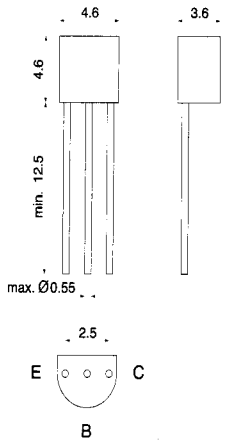
# HN 8050

**NPN Silicon Expitaxial Planar Transistor**
for switching and amplifier applications. Especially suitable for AF-driver stages and low power output stages.

The transistor is subdivided into two groups, C and D, according to its DC current gain. As complementary type the PNP transistor HN 8550 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 Emitter Voltage | $V_{CEO}$ | 25 | V |
| Collector Base Voltage | $V_{CBO}$ | 40 | V |
| Emitter Base Voltage | $V_{EBO}$ | 6 | 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 °C | $P_{tot}$ | 625[1)] | mW |
| Junction Temperature | $T_j$ | 150 | °C |
| Storage Temperature Range | $T_S$ | -55 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 | | | | | | |
| at $V_{CE}$ = 1 V, $I_C$ = 100 mA | HN 8050C | $h_{FE}$ | 120 | - | 200 | - |
| | HN 8050D | $h_{FE}$ | 160 | - | 300 | - |
| at $V_{CE}$ = 1 V, $I_C$ = 350 mA | | $h_{FE}$ | 60 | - | - | - |
| Collector Cutoff Current at $V_{CB}$ = 35 V | | $I_{CBO}$ | - | - | 100 | nA |
| Collector Saturation Voltage at $I_C$ = 500 mA, $I_B$ = 50 mA | | $V_{CEsat}$ | - | - | 0.5 | V |
| Base Saturation Voltage at $I_C$ = 500 mA, $I_B$ = 50 mA | | $V_{BEsat}$ | - | - | 1.2 | V |
| Collector Emitter Breakdown Voltage at $I_C$ = 2 mA | | $V_{(BR)CEO}$ | 25 | - | - | V |
| Collector Base Breakdown Voltage at $I_C$ = 10 µA | | $V_{(BR)CBO}$ | 40 | - | - | V |
| Emitter Base Breakdown Voltage at $I_E$ = 100 µA | | $V_{(BR)EBO}$ | 6 | - | - | V |
| Gain Bandwidth Product at $V_{CE}$ = 5 V, $I_C$ = 10 mA, f = 50 MHz | | $f_T$ | - | 100 | - | MHz |
| Collector Base Capacitance at $V_{CB}$ = 10 V, f = 1 MHz | | $C_{CBO}$ | - | 12 | - | pF |
| Thermal Resistance Junction to Ambient | | $R_{thA}$ | - | - | 200[1)] | K/W |

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

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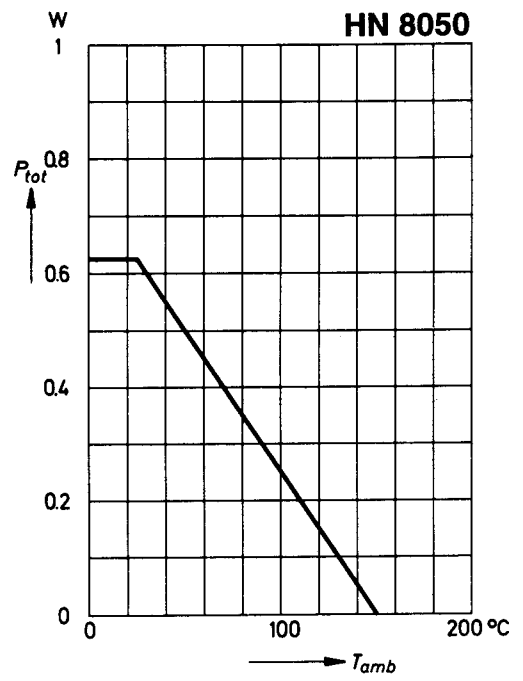
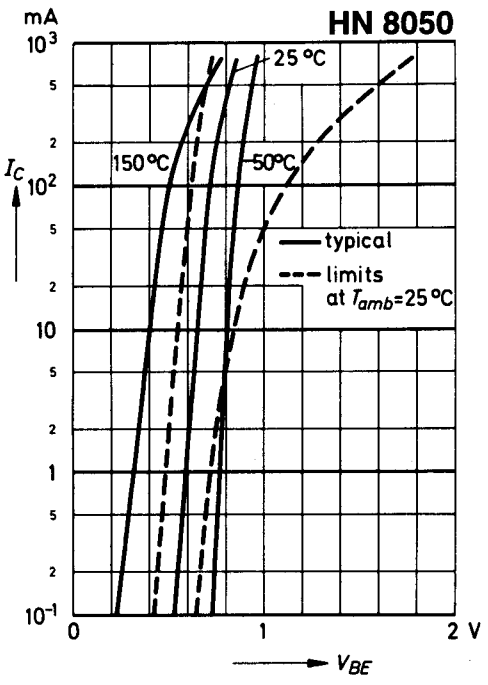
### Admissible power dissipation versus ambient temperature

