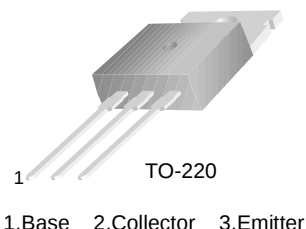


## BD534/536/538

### Medium Power Linear and Switching Applications

- Low Saturation Voltage
- Complement to BD533, BD535 and BD537 respectively



### PNP Epitaxial Silicon Transistor

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

| Symbol    | Parameter                                        | Value      | Units            |
|-----------|--------------------------------------------------|------------|------------------|
| $V_{CBO}$ | Collector-Base Voltage : BD534                   | - 45       | V                |
|           | : BD536                                          | - 60       | V                |
|           | : BD538                                          | - 80       | V                |
| $V_{CEO}$ | Collector-Emitter Voltage : BD534                | - 45       | V                |
|           | : BD536                                          | - 60       | V                |
|           | : BD538                                          | - 80       | V                |
| $V_{EBO}$ | Emitter-Base Voltage                             | - 5        | V                |
| $I_C$     | Collector Current (DC)                           | - 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 : BD534      | $V_{CB} = -45\text{V}, I_E = 0$            |      |       | - 100 | $\mu\text{A}$ |
|               | : BD536                                | $V_{CB} = -60\text{V}, I_E = 0$            |      |       | - 100 | $\mu\text{A}$ |
|               | : BD538                                | $V_{CB} = -80\text{V}, I_E = 0$            |      |       | - 100 | $\mu\text{A}$ |
| $I_{CES}$     | Collector Cut-off Current : BD534      | $V_{CE} = -45\text{V}, V_{BE} = 0$         |      |       | - 100 | $\mu\text{A}$ |
|               | : BD536                                | $V_{CE} = -60\text{V}, V_{BE} = 0$         |      |       | - 100 | $\mu\text{A}$ |
|               | : BD538                                | $V_{CE} = -80\text{V}, V_{BE} = 0$         |      |       | - 100 | $\mu\text{A}$ |
| $I_{EBO}$     | Emitter Cut-off Current                | $V_{EB} = -5\text{V}, I_C = 0$             |      |       | - 1   | mA            |
| $h_{FE}$      | * DC Current Gain : ALL DEVICE         | $V_{CE} = -2\text{V}, I_C = -500\text{mA}$ | 40   |       |       |               |
|               |                                        | $V_{CE} = -5\text{V}, I_C = -10\text{mA}$  | 20   |       |       |               |
|               |                                        |                                            | 15   |       |       |               |
|               |                                        | $V_{CE} = -2\text{V}, I_C = -2\text{A}$    | 25   |       |       |               |
| $h_{FE}$      | $h_{FE}$ Groups<br>J : 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 $\mu\text{s}$ , duty Cycle = 1.5% Pulsed

