

## PNP Silicon Epitaxial Planar Transistor

for switching and amplifier applications



1. Collector 2. Base 3. Emitter  
TO-92 Plastic Package

### Absolute Maximum Ratings ( $T_a = 25\text{ }^\circ\text{C}$ )

| Parameter                 | Symbol     | BC307         | BC308 | Unit             |
|---------------------------|------------|---------------|-------|------------------|
| Collector Base Voltage    | $-V_{CBO}$ | 50            | 30    | V                |
| Collector Emitter Voltage | $-V_{CEO}$ | 45            | 25    | V                |
| Emitter Base Voltage      | $-V_{EBO}$ | 5             |       | V                |
| Collector Current         | $-I_C$     | 100           |       | mA               |
| Total Power Dissipation   | $P_{tot}$  | 500           |       | mW               |
| Junction Temperature      | $T_j$      | 150           |       | $^\circ\text{C}$ |
| Storage Temperature Range | $T_s$      | - 55 to + 150 |       | $^\circ\text{C}$ |

### Characteristics at $T_a = 25\text{ }^\circ\text{C}$

| Parameter   | Symbol         | Min.           | Max. | Unit |    |
|---|----------------|----------------|------|------|----|
| DC Current Gain<br>at $-V_{CE} = 5\text{ V}$ , $-I_C = 2\text{ mA}$<br>Current Gain Group   | A              | $h_{FE}$       | 120  | 220  | -  |
|   | B              | $h_{FE}$       | 180  | 460  | -  |
|   | C              | $h_{FE}$       | 380  | 800  | -  |
| Collector Base Cutoff Current<br>at $-V_{CB} = 50\text{ V}$<br>at $-V_{CB} = 30\text{ V}$   | BC307          | $-I_{CBO}$     | -    | 15   | nA |
|   | BC308          | $-I_{CBO}$     | -    | 15   | nA |
| Collector Emitter Breakdown Voltage<br>at $-I_C = 2\text{ mA}$  | BC307          | $-V_{(BR)CEO}$ | 45   | -    | V  |
|   | BC308          | $-V_{(BR)CEO}$ | 25   | -    | V  |
| Emitter Base Breakdown Voltage<br>at $-I_E = 100\text{ }\mu\text{A}$  | $-V_{(BR)EBO}$ | 5              | -    | V    |    |
| Collector Emitter Saturation Voltage<br>at $-I_C = 10\text{ mA}$ , $-I_B = 0.5\text{ mA}$<br>at $-I_C = 100\text{ mA}$ , $-I_B = 5\text{ mA}$ | $-V_{CE(sat)}$ | -              | 0.3  | V    |    |
|   | $-V_{CE(sat)}$ | -              | 0.6  | V    |    |
| Base Emitter On Voltage<br>at $-V_{CE} = 5\text{ V}$ , $-I_C = 2\text{ mA}$   | $-V_{BE(on)}$  | 0.55           | 0.7  | V    |    |
| Current Gain Bandwidth Product<br>at $-V_{CE} = 5\text{ V}$ , $-I_C = 10\text{ mA}$ , $f = 100\text{ MHz}$                                    | $f_T$          | 100            | -    | MHz  |    |
| Collector Base Capacitance<br>at $-V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$   | $C_{cb}$       | -              | 6    | pF   |    |

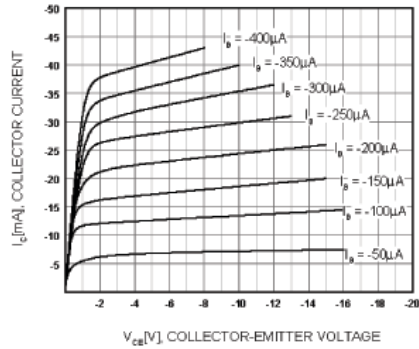


Figure 1. Static Characteristic

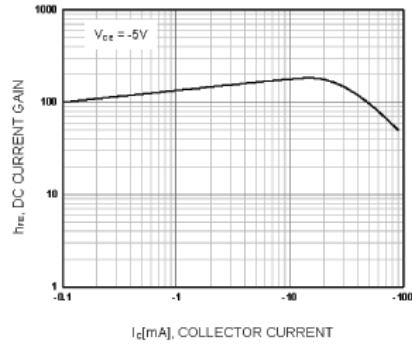


Figure 2. DC current Gain

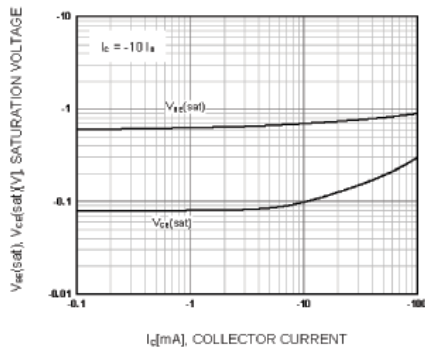


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

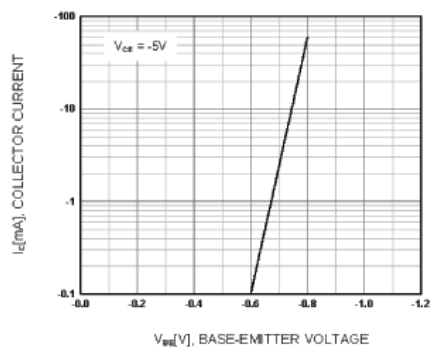


Figure 4. Base-Emitter Capacitance

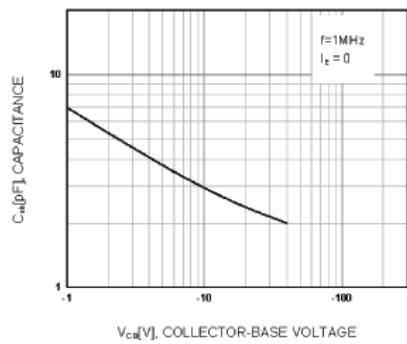


Figure 5. Collector Output Capacitance

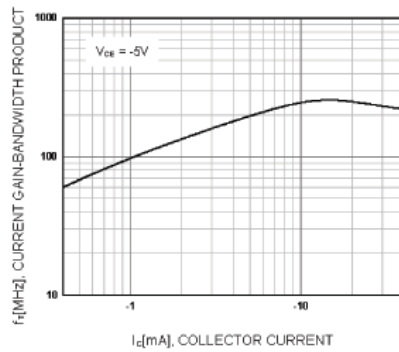


Figure 6. Current Gain Bandwidth Product