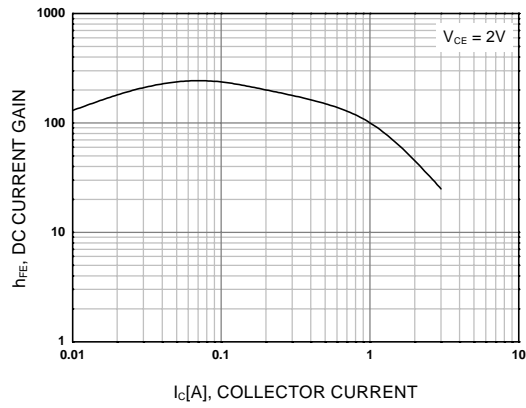


Figure 1. DC current Gain

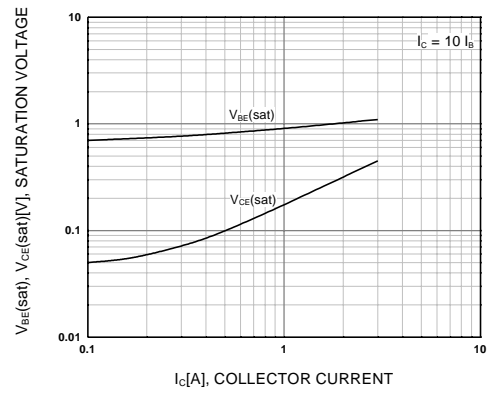


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

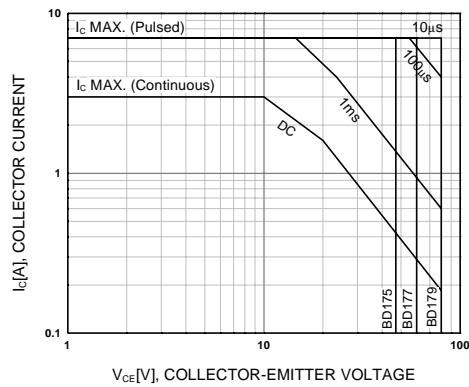


Figure 3. Safe Operating Area

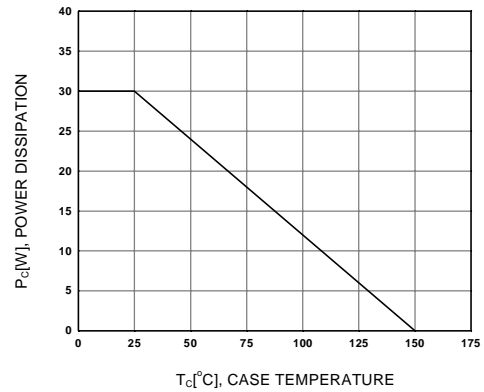


Figure 4. Power Derating

BD175/177/179

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