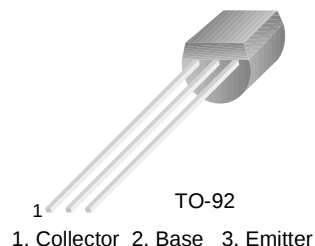


# BC516

BC516

## PNP Darlington Transistor

- This device is designed for applications requiring extremely high current gain at currents to 1mA.
- Sourced from process 61.



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

| Symbol         | Parameter                                        | Value      | Units            |
|----------------|--------------------------------------------------|------------|------------------|
| $V_{CEO}$      | Collector-Emitter Voltage                        | 30         | V                |
| $V_{CBO}$      | Collector-Base Voltage                           | 40         | V                |
| $V_{EBO}$      | Emitter-Base Voltage                             | 10         | V                |
| $I_C$          | Collector Current - Continuous                   | 1          | A                |
| $P_D$          | Total Power Dissipation $T_A = 25^\circ\text{C}$ | 625        | mW               |
| $T_J, T_{STG}$ | Operating and Storage Junction Temperature Range | -55 ~ +150 | $^\circ\text{C}$ |

## Electrical Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

| Symbol        | Parameter                            | Test Condition                                             | Min.   | Typ. | Max. | Units |
|---------------|--------------------------------------|------------------------------------------------------------|--------|------|------|-------|
| $V_{CEO}$     | Collector-Emitter Breakdown Voltage  | $I_C = 2\text{mA}, I_B = 0$                                | 30     |      |      | V     |
| $V_{CBO}$     | Collector-Base Breakdown Voltage     | $I_C = 100\mu\text{A}, I_E = 0$                            | 40     |      |      | V     |
| $V_{EBO}$     | Emitter-Base Breakdown Voltage       | $I_E = 10\mu\text{A}, I_C = 0$                             | 10     |      |      | V     |
| $I_{CBO}$     | Collector Cutoff Current             | $V_{CB} = 30\text{V}, I_E = 0$                             |        |      | 100  | nA    |
| $h_{FE}$      | DC Current Gain                      | $I_C = 20\text{mA}, V_{CE} = 2\text{V}$                    | 30,000 |      |      |       |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 100\text{mA}, I_B = 0.1\text{mA}$                   |        |      | 1    | V     |
| $V_{BE(on)}$  | Base-Emitter On Voltage              | $I_C = 10\text{mA}, V_{CE} = 5\text{V}$                    |        |      | 1.4  | V     |
| $f_T$         | Current Gain Bandwidth Product (2)   | $I_C = 10\text{mA}, V_{CE} = 5\text{V}, f = 100\text{MHz}$ |        | 200  |      | MHz   |

### NOTES:

- Pulse Test Pulse Width  $\leq 2\%$
- $f_T = |h_{FE}| \cdot f_{test}$

## Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

| Symbol          | Parameter                               | Max. | Units              |
|-----------------|-----------------------------------------|------|--------------------|
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 200  | $^\circ\text{C/W}$ |
| $R_{\theta JC}$ | Thermal Resistance, Junction to Case    | 83.3 | $^\circ\text{C/W}$ |

# Package Dimensions

## TO-92



Dimensions in Millimeters

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