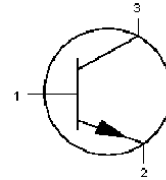


### Features:

- Silicon planar epitaxial transistors
- General purpose NPN transistors



### Pin Configuration:

1. Base
2. Emitter
3. Collector

### Absolute Maximum Ratings:

| Description                                                                                                                | Symbol    |      | BC847B | Units            |
|----------------------------------------------------------------------------------------------------------------------------|-----------|------|--------|------------------|
| Collector-Emitter Voltage ( $V_{BE} = 0$ )                                                                                 | $V_{CES}$ | Max. | 50     | V                |
| Collector-Emitter Voltage (Open Base)                                                                                      | $V_{CEO}$ |      | 45     |                  |
| Collector Current (Peak Value)                                                                                             | $I_{CM}$  |      | 200    | mA               |
| Total Power Dissipation up to $T_a = 25^\circ\text{C}$                                                                     | $P_{tot}$ |      | 250    | mW               |
| Junction Temperature                                                                                                       | $T_j$     |      | 150    | $^\circ\text{C}$ |
| Small-Signal Current Gain<br>$I_C = 2\text{mA}; V_{CE} = 5\text{V}; f = 1\text{kHz}$                                       | $h_{fe}$  | Min. | 125    | -                |
| Transition Frequency at $f = 100\text{MHz}$<br>$I_C = 10\text{mA}; V_{CE} = 5\text{V}$                                     | $f_T$     |      | >100   | MHz              |
| Noise Figure at $R_S = 2\text{k}\Omega$<br>$I_C = 200\text{mA}; V_{CE} = 5\text{V}$<br>$f = 1\text{kHz}; B = 200\text{Hz}$ | F         | Typ. | 2      | dB               |

### Ratings (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Description                                | Symbol    |      | BC847B | Units |
|--------------------------------------------|-----------|------|--------|-------|
| Collector-Base Voltage (Open Emitter)      | $V_{CBO}$ | Max. | 50     | V     |
| Collector-Emitter Voltage ( $V_{BE} = 0$ ) | $V_{CES}$ |      |        |       |
| Collector-Emitter Voltage (Open Base)      | $V_{CEO}$ |      |        |       |
| Emitter-Base Voltage (Open Collector)      | $V_{EBO}$ |      |        |       |
| Collector Current (DC)                     | $I_C$     |      | 100    | mA    |

## Ratings (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

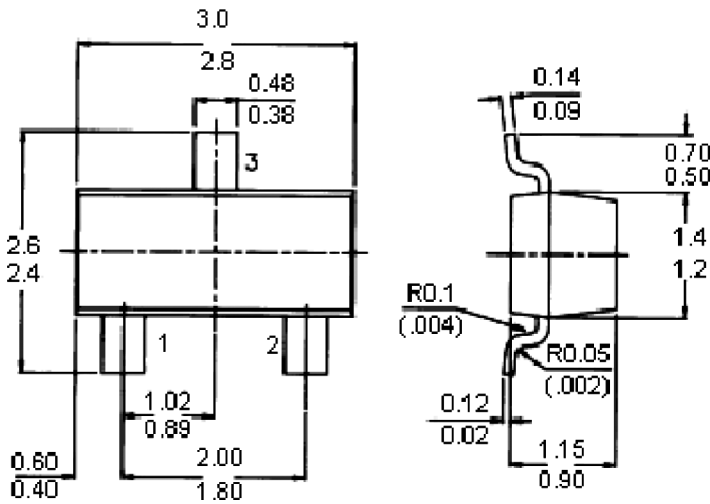
| Description                                          | Symbol    |      | BC847B      | Units |
|------------------------------------------------------|-----------|------|-------------|-------|
| Collector Current (Peak Value)                       | $I_{CM}$  | Max. | 200         | mA    |
| Emitter Current (Peak Value)                         | $-I_{EM}$ |      |             |       |
| Base Current (Peak Value)                            | $I_{BM}$  |      |             |       |
| Total Power Dissipation upto $T_a: 25^\circ\text{C}$ | $P_{tot}$ |      | 250         | mW    |
| Storage Temperature                                  | $T_{stg}$ | -    | -55 to +150 | °C    |
| Junction Temperature                                 | $T_j$     | Max. | 150         |       |

## Thermal Resistance

|                          |               |   |     |     |
|--------------------------|---------------|---|-----|-----|
| From Junction to Ambient | $R_{th(j-a)}$ | = | 500 | K/W |
|--------------------------|---------------|---|-----|-----|

## Characteristics ( $T_j = 25^\circ\text{C}$ unless otherwise specified)

|                                                                                                                   |                                |                        |                          |                     |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------|--------------------------|---------------------|
| Collector Cut off Current<br>$I_E = 0; V_{CB} = 30V$<br>$I_E = 0; V_{CB} = 30V; T_j = 150^\circ\text{C}$          | $I_{CBO}$                      | <                      | 15<br>5                  | nA<br>$\mu\text{A}$ |
| Base-Emitter Voltage<br>$I_C = 2\text{mA}; V_{CE} = 5V$<br>$I_C = 10\text{mA}; V_{CE} = 5V$                       | $V_{BE}$<br>$V_{BE}$           | Typ.<br><              | 660<br>580 to 700<br>770 | mV                  |
| Saturation Voltage                                                                                                | $V_{CE(sat)}$                  | Typ.                   | 90                       |                     |
| $I_C = 10\text{mA}; I_B = 0.5\text{mA}$                                                                           | $V_{BE(sat)}$                  | <<br>Typ.              | 250<br>700               |                     |
| $I_C = 100\text{mA}; I_B = 5\text{mA}$                                                                            | $V_{CE(sat)}$<br>$V_{BE(sat)}$ | Typ.<br><<br>Typ.      | 200<br>600<br>900        |                     |
| Collector Capacitance at $f = 1\text{MHz}$<br>$I_E = I_e = 0; V_{CB} = 10V$                                       | $C_C$                          | Typ.                   | 2.5                      | pF                  |
| Transition Frequency at $f = 100\text{MHz}$<br>$I_C = 10\text{mA}; V_{CE} = 5V$                                   | $f_T$                          | >                      | 100                      | MHz                 |
| Noise Figure at $R_S = 2\text{KW}$<br>$I_C = 200\mu\text{A}; V_{CE} = 5V;$<br>$f = 1\text{kHz}; B = 200\text{Hz}$ | F                              | Typ.<br>Max.           | 2<br>10                  | dB                  |
| DC Current Gain<br>$I_C = 10\text{mA}; V_{CE} = 5V$<br>$I_C = 2\text{mA}; V_{CE} = 5V$                            | $h_{FE}$                       | Typ.<br>><br>Typ.<br>< | 150<br>200<br>290<br>450 | -                   |
| Small Signal Current Gain at $f = 1\text{kHz}$<br>$I_C = 2\text{mA}; V_{CE} = 5V$                                 | $h_{fe}$                       | Min.<br>Max.           | 125<br>900               | -                   |



Dimensions : Millimetres

**Pin Configuration:**

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

**Part Number Table**

| Description             | Part Number |
|-------------------------|-------------|
| Transistor, NPN, SOT-23 | BC847B      |

**Important Notice :** This data sheet and its contents (the "Information") belong to the members of the AVNET group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp Pro is the registered trademark of Premier Farnell Limited 2019.