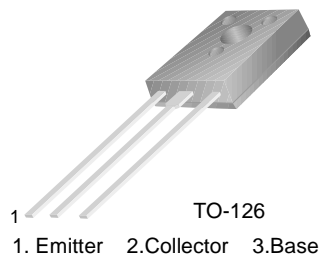


BD233/235/237

Medium Power Linear and Switching Applications

- Complement to BD 234/236/238 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 | : BD233 | 45 | V |
| | | : BD235 | 60 | V |
| | | : BD237 | 100 | V |
| V_{CEO} | Collector-Emitter Voltage | : BD233 | 45 | V |
| | | : BD235 | 60 | V |
| | | : BD237 | 80 | V |
| V_{CER} | Collector-Emitter Voltage | : BD233 | 45 | V |
| | | : BD235 | 60 | V |
| | | : BD237 | 100 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V | |
| I_C | Collector Current (DC) | 2 | A | |
| I_{CP} | *Collector Current (Pulse) | 6 | A | |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 25 | 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 | $I_C = 100\text{mA}, I_B = 0$ | : BD233 | 45 | | V |
| | | | : BD235 | 60 | | V |
| | | | : BD237 | 80 | | V |
| I_{CBO} | Collector Cut-off Current | $V_{CB} = 45\text{V}, I_E = 0$ $V_{CB} = 60\text{V}, I_E = 0$ $V_{CB} = 100\text{V}, I_E = 0$ | | | 100 | μA |
| | | | | | 100 | μA |
| | | | | | 100 | μA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 5\text{V}, I_C = 0$ | | | 1 | mA |
| h_{FE} | * DC Current Gain | $V_{CE} = 2\text{V}, I_C = 150\text{mA}$ $V_{CE} = 2\text{V}, I_C = 1\text{A}$ | 40 | | | |
| | | | 25 | | | |
| $V_{CE(sat)}$ | * Collector-Emitter Saturation Voltage | $I_C = 1\text{A}, I_B = 0.1\text{A}$ | | | 0.6 | 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

Typical Characteristics

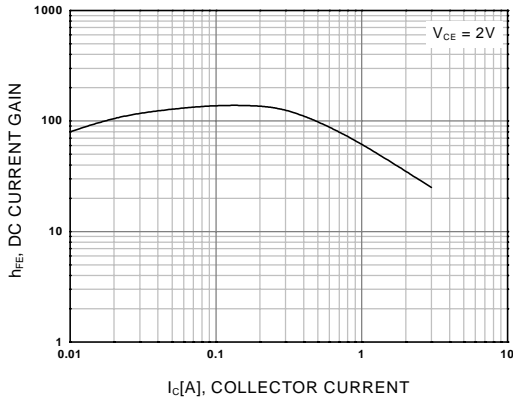


Figure 1. DC current Gain

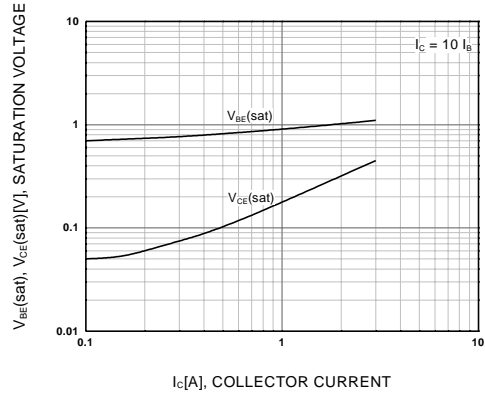


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

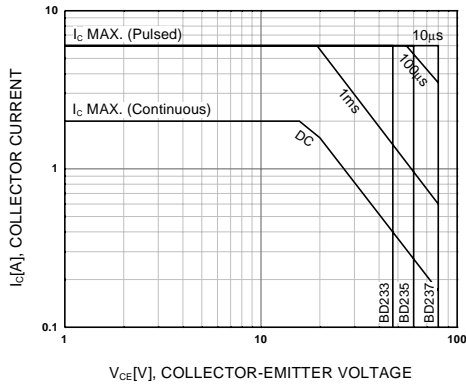


Figure 3. Safe Operating Area

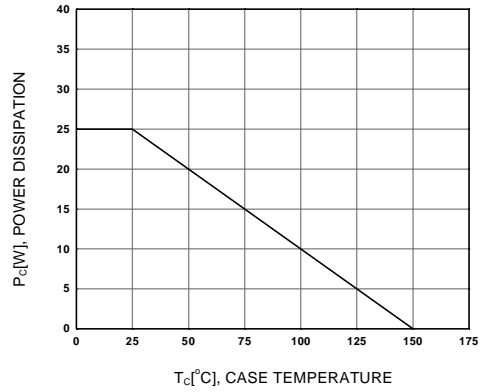


Figure 4. Power Derating

Package Dimensions

TO-126

BD233/235/237



Dimensions in Millimeters

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