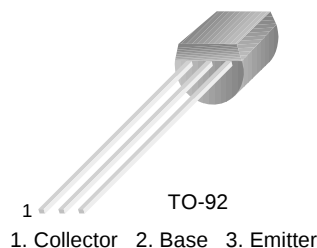


## BC546/547/548/549/550

### Switching and Applications

- High Voltage: BC546,  $V_{CE0}=65V$
- Low Noise: BC549, BC550
- Complement to BC556 ... BC560



### NPN Epitaxial Silicon Transistor

#### Absolute Maximum Ratings $T_a=25^\circ C$ unless otherwise noted

| Symbol    | Parameter                         | Value     | Units      |
|-----------|-----------------------------------|-----------|------------|
| $V_{CBO}$ | Collector-Base Voltage : BC546    | 80        | V          |
|           | : BC547/550                       | 50        | V          |
|           | : BC548/549                       | 30        | V          |
| $V_{CEO}$ | Collector-Emitter Voltage : BC546 | 65        | V          |
|           | : BC547/550                       | 45        | V          |
|           | : BC548/549                       | 30        | V          |
| $V_{EBO}$ | Emitter-Base Voltage : BC546/547  | 6         | V          |
|           | : BC548/549/550                   | 5         | V          |
| $I_C$     | Collector Current (DC)            | 100       | mA         |
| $P_C$     | Collector Power Dissipation       | 500       | mW         |
| $T_J$     | Junction Temperature              | 150       | $^\circ C$ |
| $T_{STG}$ | Storage Temperature               | -65 ~ 150 | $^\circ C$ |

#### Electrical Characteristics $T_a=25^\circ C$ unless otherwise noted

| Symbol        | Parameter                                                         | Test Condition                    | Min. | Typ. | Max. | Units |
|---------------|-------------------------------------------------------------------|-----------------------------------|------|------|------|-------|
| $I_{CBO}$     | Collector Cut-off Current                                         | $V_{CB}=30V, I_E=0$               |      |      | 15   | nA    |
| $h_{FE}$      | DC Current Gain                                                   | $V_{CE}=5V, I_C=2mA$              | 110  |      | 800  |       |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage                              | $I_C=10mA, I_B=0.5mA$             |      | 90   | 250  | mV    |
|               |                                                                   | $I_C=100mA, I_B=5mA$              |      | 200  | 600  | mV    |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage                                   | $I_C=10mA, I_B=0.5mA$             |      | 700  |      | mV    |
|               |                                                                   | $I_C=100mA, I_B=5mA$              |      | 900  |      | mV    |
| $V_{BE(on)}$  | Base-Emitter On Voltage                                           | $V_{CE}=5V, I_C=2mA$              | 580  | 660  | 700  | mV    |
|               |                                                                   | $V_{CE}=5V, I_C=10mA$             |      |      | 720  | mV    |
| $f_T$         | Current Gain Bandwidth Product                                    | $V_{CE}=5V, I_C=10mA, f=100MHz$   |      | 300  |      | MHz   |
| $C_{ob}$      | Output Capacitance                                                | $V_{CB}=10V, I_E=0, f=1MHz$       |      | 3.5  | 6    | pF    |
| $C_{ib}$      | Input Capacitance                                                 | $V_{EB}=0.5V, I_C=0, f=1MHz$      |      | 9    |      | pF    |
| NF            | Noise Figure : BC546/547/548<br>: BC549/550<br>: BC549<br>: BC550 | $V_{CE}=5V, I_C=200\mu A$         |      | 2    | 10   | dB    |
|               |                                                                   | $f=1KHz, R_G=2K\Omega$            |      | 1.2  | 4    | dB    |
|               |                                                                   | $V_{CE}=5V, I_C=200\mu A$         |      | 1.4  | 4    | dB    |
|               |                                                                   | $R_G=2K\Omega, f=30\sim 15000MHz$ |      | 1.4  | 3    | dB    |

### $h_{FE}$ Classification

| Classification | A         | B         | C         |
|----------------|-----------|-----------|-----------|
| $h_{FE}$       | 110 ~ 220 | 200 ~ 450 | 420 ~ 800 |

