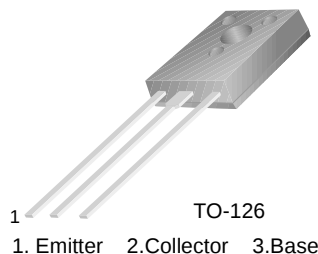


# BD234/236/238

## Medium Power Linear and Switching Applications

- Complement to BD 233/235/237 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                           |            |                  |
|           | : BD234                                          | - 45       | V                |
|           | : BD236                                          | - 60       | V                |
|           | : BD238                                          | - 100      | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                        |            |                  |
|           | : BD234                                          | - 45       | V                |
|           | : BD236                                          | - 60       | V                |
|           | : BD238                                          | - 80       | V                |
| $V_{CER}$ | Collector-Emitter Voltage                        |            |                  |
|           | : BD234                                          | - 45       | V                |
|           | : BD236                                          | - 60       | V                |
|           | : BD238                                          | - 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 |                                             |      |      |       |               |
|                | : BD234                                | $I_C = -100\text{mA}, I_B = 0$              | - 45 |      |       | V             |
|                | : BD236                                |                                             | - 60 |      |       | V             |
|                | : BD238                                |                                             | - 80 |      |       | V             |
| $I_{CBO}$      | Collector Cut-off Current              |                                             |      |      |       |               |
|                | : BD234                                | $V_{CB} = -45\text{V}, I_E = 0$             |      |      | - 100 | $\mu\text{A}$ |
|                | : BD236                                | $V_{CB} = -60\text{V}, I_E = 0$             |      |      | - 100 | $\mu\text{A}$ |
|                | : BD238                                | $V_{CB} = -100\text{V}, I_E = 0$            |      |      | - 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                      | $V_{CE} = -2\text{V}, I_C = -150\text{mA}$  | 40   |      |       |               |
|                |                                        | $V_{CE} = -2\text{V}, I_C = -1\text{A}$     | 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 $\mu\text{s}$ , duty Cycle=1.5% Pulsed

## Typical Characteristics

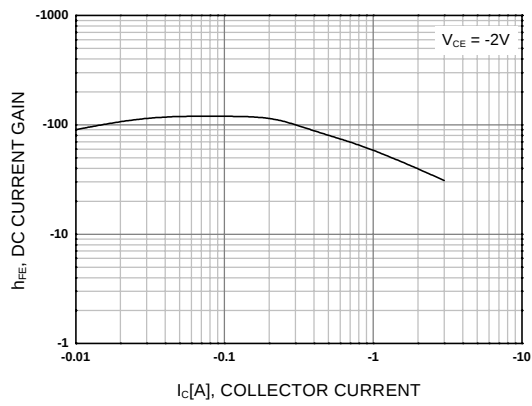


Figure 1. DC current Gain

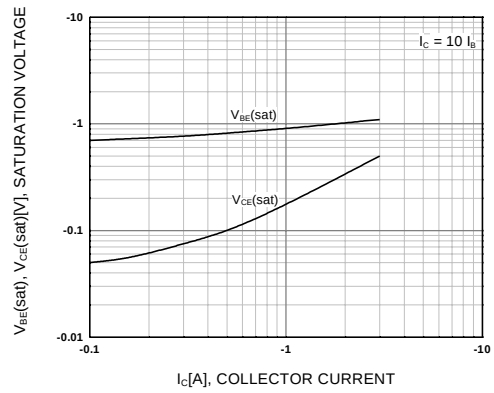


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

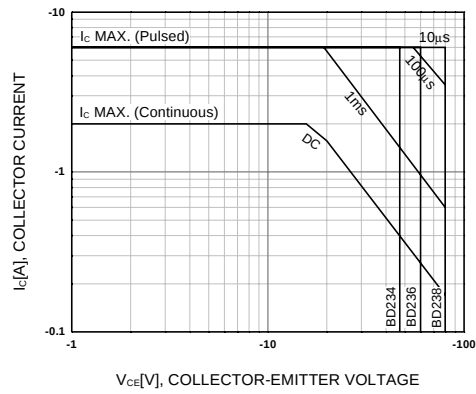


Figure 3. Safe Operating Area

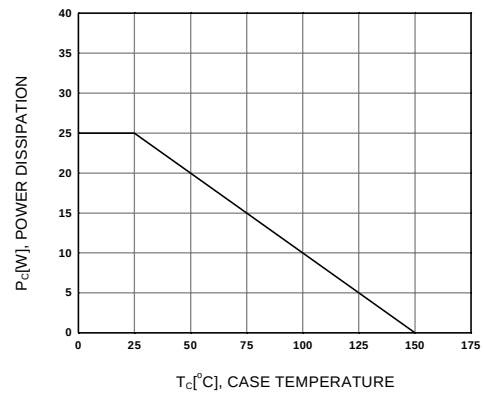
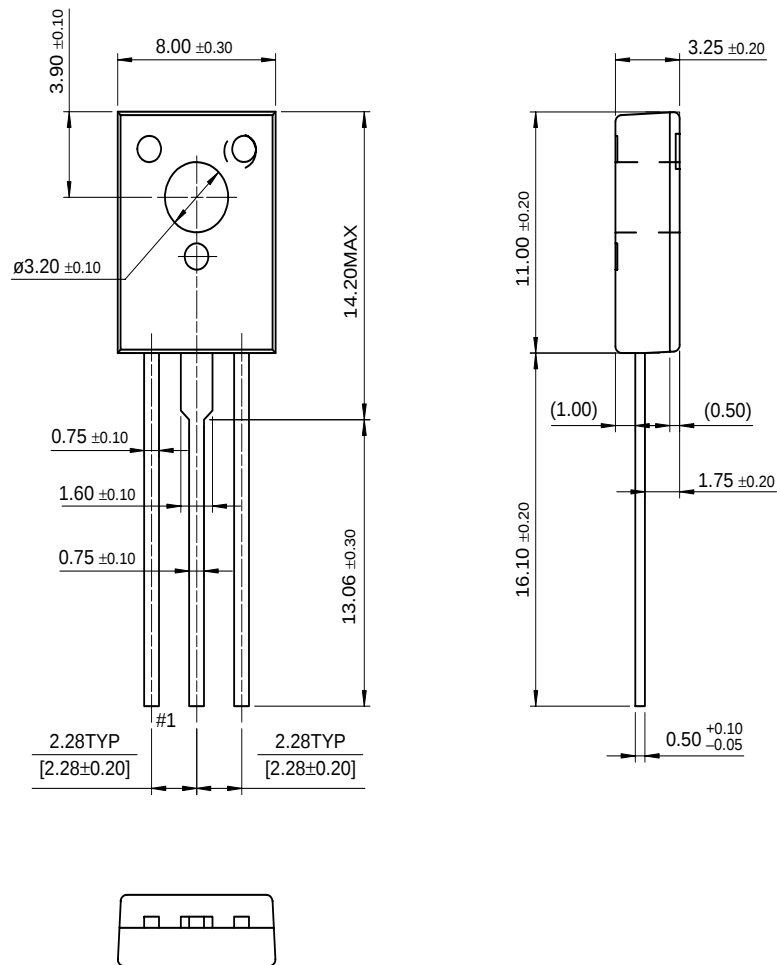


Figure 4. Power Derating

# Package Dimensions

## TO-126



Dimensions in Millimeters

BD234/236/238

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