

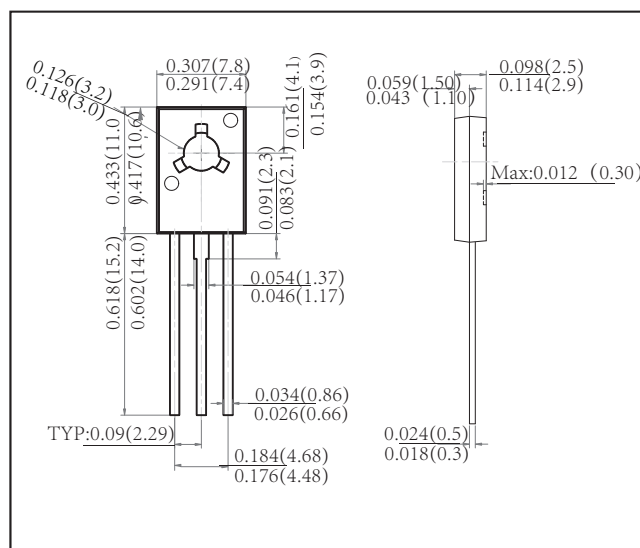
## TO-18 Plastic-Encapsulate Transistors

### FEATURES

- High Current
- Complement To BD135, BD137 And BD139
- TRANSISTOR (PNP)

### MECHANICAL DATA

- Case style:TO-18 molded plastic
- Mounting position:any



## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

| Symbol          | Parameter                                   | Value    | Unit |
|-----------------|---------------------------------------------|----------|------|
| $V_{CBO}$       | Collector-Base Voltage                      | BD136    | -45  |
|                 |                                             | BD138    | -60  |
|                 |                                             | BD140    | -80  |
| $V_{CEO}$       | Collector-Emitter Voltage                   | BD136    | -45  |
|                 |                                             | BD138    | -60  |
|                 |                                             | BD140    | -80  |
| $V_{EBO}$       | Emitter-Base Voltage                        | -5       | V    |
| $I_C$           | Collector Current                           | -1.5     | A    |
| $P_C$           | Collector Power Dissipation                 | 1.25     | W    |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient | 100      | °C/W |
| $T_j$           | Junction Temperature                        | 150      | °C   |
| $T_{stg}$       | Storage Temperature                         | -55~+150 | °C   |

## ELECTRICAL CHARACTERISTICS $T_a=25^{\circ}\text{C}$ unless otherwise specified

| Parameter                            | Symbol         | Test conditions                            | Min | Typ | Max  | Unit          |
|--------------------------------------|----------------|--------------------------------------------|-----|-----|------|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$  | $I_C = -0.1\text{mA}, I_E = 0$             |     |     |      | V             |
| BD136                                |                |                                            | -45 |     |      |               |
| BD138                                |                |                                            | -60 |     |      |               |
| BD140                                |                |                                            | -80 |     |      |               |
| Collector-emitter sustaining voltage | $V_{CEO(SUS)}$ | $I_C = -0.03\text{A}, I_B = 0$             |     |     |      | V             |
| BD136                                |                |                                            | -45 |     |      |               |
| BD138                                |                |                                            | -60 |     |      |               |
| BD140                                |                |                                            | -80 |     |      |               |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$  | $I_E = -0.1\text{mA}, I_C = 0$             | -5  |     |      | V             |
| Collector cut-off current            | $I_{CBO}$      | $V_{CB} = -30\text{V}, I_E = 0$            |     |     | -0.1 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$      | $V_{EB} = -5\text{V}, I_C = 0$             |     |     | -10  | $\mu\text{A}$ |
| DC current gain                      | $h_{FE(1)}$    | $V_{CE} = -2\text{V}, I_C = -150\text{mA}$ | 40  |     | 250  |               |
|                                      | $h_{FE(2)}$    | $V_{CE} = -2\text{V}, I_C = -5\text{mA}$   | 25  |     |      |               |
|                                      | $h_{FE(3)}$    | $V_{CE} = -2\text{V}, I_C = -500\text{mA}$ | 25  |     |      |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$  | $I_C = -500\text{mA}, I_B = -50\text{mA}$  |     |     | -0.5 | V             |
| Base-emitter voltage                 | $V_{BE}$       | $V_{CE} = -2\text{V}, I_C = -500\text{mA}$ |     |     | -1   | V             |

\*Pulse test: pulse width  $\leq 350\mu\text{s}$ , duty cycles 2.0%.

### CLASSIFICATION OF $h_{FE(1)}$

| RANK  | 6      | 10     | 16      |
|-------|--------|--------|---------|
| RANGE | 40-100 | 63-160 | 100-250 |

## RATINGS AND CHARACTERISTIC CURVES

