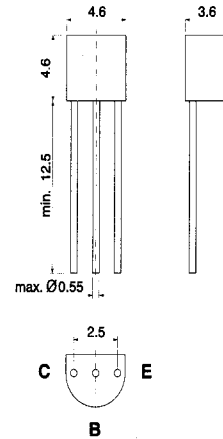


## NPN Silicon Expitaxial Planar Transistor

for switching and amplifier applications. Especially suitable for AF-driver stages and low-power output stages.

These types are also available subdivided into three groups -16, -25 and -40, according to their DC current gain. As complementary types, the PNP transistors BC327 and BC328 are recommended.

On special request, these transistors can be manufactured in different pin configurations. Please refer to the "TO-92 TRANSISTOR PACKAGE OUTLINE" on page 80 for the available pin options.



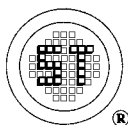
TO-92 Plastic Package  
Weight approx. 0.18 g  
Dimensions in mm

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

|                                                   |             | Symbol    | Value             | Unit             |
|---------------------------------------------------|-------------|-----------|-------------------|------------------|
| Collector Emitter Voltage                         | HN / BC 337 | $V_{CES}$ | 50                | V                |
|                                                   | HN / BC 338 | $V_{CES}$ | 30                | V                |
| Collector Emitter Voltage                         | HN / BC 337 | $V_{CEO}$ | 45                | V                |
|                                                   | HN / BC 338 | $V_{CEO}$ | 25                | V                |
| Emitter Base Voltage                              |             | $V_{EBO}$ | 5                 | V                |
| Collector Current                                 |             | $I_C$     | 800               | mA               |
| Peak Collector Current                            |             | $I_{CM}$  | 1                 | A                |
| Base Current                                      |             | $I_B$     | 100               | mA               |
| Power Dissipation at $T_{amb} = 25^\circ\text{C}$ |             | $P_{tot}$ | 625 <sup>1)</sup> | mW               |
| Junction Temperature                              |             | $T_J$     | 150               | $^\circ\text{C}$ |
| Storage Temperature Range                         |             | $T_S$     | -65 to + 150      | $^\circ\text{C}$ |

<sup>1)</sup> Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

G S P FORM A AVAILABLE

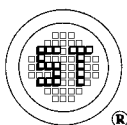


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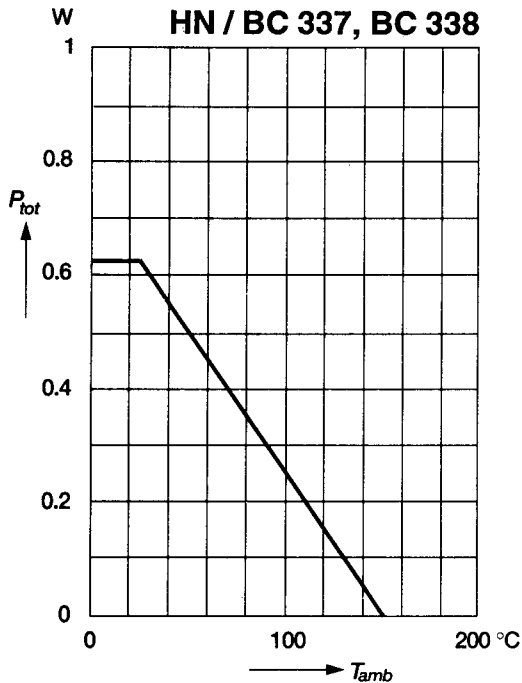
**Characteristics at  $T_{amb} = 25\text{ }^\circ\text{C}$**

