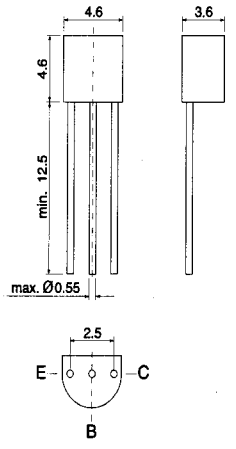
# HN 9015

**PNP Silicon Expitaxial Planar Transistor**
for switching and AF amplifier applications.

The transistor is subdivided into four groups, A, B, C, and D, according to its DC current gain. As complementary type the NPN transistor HN 9014 is 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

| | Symbol | Value | Unit |
|---|---|---|---|
| Collector Base Voltage | $-V_{CBO}$ | 30 | V |
| Collector Emitter Voltage | $-V_{CES}$ | 30 | V |
| Collector Emitter Voltage | $-V_{CEO}$ | 30 | V |
| Emitter Base Voltage | $-V_{EBO}$ | 5 | V |
| Collector Current | $-I_C$ | 100 | mA |
| Peak Collector Current | $-I_{CM}$ | 200 | mA |
| Peak Base Current | $-I_{BM}$ | 200 | mA |
| Peak Emitter Current | $I_{EM}$ | 200 | mA |
| Power Dissipation at $T_{amb}$ = 25 °C | $P_{tot}$ | 500[1)] | mW |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature Range | $T_S$ | -65 to +150 | °C |

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

**G S P FORM A AVAILABLE**

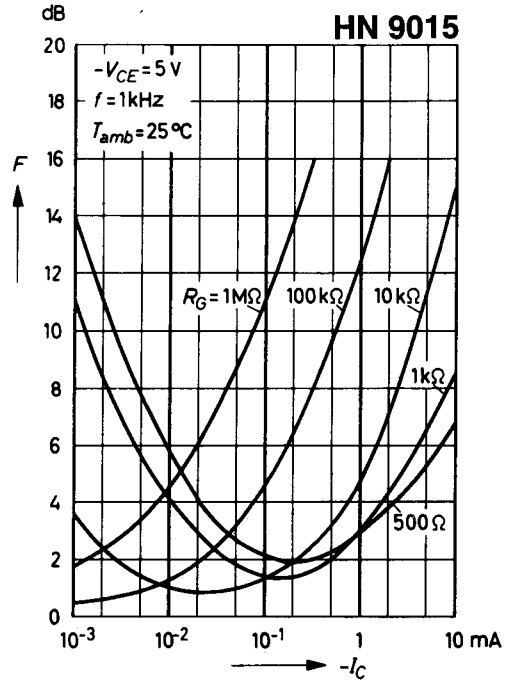
**Characteristics** at $T_{amb}$ = 25 °C

| | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| DC Current Gain<br>at $-V_{CE}$ = 5 V, $-I_C$ = 1 mA | | | | | |
| **Current Gain Group** A | $h_{FE}$ | 60 | - | 150 | - |
| B | $h_{FE}$ | 100 | - | 300 | - |
| C | $h_{FE}$ | 200 | - | 600 | - |
| D | $h_{FE}$ | 400 | - | 1000 | - |
| Collector Saturation Voltage | | | | | |
| at $-I_C$ = 10 mA, $-I_B$ = 0.5 mA | $-V_{CEsat}$ | - | 80 | 300 | mV |
| at $-I_C$ = 100 mA, $-I_B$ = 5 mA | $-V_{CEsat}$ | - | 250 | 650 | mV |
| Base Saturation Voltage | | | | | |
| at $-I_C$ = 10 mA, $-I_B$ = 0.5 mA | $-V_{BEsat}$ | - | 700 | - | mV |
| at $-I_C$ = 100 mA, $-I_B$ = 5 mA | $-V_{BEsat}$ | - | 900 | - | mV |
| Base Emitter Voltage | | | | | |
| at $-V_{CE}$ = 5 V, $-I_C$ = 2 mA | $-V_{BE}$ | 600 | 660 | 750 | mV |
| at $-V_{CE}$ = 5 V, $-I_C$ = 10 mA | $-V_{BE}$ | - | - | 800 | mV |
| Collector Cutoff Current | | | | | |
| at $-V_{CE}$ = 30 V | $-I_{CES}$ | - | 0.2 | 15 | nA |
| at $-V_{CE}$ = 30 V, $T_j$ = 125 C | $-I_{CES}$ | - | - | 4 | µA |
| at $-V_{CB}$ = 30 V | $-I_{CBO}$ | - | - | 15 | nA |
| at $-V_{CB}$ = 30 V, $T_j$ = 150 C | $-I_{CBO}$ | - | - | 5 | µA |
| Gain Bandwidth Product<br>at $-V_{CE}$ = 5 V, $-I_C$ = 10 mA, f = 100 MHz | $f_T$ | - | 150 | - | MHz |
| Collector Base Capacitance<br>at $-V_{CB}$ = 10 V, f = 1 MHz | $C_{CBO}$ | - | - | 6 | pF |
| Noise Figure<br>at $-V_{CE}$ = 5 V, $-I_C$ = 200 µA, $R_G$ = 2 kΩ<br>f = 1 kHz, Δf = 200 Hz | F | - | 2 | 10 | dB |
| Thermal Resistance Junction to Ambient | $R_{thA}$ | - | - | 250[1)] | K/W |

