# **Bipolar Transistor**

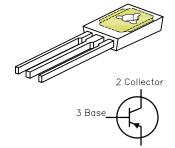




# Description:

Medium Power Plastic PNP, TO-126, Silicon Transistor. Designed for driver circuits, switching and amplifier applications.

# RoHS Compliant



### Features:

- Low Saturation Voltage : VcE(sat) 0.6V DC, Ic = 1A
- Excellent power dissipation due to Thermopad Construction PD = 30 @ Tc = 25°C

## **Absolute Maximum Ratings:**

| Characteristic   | Symbol | Rating           |
|--|--------|------------------|
| Collector - Base Voltage                                 | Vсво   | 80V              |
| Collector - Emitter Voltage                              | Vceo   | 80V              |
| Emitter - Base Voltage                                   | VEBO   | 5V               |
| Continuous Collector Current                             | Ic     | 1A               |
| Base Current   | lв     | 1A               |
| Total Device Dissipation (Tc = +25°C)  Derate above 25°C | Pb     | 30W<br>0.24mW/°C |
| Operating Junction Temperature Range                     | TJ     | -65°C to +150°C  |
| Storage Temperature Range                                | Тѕтс   | -65°C to +150°C  |

## Electrical Characteristics (TA = 25°C unless otherwise specified)

| Parameter                                      | Symbol          | Test Conditions                           | Min. | Max. | Unit |
|--|-----------------|---|------|------|------|
| OFF Characteristics                            |                 |   |      |      |      |
| Collector - Emitter Breakdown Voltage (Note 1) | V(BR)CEO        | Ic = 100mA, I <sub>B</sub> = 0            | 80   | -    | V    |
| Collector Cut-off Current                      | ICEX            | Vce = 80V, IeB(off) = 1.5V                | -    | 0.1  | mA   |
|  | ICEO            | V <sub>CB</sub> = 40V, I <sub>B</sub> = 0 | -    | 0.5  | mA   |
| Collector Cut-off Current                      | Ісво            | V <sub>EB</sub> = 80V, I <sub>E</sub> = 0 | -    | 0.1  | mA   |
| Emitter Cut-off Current                        | ІЕВО            | V <sub>EB</sub> = 5V, I <sub>C</sub> = 0  | -    | 1    | mA   |
| ON Characteristics (Note 1)                    |                 |   |      |      |      |
| DC Current Gain                                |                 | VcE = 1V, Ic = 50mA                       | 40   | -    | -    |
|  | h <sub>fe</sub> | Vce = 1V, Ic = 1,500mA                    | 30   | 150  | -    |
|  |                 | Vce = 1V, Ic = 1A                         | 10   | -    | -    |

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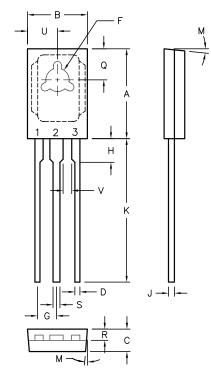


| Parameter                              | Symbol                | Test Conditions                 | Min. | Max. | Unit |
|--|-----------------------|---------------------------------|------|------|------|
| Collector - Emitter Saturation Voltage | Vce(sat)              | Ic = 1A, I <sub>B</sub> = 100mA | -    | 0.6  | V    |
| Dage Emitter Caturation Voltage        | VBE(on)               | Ic = 1A, I <sub>B</sub> = 1V    | -    | 1.3  | \/   |
| Base - Emitter Saturation Voltage      | V <sub>BE</sub> (sat) | Ic = 1A, I <sub>B</sub> = 100mA | -    | 1.3  | V    |

#### **Small-Signal Characteristics**

| Current Gain - Bandwidth Product | fτ              | VcE = 10V, Ic = 250mA, f = 1kHz | 3  | -   | MHz |
|----------------------------------|-----------------|---------------------------------|----|-----|-----|
| Output Capacitance               | Сово            | VcB = 10V, IE = 0, f = 100kHz   | -  | 100 | pF  |
| Input Impedance                  | h <sub>fe</sub> | Vce = 10V, Ic = 1mA, f = 1kHz   |    |     | 1.0 |
|                                  |                 | VcE = 10V, Ic = 10mA, f = 1kHz  | -  | -   | kΩ  |
| Small-Signal Current Gain        | h <sub>fe</sub> | VcE = 10V, Ic = 250mA, f = 1kHz | 25 | -   | -   |

**Note 1**: Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ 



#### **Pin Configuration:**

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

| Dim. | Min.   | Max.  |  |
|------|--------|-------|--|
| Α    | 10.8   | 11.05 |  |
| В    | 7.49   | 7.75  |  |
| С    | 2.41   | 2.67  |  |
| D    | 0.51   | 0.66  |  |
| F    | 2.92   | 3.18  |  |
| G    | 2.31   | 2.46  |  |
| Н    | 1.27   | 2.41  |  |
| J    | 0.38   | 0.64  |  |
| K    | 15.11  | 16.64 |  |
| М    | 3° TYP |       |  |
| Q    | 3.76   | 4.01  |  |
| R    | 1.14   | 1.4   |  |
| S    | 0.64   | 0.89  |  |
| U    | 3.68   | 3.94  |  |
| V    | 1.02   | -     |  |

Dimensions: Millimetres

### **Part Number Table**

| Description                              | Part Number |  |  |
|--|-------------|--|--|
| Bipolar Transistor, PNP, 1A, 80V, TO-126 | 2N4920      |  |  |

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