

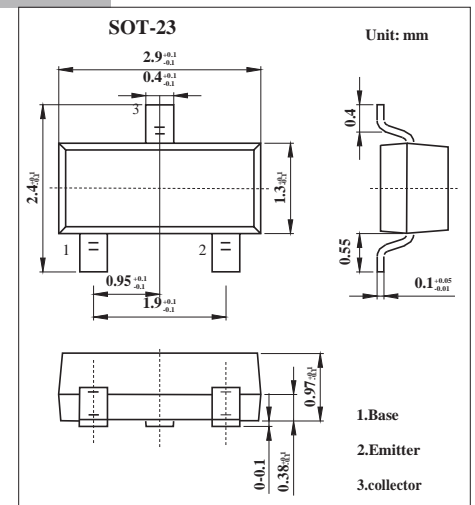
## SOT-23 Plastic-Encapsulate Transistors

### Features

- Low current (max. 100 mA).
- Low voltage (max. 65 V).
- PNP General Purpose Transistor

### MECHANICAL DATA

- Case style: SOT-23 molded plastic
- Mounting position: any



### MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

| Parameter                                     | Symbol             | BC856       | BC857 | BC858 | Unit |
|---|--------------------|-------------|-------|-------|------|
| Collector-base voltage                        | V <sub>CB0</sub>   | -80         | -50   | -30   | V    |
| Collector-emitter voltage                     | V <sub>CE0</sub>   | -65         | -45   | -30   | V    |
| Emitter-base voltage                          | V <sub>EB0</sub>   | -5          |       |       | V    |
| Collector current                             | I <sub>C</sub>     | -100        |       |       | mA   |
| Peak collector current                        | I <sub>CM</sub>    | -200        |       |       | mA   |
| Peak base current                             | I <sub>BM</sub>    | -200        |       |       | mA   |
| Total power dissipation *                     | P <sub>tot</sub>   | 250         |       |       | mW   |
| Junction temperature                          | T <sub>j</sub>     | 150         |       |       | °C   |
| Storage temperature                           | T <sub>stg</sub>   | -65 to +150 |       |       | °C   |
| Operating ambient temperature                 | R <sub>amb</sub>   | -65 to +150 |       |       | °C   |
| Thermal resistance from junction to ambient * | R <sub>thj-a</sub> | 500         |       |       | K/W  |

\* Transistor mounted on an FR4 printed-circuit board, standard footprint.

| Parameter                            | Symbol               | Testconditons  | Min  | Typ  | Max  | Unit |
|--------------------------------------|----------------------|--|------|------|------|------|
| Collector cutoff current             | I <sub>CB0</sub>     | V <sub>CB</sub> = -30 V, I <sub>E</sub> = 0  |      | -1   | -15  | nA   |
|                                      | I <sub>CB0</sub>     | V <sub>CB</sub> = -30 V, I <sub>E</sub> = 0, T <sub>j</sub> = 150 °C                         |      |      | -4   | µA   |
| Emitter cutoff current               | I <sub>EB0</sub>     | V <sub>EB</sub> = -5 V, I <sub>C</sub> = 0   |      |      | -100 | nA   |
| DC current gain                      | BC856                | I <sub>C</sub> = -2 mA; V <sub>CE</sub> = -5 V   | 125  |      | 475  |      |
|                                      | BC857                |  | 125  |      | 800  |      |
|                                      | BC856A,BC857A        |  | 125  |      | 250  |      |
|                                      | BC856B,BC857B,BC858B |  | 220  |      | 475  |      |
|                                      | BC857C               |  | 420  |      | 800  |      |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> = -10 mA; I <sub>B</sub> = -0.5 mA  |      | -75  | -300 | mV   |
|                                      |                      | I <sub>C</sub> = -100 mA; I <sub>B</sub> = -5 mA;  |      | -250 | -650 | mV   |
| Base-emitter saturation voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> = -10 mA; I <sub>B</sub> = -0.5 mA  |      | -700 |      | mV   |
|                                      |                      | I <sub>C</sub> = -100 mA; I <sub>B</sub> = -5 mA;  |      | -850 |      | mV   |
| Base-emitter voltage                 | V <sub>BE</sub>      | I <sub>C</sub> = -2 mA; V <sub>CE</sub> = -5 V   | -600 | -650 | -750 | mV   |
|                                      |                      | I <sub>C</sub> = -10 mA; V <sub>CE</sub> = -5 V  |      |      | -820 | mV   |
| Collector capacitance                | C <sub>C</sub>       | V <sub>CB</sub> = -10 V; I <sub>E</sub> = I <sub>C</sub> = 0; f = 1 MHz                      |      | 4.5  |      | pF   |
| Transition frequency                 | f <sub>T</sub>       | V <sub>CE</sub> = -5 V; I <sub>C</sub> = -10 mA; f = 100 MHz                                 | 100  |      |      | MHz  |
| Noise figure                         | NF                   | I <sub>C</sub> = -200 µA; V <sub>CE</sub> = -5V; R <sub>S</sub> = 2KΩ; f = 1 kHz; B = 200 Hz |      | 2    | 10   | dB   |

\* Pulse test: t<sub>p</sub> ≤ 300µs, δ ≤ 0.02.

#### hFE Classification

| TYPE    | BC856 | BC856A | BC856B | BC857 | BC857A | BC857B | BC857C | BC858B |
|---------|-------|--------|--------|-------|--------|--------|--------|--------|
| Marking | 3D    | 3A     | 3B     | 3H    | 3E     | 3F     | 3G     | 3K     |