|                                                                                               | Symbol        | Min. | Typ. | Max.              | Unit          |
|-----------------------------------------------------------------------------------------------|---------------|------|------|-------------------|---------------|
| DC Current Gain.<br>at $V_{CE} = 1\text{V}, I_C = 100\text{ mA}$                              |               |      |      |                   |               |
| Current Gain Group-16                                                                         | $h_{FE}$      | 100  | 160  | 250               | -             |
| -25                                                                                           | $h_{FE}$      | 160  | 250  | 400               | -             |
| -40                                                                                           | $h_{FE}$      | 250  | 400  | 630               | -             |
| at $V_{CE} = 1\text{V}, I_C = 300\text{ mA}$                                                  |               |      |      |                   |               |
| Current Gain Group-16                                                                         | $h_{FE}$      | 60   | 130  | -                 | -             |
| -25                                                                                           | $h_{FE}$      | 100  | 200  | -                 | -             |
| -40                                                                                           | $h_{FE}$      | 170  | 320  | -                 | -             |
| Collector Emitter Cutoff Current                                                              |               |      |      |                   |               |
| at $V_{CE} = 45\text{ V}$                                                                     | $I_{CES}$     | -    | 2    | 100               | nA            |
| at $V_{CE} = 25\text{ V}$                                                                     | $I_{CES}$     | -    | 2    | 100               | nA            |
| at $V_{CE} = 45\text{ V}, T_{amb} = 125\text{ }^\circ\text{C}$                                | $I_{CES}$     | -    | -    | 10                | $\mu\text{A}$ |
| at $V_{CE} = 25\text{ V}, T_{amb} = 125\text{ }^\circ\text{C}$                                | $I_{CES}$     | -    | -    | 10                | $\mu\text{A}$ |
| Collector Emitter Breakdown Voltage<br>at $I_C = 10\text{ mA}$                                | $V_{(BR)CEO}$ | 20   | -    | -                 | V             |
|                                                                                               | $V_{(BR)CEO}$ | 45   | -    | -                 | V             |
| Collector Emitter Breakdown Voltage<br>at $I_C = 0.1\text{ mA}$                               | $V_{(BR)CES}$ | 30   | -    | -                 | V             |
|                                                                                               | $V_{(BR)CES}$ | 50   | -    | -                 | V             |
| Emitter Base Breakdown Voltage<br>at $I_E = 0.1\text{ mA}$                                    | $V_{(BR)EBO}$ | 5    | -    | -                 | V             |
| Collector Saturation Voltage<br>at $I_C = 500\text{ mA}, I_B = 50\text{ mA}$                  | $V_{CEsat}$   | -    | -    | 0.7               | V             |
| Base Emitter Voltage<br>at $V_{CE} = 1\text{ V}, I_C = 300\text{ mA}$                         | $V_{BE}$      | -    | -    | 1.2               | V             |
| Gain Bandwidth Product<br>at $V_{CE} = 5\text{V}, I_C = 10\text{ mA}, f = 50\text{MHz}$       | $f_T$         | -    | 100  | -                 | MHz           |
| Collector Base Capacitance<br>at $V_{CB} = 10\text{ V}, f = 1\text{MHz}$                      | $C_{CBO}$     | -    | 12   | -                 | pF            |
| Thermal Resistance Junction to Ambient Air                                                    | $R_{thA}$     | -    | -    | 200 <sup>1)</sup> | K/W           |
| 1) Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case. |               |      |      |                   |               |

