

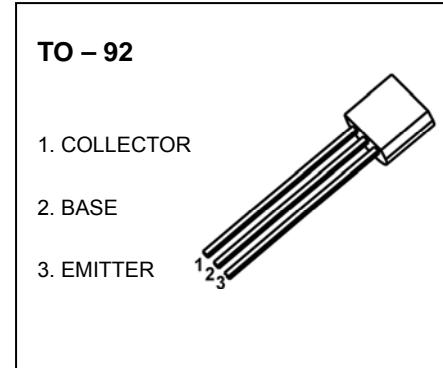


## TO-92 Plastic-Encapsulate Transistors

### BC546/BC547/BC548 TRANSISTOR (NPN)

#### FEATURES

- High Voltage
- Complement to BC556,BC557,BC558



#### MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

| Symbol          | Parameter                                   | Value    | Unit |
|-----------------|---|----------|------|
| $V_{CBO}$       | Collector-Base Voltage                      | BC546    | 80   |
|                 |   | BC547    | 50   |
|                 |   | BC548    | 30   |
| $V_{CEO}$       | Collector-Emitter Voltage                   | BC546    | 65   |
|                 |   | BC547    | 45   |
|                 |   | BC548    | 30   |
| $V_{EBO}$       | Emitter-Base Voltage                        | BC546    | 6    |
|                 |   | BC547    | 6    |
|                 |   | BC548    | 5    |
| $I_C$           | Collector Current-Continuous                | 0.1      | A    |
| $P_c$           | Collector Power Dissipation                 | 625      | mW   |
| $R_{\theta JA}$ | Thermal Resistance from Junction to Ambient | 200      | °C/W |
| $T_j$           | Junction Temperature                        | 150      | °C   |
| $T_{stg}$       | Storage Temperature                         | -55~+150 | °C   |

**ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)**

| Parameter                                   | Symbol               | Test conditions                           | Min   | Typ  | Max  | Unit |
|---|----------------------|---|---|------|------|------|
| <b>Collector-base breakdown voltage</b>     | BC546                | V <sub>(BR)CBO</sub>                      | I <sub>C</sub> = 0.1mA, I <sub>E</sub> =0           | 80   |      |      |
|   | BC547                |   |   | 50   |      |      |
|   | BC548                |   |   | 30   |      |      |
| <b>Collector-emitter breakdown voltage</b>  | BC546                | V <sub>(BR)CEO</sub>                      | I <sub>C</sub> =1mA, I <sub>B</sub> =0              | 65   |      |      |
|   | BC547                |   |   | 45   |      |      |
|   | BC548                |   |   | 30   |      |      |
| <b>Emitter-base breakdown voltage</b>       | BC546                | V <sub>(BR)EBO</sub>                      | I <sub>E</sub> =10μA, I <sub>C</sub> =0             | 6    |      |      |
|   | BC547                |   |   | 6    |      |      |
|   | BC548                |   |   | 5    |      |      |
| <b>Collector cut-off current</b>            | BC546                | I <sub>CBO</sub>                          | V <sub>CB</sub> =70V, I <sub>E</sub> =0             |      | 0.1  | μA   |
|   | BC547                |   | V <sub>CB</sub> =50V, I <sub>E</sub> =0             |      | 0.1  | μA   |
|   | BC548                |   | V <sub>CB</sub> =30V, I <sub>E</sub> =0             |      | 0.1  | μA   |
| <b>Collector cut-off current</b>            | BC546                | I <sub>CEO</sub>                          | V <sub>CE</sub> =60V, I <sub>B</sub> =0             |      | 0.1  | μA   |
|   | BC547                |   | V <sub>CE</sub> =45V, I <sub>B</sub> =0             |      | 0.1  | μA   |
|   | BC548                |   | V <sub>CE</sub> =30V, I <sub>B</sub> =0             |      | 0.1  | μA   |
| <b>Emitter cut-off current</b>              | I <sub>EBO</sub>     |   | V <sub>EB</sub> =5V, I <sub>C</sub> =0              |      | 0.1  | μA   |
| <b>DC current gain</b>                      | $h_{FE}^*$           |   | V <sub>CE</sub> =5V, I <sub>C</sub> =2mA            | 110  | 800  |      |
| <b>Collector-emitter saturation voltage</b> | V <sub>CE(sat)</sub> |   | I <sub>C</sub> =100mA, I <sub>B</sub> =5mA          |      | 0.3  | V    |
| <b>Base-emitter saturation voltage</b>      | V <sub>BE(sat)</sub> |   | I <sub>C</sub> =100mA, I <sub>B</sub> =5mA          |      | 1.1  | V    |
| <b>Base-emitter voltage</b>                 | V <sub>BE</sub>      | V <sub>CE</sub> =5V, I <sub>C</sub> =2mA  |   | 0.58 | 0.7  | V    |
|   |                      | V <sub>CE</sub> =5V, I <sub>C</sub> =10mA |   |      | 0.75 | V    |
| <b>Collector output capacitance</b>         | C <sub>ob</sub>      |   | V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1MHz     |      | 4.5  | pF   |
| <b>Transition frequency</b>                 | f <sub>T</sub>       |   | V <sub>CE</sub> =5V, I <sub>C</sub> =10mA, f=100MHz | 150  |      | MHz  |

**CLASSIFICATION of h<sub>FE</sub>**

| RANK  | A       | B       | C       |
|-------|---------|---------|---------|
| RANGE | 110-220 | 200-450 | 420-800 |

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