## Typical Characteristics

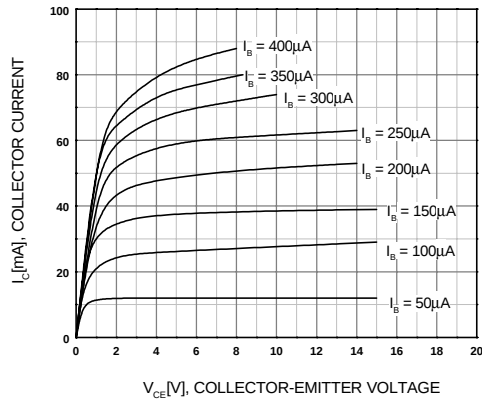


Figure 1. Static Characteristic

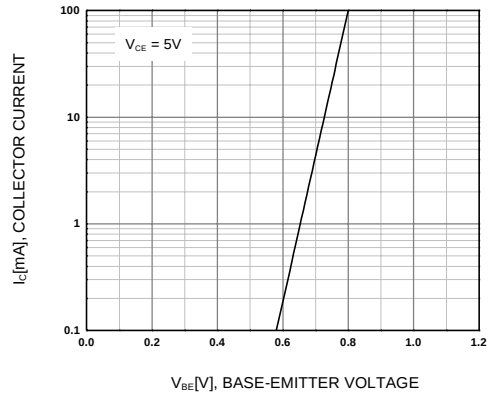


Figure 2. Transfer Characteristic

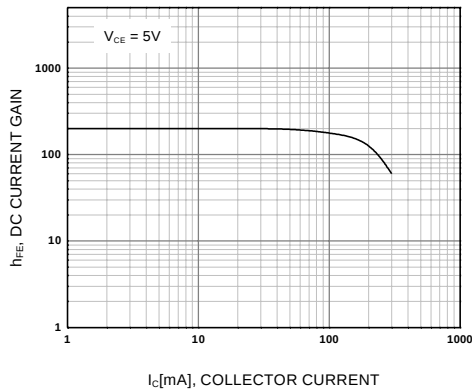


Figure 3. DC current Gain

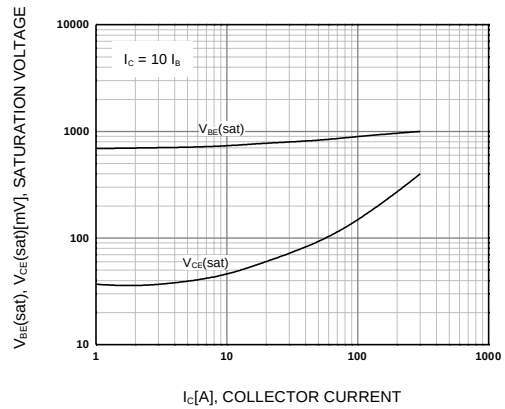


Figure 4. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

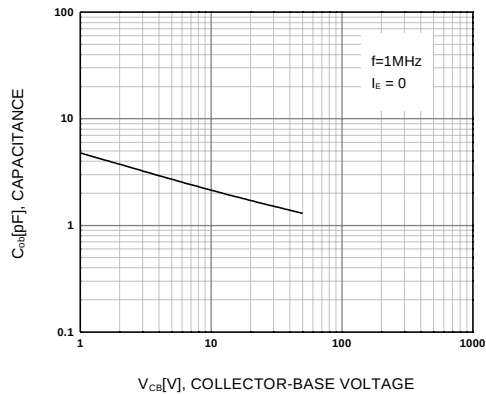


Figure 5. Output Capacitance

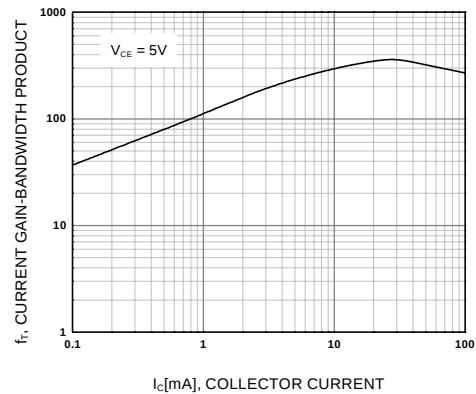
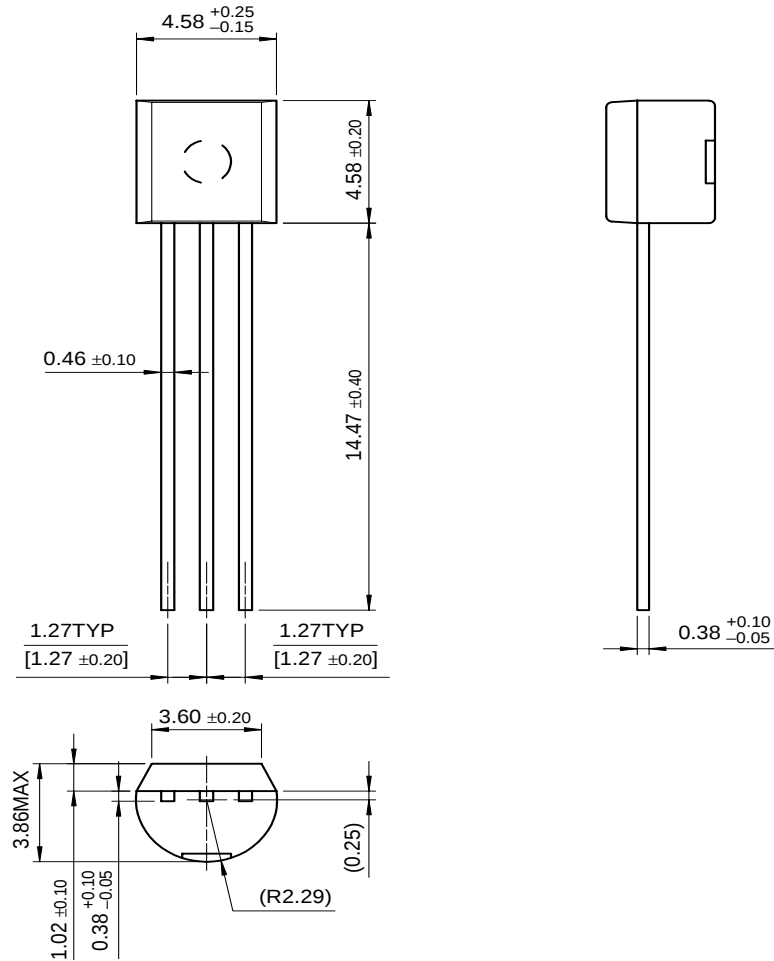


Figure 6. Current Gain Bandwidth Product

## Package Dimensions

TO-92



Dimensions in Millimeters

BC546/547/548/549/550

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