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

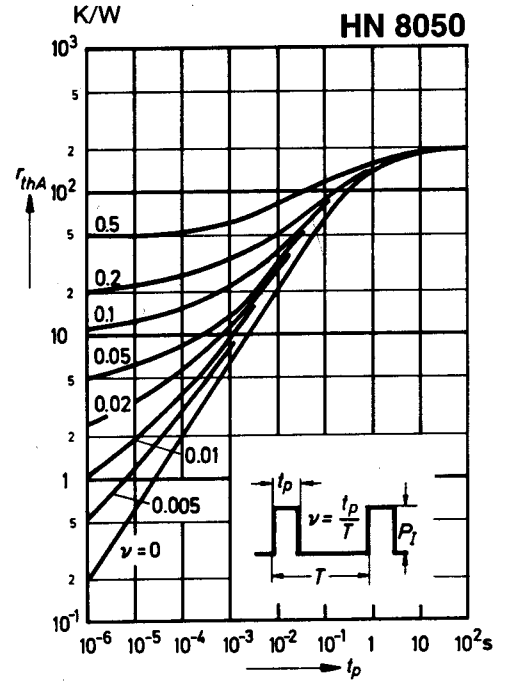



### Collector current versus base emitter voltage

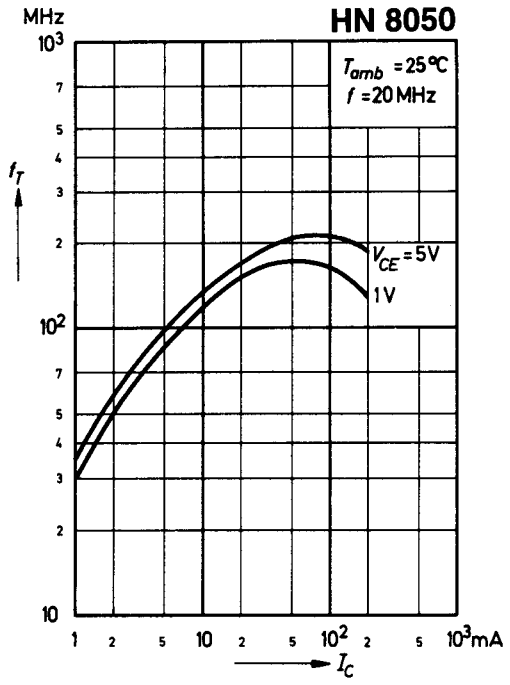



### Pulse thermal resistance versus pulse duration

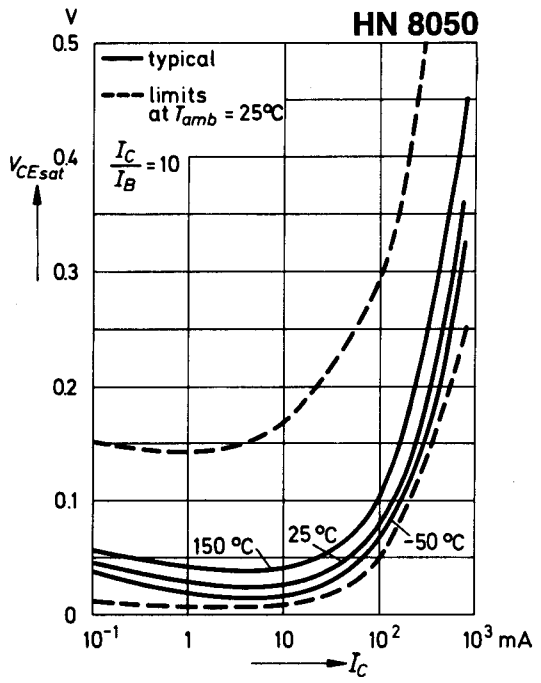
Valid provided that leads are kept at ambient temperature at a distance of 2 mm from case