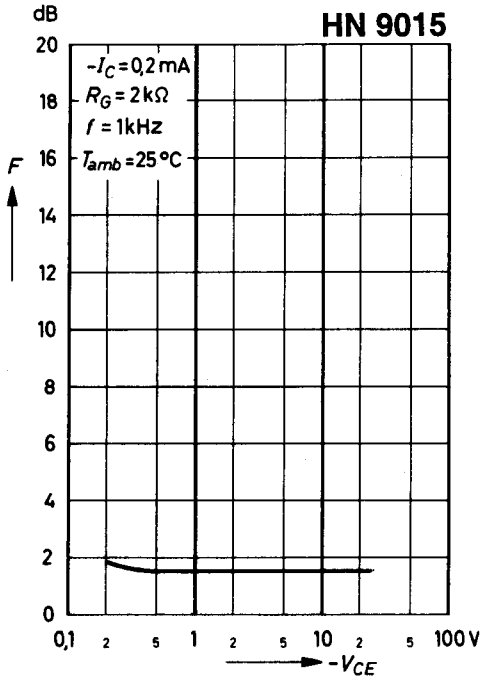
[1)] Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case

**G S P FORM A AVAILABLE**

**Noise figure**
**versus collector current**

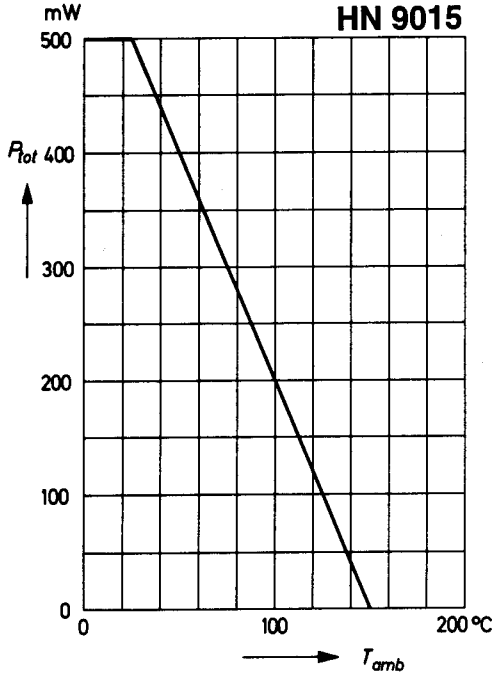



**Noise figure**
**versus collector emitter voltage**



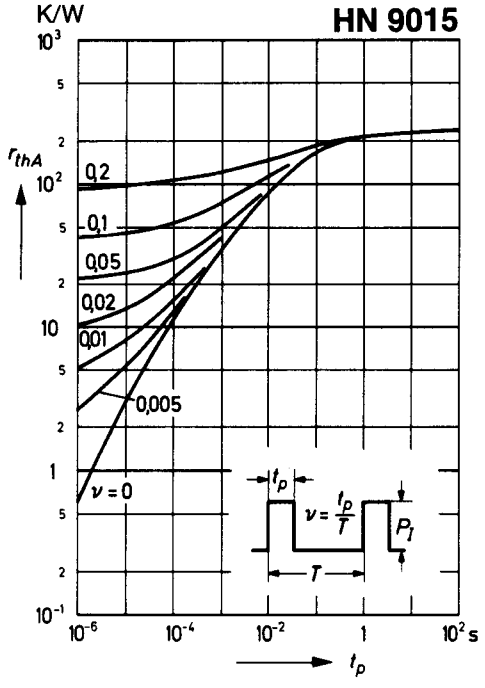