## Typical Characteristics

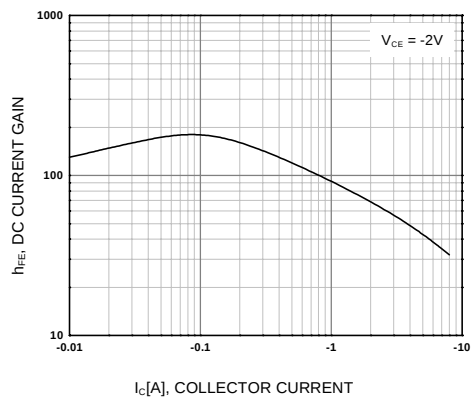


Figure 1. DC current Gain

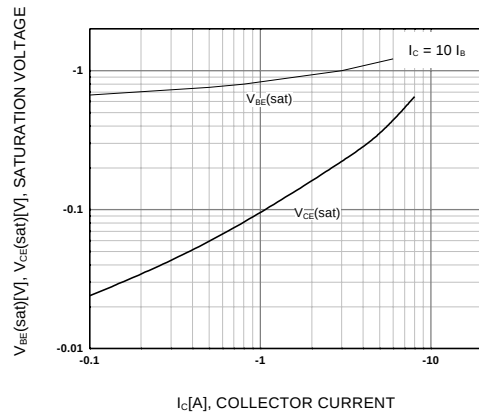


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

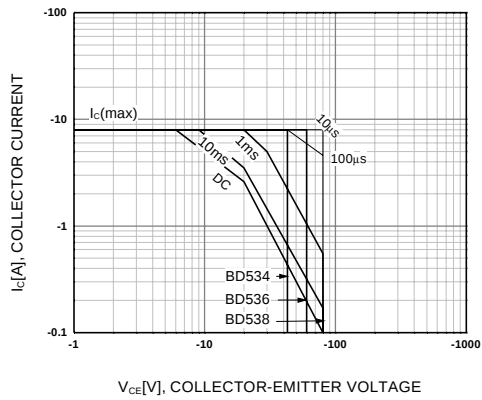


Figure 3. Safe Operating Area

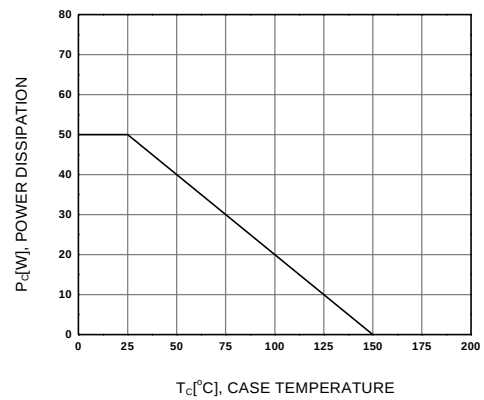
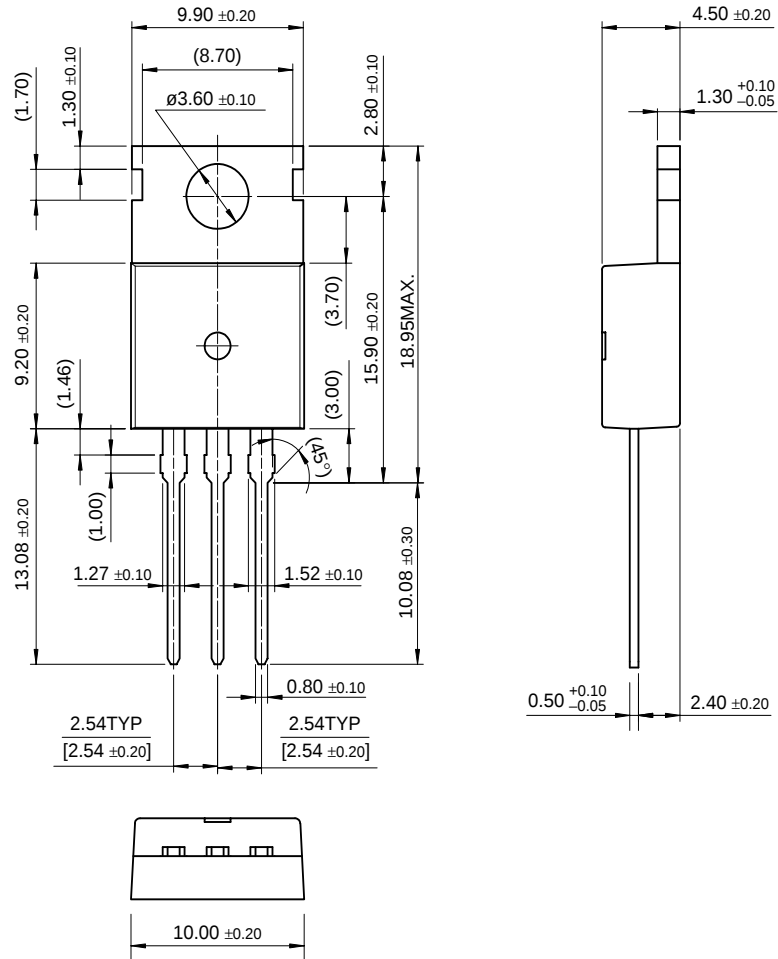


Figure 4. Power Derating

# Package Dimensions

## TO-220



Dimensions in Millimeters

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