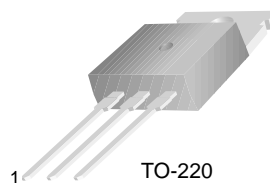


BD533/535/537

Medium Power Linear and Switching Applications

- Low Saturation Voltage
- Complement to BD534, BD536 and BD538 respectively



TO-220
1.Base 2.Collector 3.Emitter

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 : BD533 | 45 | V |
| | : BD535 | 60 | V |
| | : BD537 | 80 | V |
| V_{CES} | Collector-Emitter Voltage : BD533 | 45 | V |
| | : BD535 | 60 | V |
| | : BD537 | 80 | V |
| V_{CEO} | Collector-Emitter Voltage : BD533 | 45 | V |
| | : BD535 | 60 | V |
| | : BD537 | 80 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current | 8 | A |
| I_B | Base Current | 1 | A |
| P_C | Collector Dissipation ($T_C=25^\circ\text{C}$) | 50 | 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 |
|---------------|--|--|------|------|------|---------------|
| I_{CBO} | Collector Cut-off Current : BD533 : BD535 : BD537 | $V_{CB} = 45\text{V}, I_E = 0$ | | | 100 | μA |
| | | $V_{CB} = 60\text{V}, I_E = 0$ | | | 100 | μA |
| | | $V_{CB} = 80\text{V}, I_E = 0$ | | | 100 | μA |
| I_{CES} | Collector Cut-off Current : BD533 : BD535 : BD537 | $V_{CE} = 45\text{V}, V_{BE} = 0$ | | | 100 | μA |
| | | $V_{CE} = 60\text{V}, V_{BE} = 0$ | | | 100 | μA |
| | | $V_{CE} = 80\text{V}, V_{BE} = 0$ | | | 100 | μA |
| I_{EBO} | Emitter Cut-off Current | $V_{EB} = 5\text{V}, I_C = 0$ | | | 1 | mA |
| h_{FE} | * DC Current Gain : BD533/535 : BD537 : ALL DEVICE : BD533/535 : BD537 | $V_{CE} = 5\text{V}, I_C = 10\text{mA}$ | 20 | | | |
| | | $V_{CE} = 2\text{V}, I_C = 500\text{mA}$ | 15 | | | |
| | | $V_{CE} = 2\text{V}, I_C = 2\text{A}$ | 40 | | | |
| | | $V_{CE} = 2\text{V}, I_C = 2\text{A}$ | 25 | | | |
| h_{FE} | * h_{FE} Groups J : ALL DEVICE K : ALL DEVICE | $V_{CE} = 2\text{V}, I_C = 2\text{A}$ | 30 | | 75 | |
| | | $V_{CE} = 2\text{V}, I_C = 3\text{A}$ | 15 | | | |
| | | $V_{CE} = 2\text{V}, I_C = 2\text{A}$ | 40 | | 100 | |
| | | $V_{CE} = 2\text{V}, I_C = 3\text{A}$ | 20 | | | |
| $V_{CE(sat)}$ | * Collector-Emitter Saturation Voltage | $I_C = 2\text{A}, I_B = 0.2\text{A}$ | | | 0.8 | V |
| | | $I_C = 6\text{A}, I_B = 0.6\text{A}$ | | 0.8 | | V |
| $V_{BE(on)}$ | * Base-Emitter ON Voltage | $V_{CE} = 2\text{V}, I_C = 2\text{A}$ | | | 1.5 | V |
| f_T | Current Gain Bandwidth Product | $V_{CE} = 1\text{V}, I_C = 500\text{mA}$ | 3 | 12 | | MHz |

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

Typical characteristics

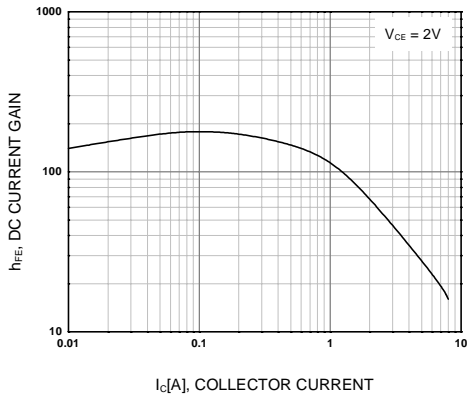


Figure 1. DC current Gain

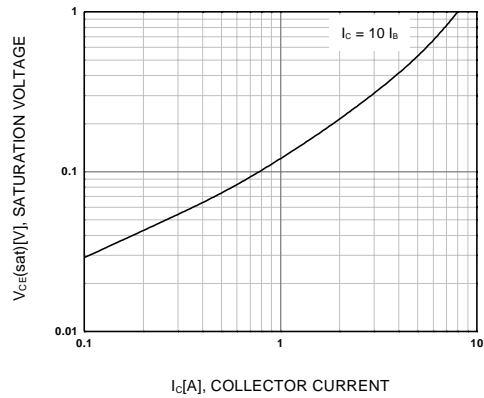


Figure 2. Collector-Emitter Saturation Voltage

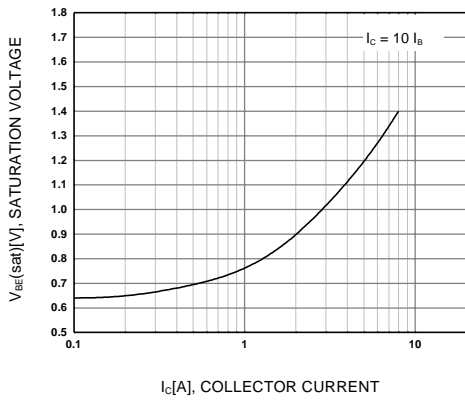


Figure 3. Base-Emitter Saturation Voltage

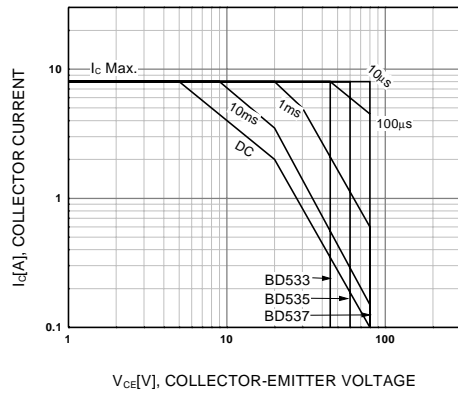


Figure 4. Safe Operating Area

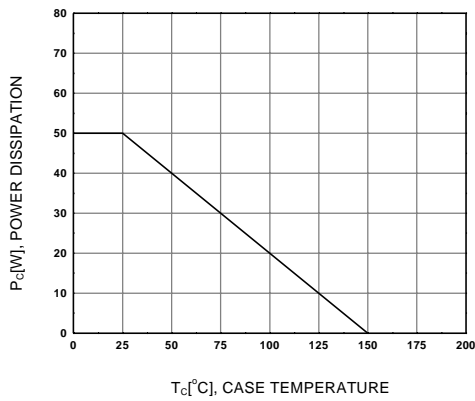


Figure 5. Power Derating

Package Dimensions

TO-220

BD533/535/537



Dimensions in Millimeters

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