**Admissible power dissipation**
**versus temperature**

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

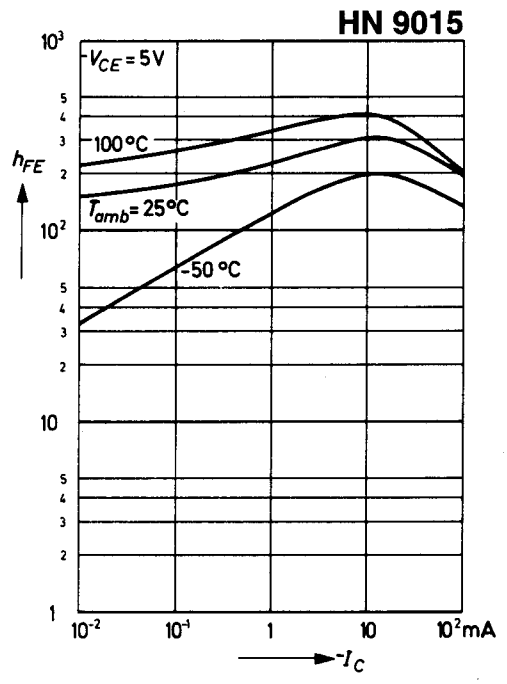



**Pulse thermal resistance**
**versus pulse duration**

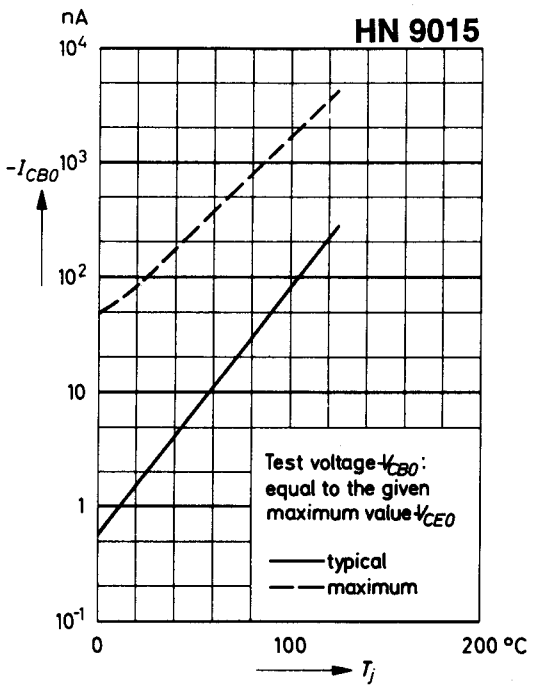
Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case



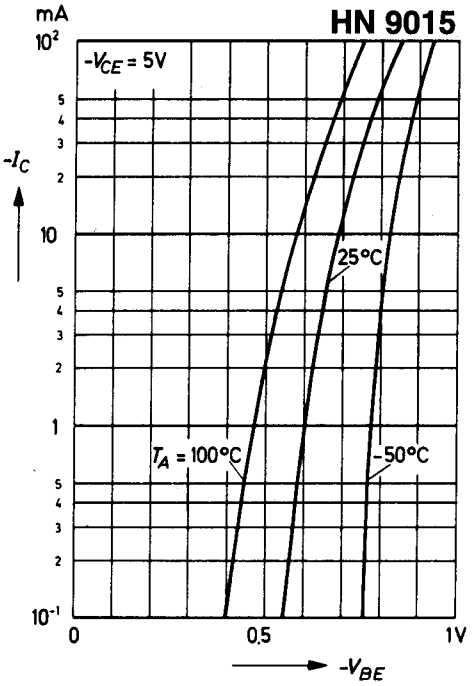
**DC current gain versus collector current**



