

## 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                 |                                   | 2    | 10   | dB    |
|               |                                      | : BC549/550                     | $f=1KHz, R_G=2K\Omega$            | 1.2  | 4    | dB    |
|               |                                      | : BC549                         | $V_{CE}=5V, I_C=200\mu A$         | 1.4  | 4    | dB    |
|               |                                      | : BC550                         | $R_G=2K\Omega, f=30\sim 15000MHz$ | 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

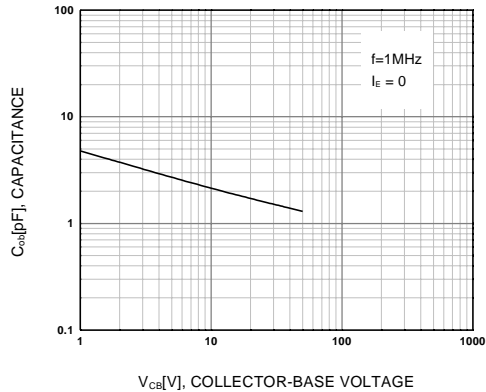


Figure 5. Output Capacitance

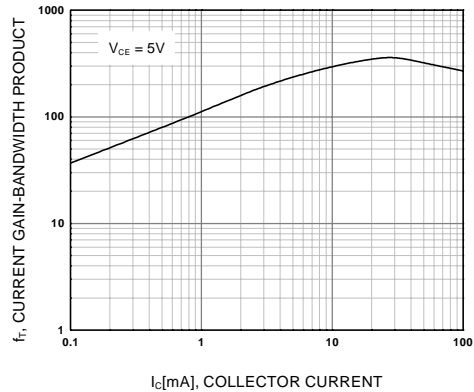


Figure 6. Current Gain Bandwidth Product

# Package Dimensions

## TO-92



BC546/547/548/549/550

Dimensions in Millimeters

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