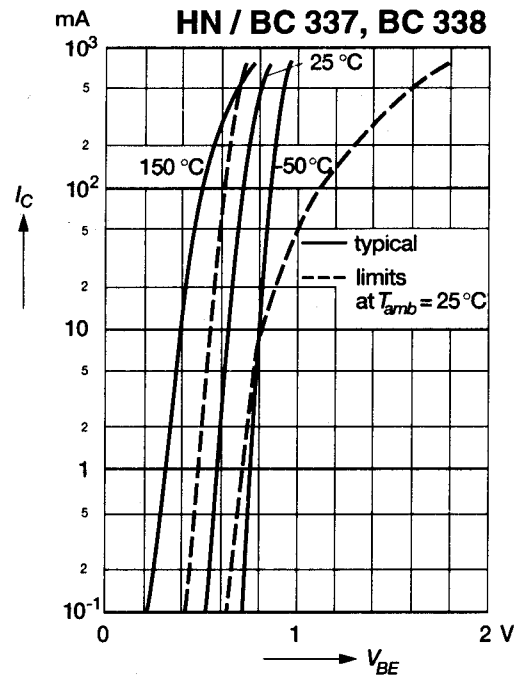


**Admissible power dissipation versus ambient temperature**

Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

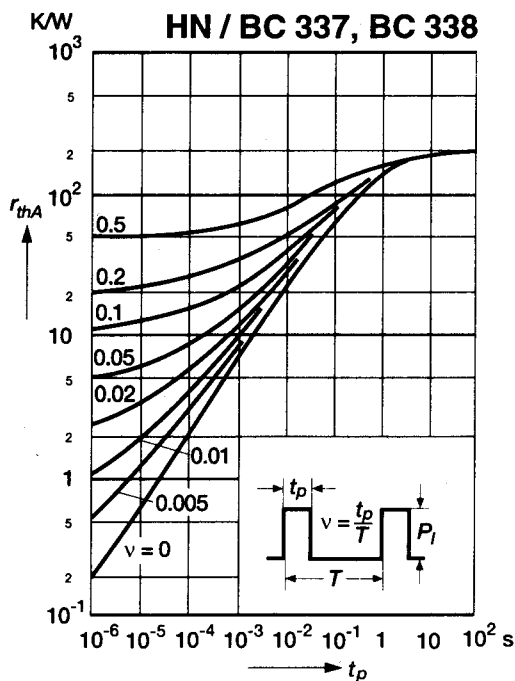


**Collector current versus base-emitter voltage**

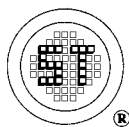
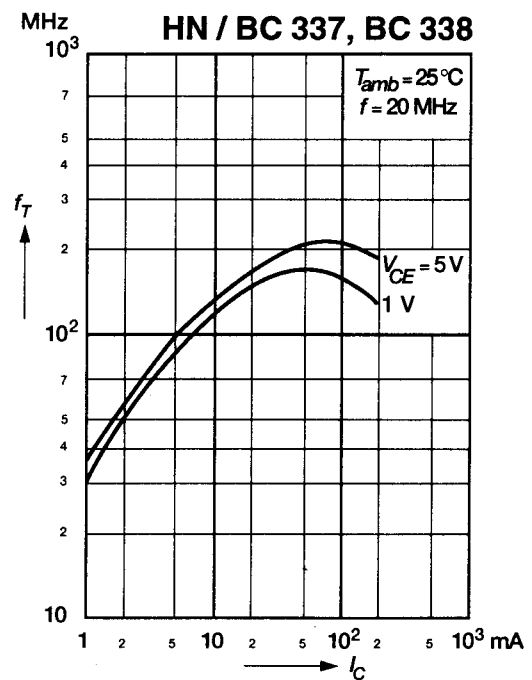


**Pulse thermal resistance versus pulse duration**

Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case



**Gain-bandwidth product versus collector current**

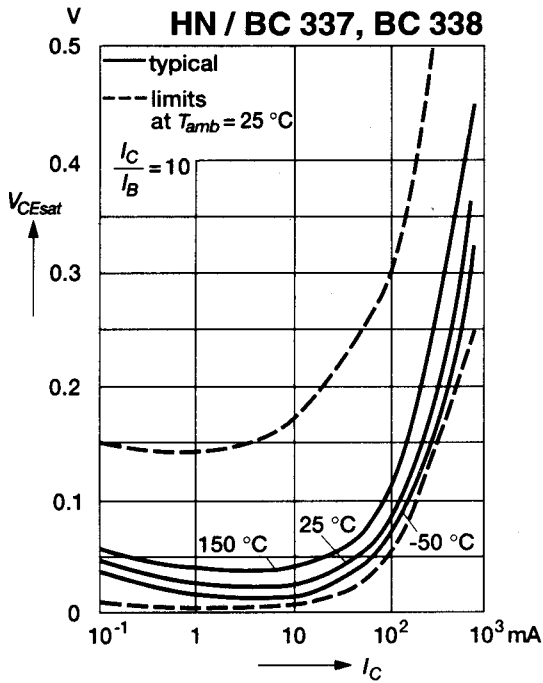


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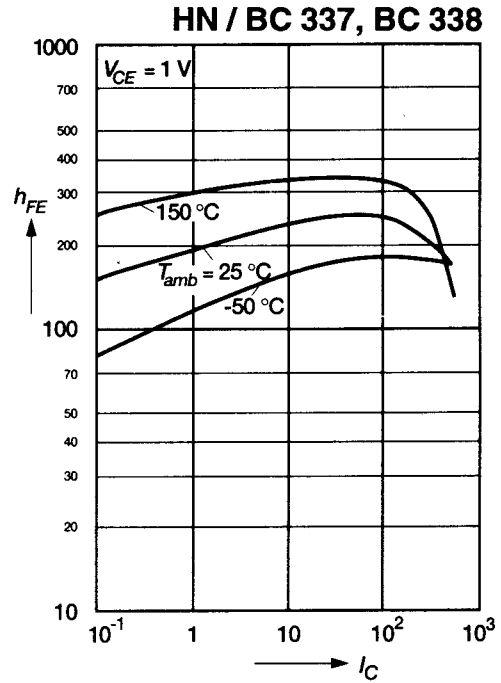
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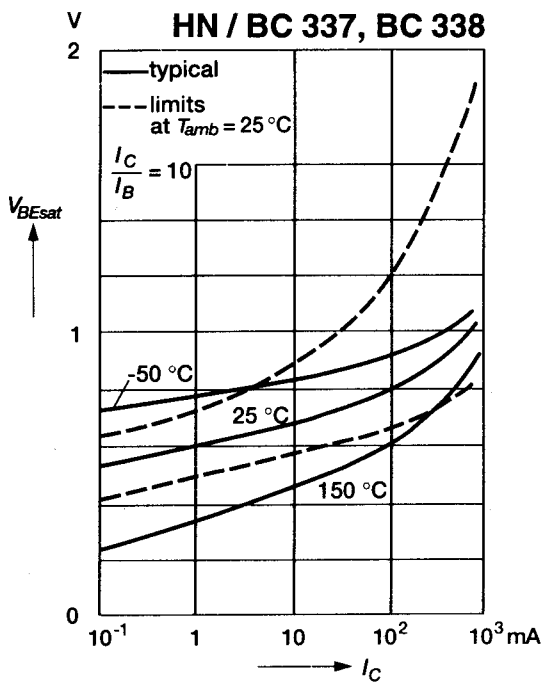
Collector saturation voltage versus collector current