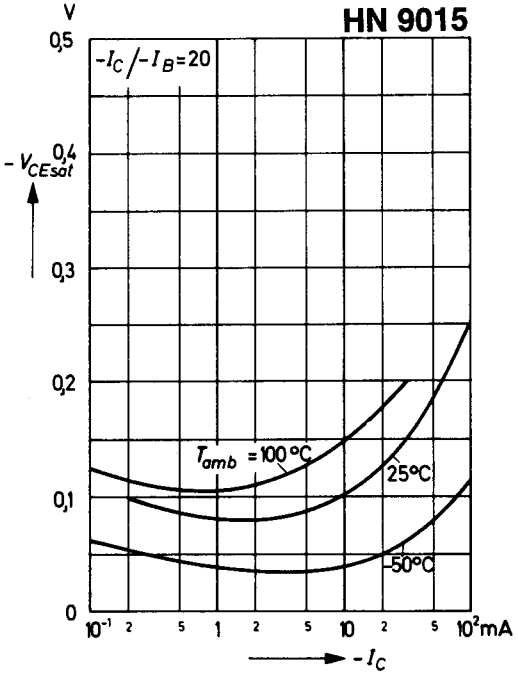

**Collector cutoff current versus junction temperature**



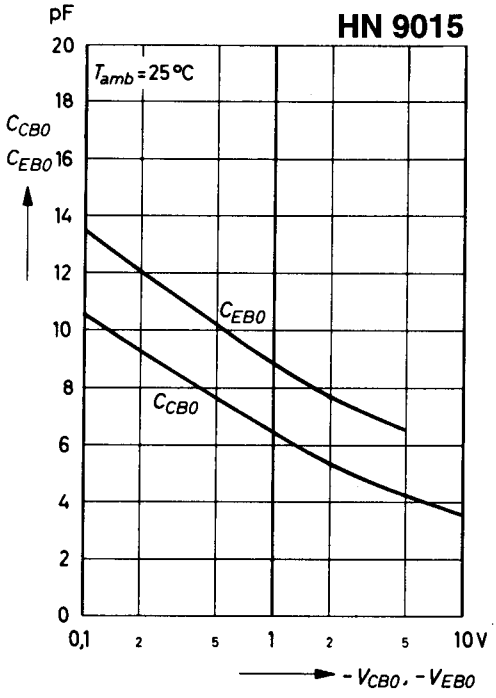

**Collector current versus base emitter voltage**



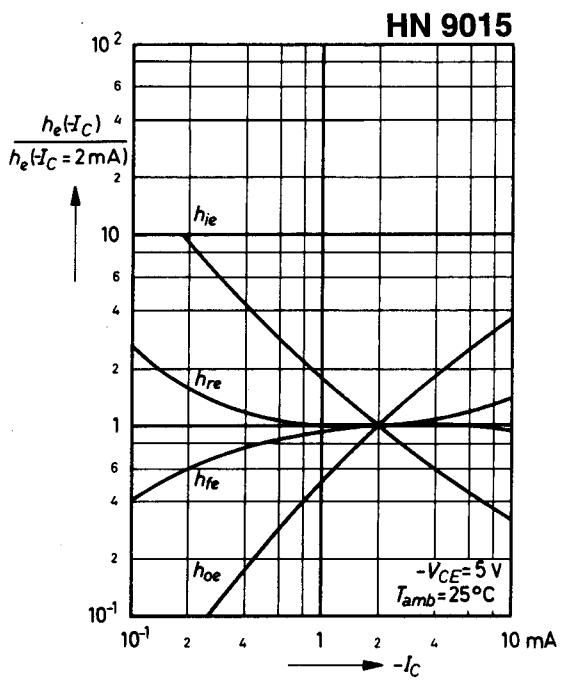

**Collector saturation voltage versus collector current**



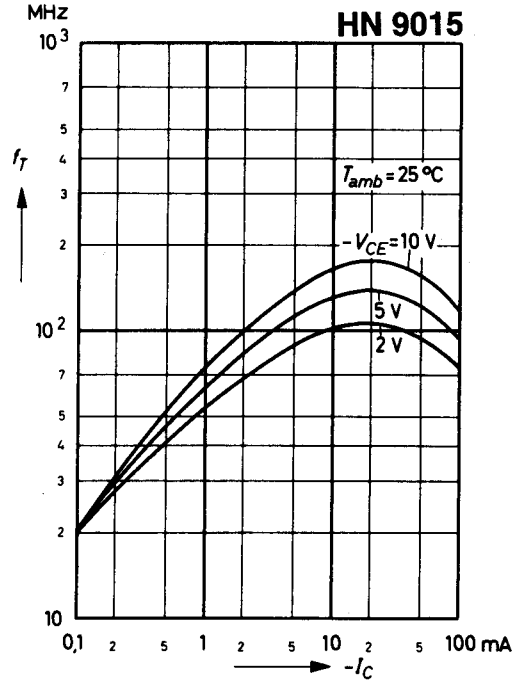
**Collector base capacitance, Emitter base capacitance versus reverse bias voltage**




**Relative h-parameters versus collector current**




**Gain bandwidth product versus collector current**




**Noise figure versus collector current**