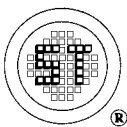
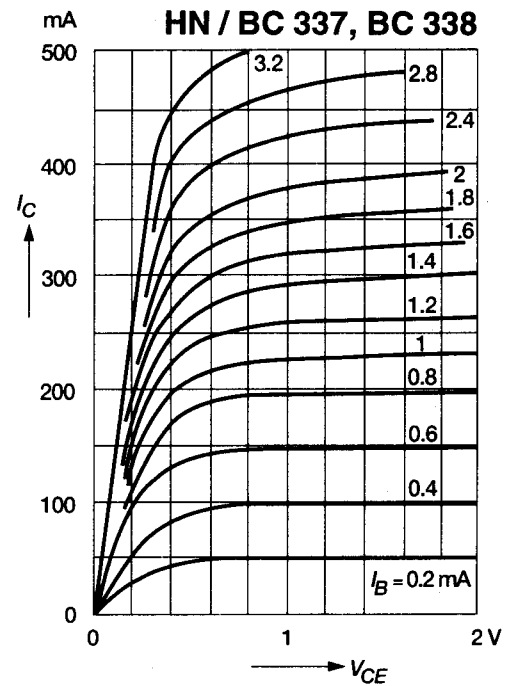
DC current gain versus collector current



Base saturation voltage versus collector current



Common emitter collector characteristics

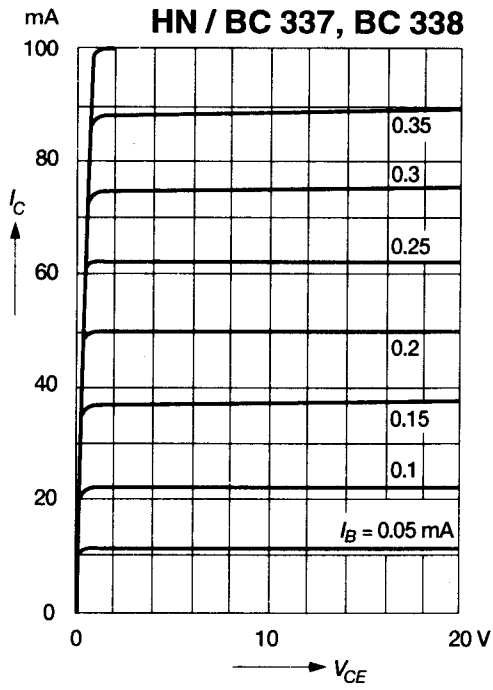


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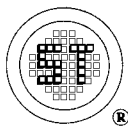
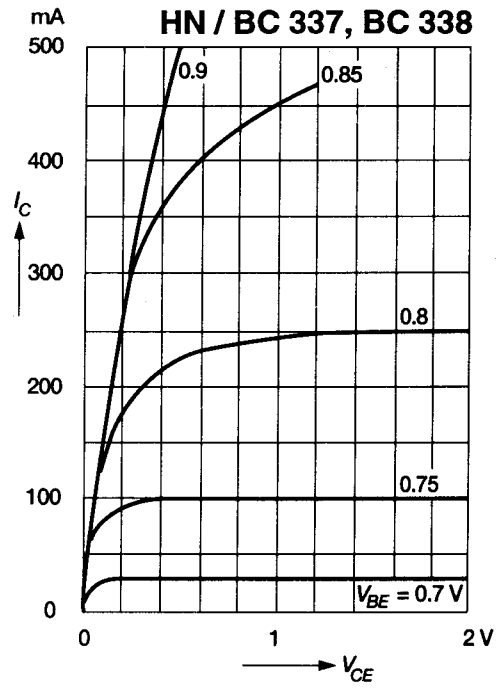
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Common emitter collector characteristics



Common emitter collector characteristics



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