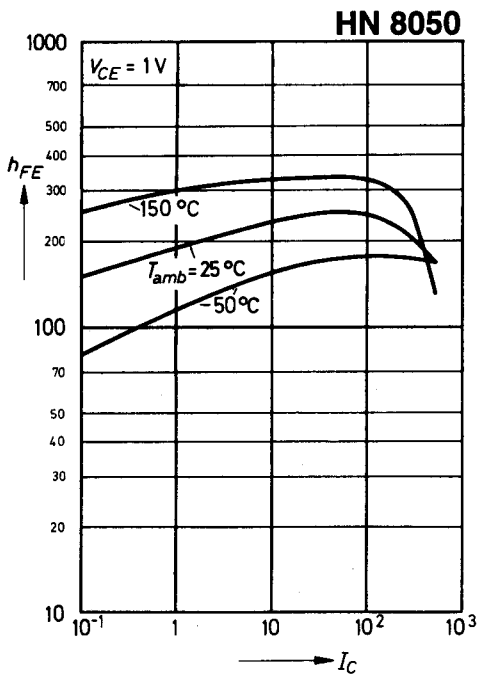

### Gain bandwidth product versus collector current



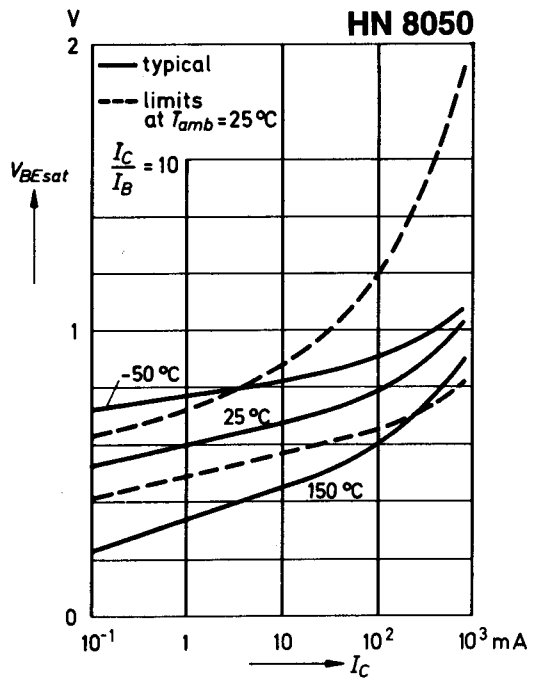
**Collector saturation voltage versus collector current**



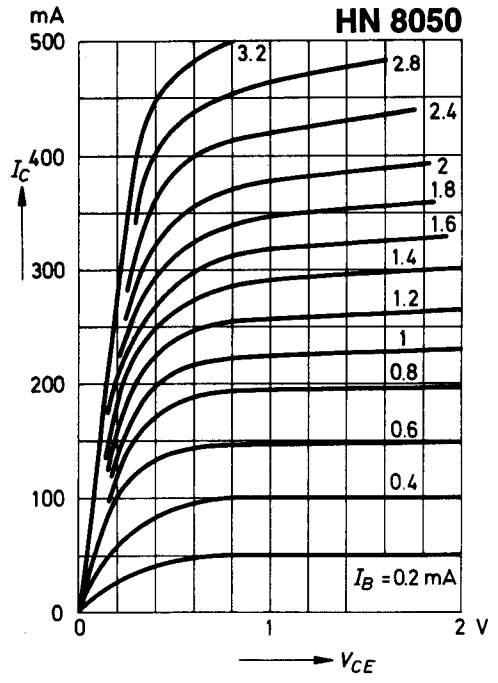

**DC current gain versus collector current**



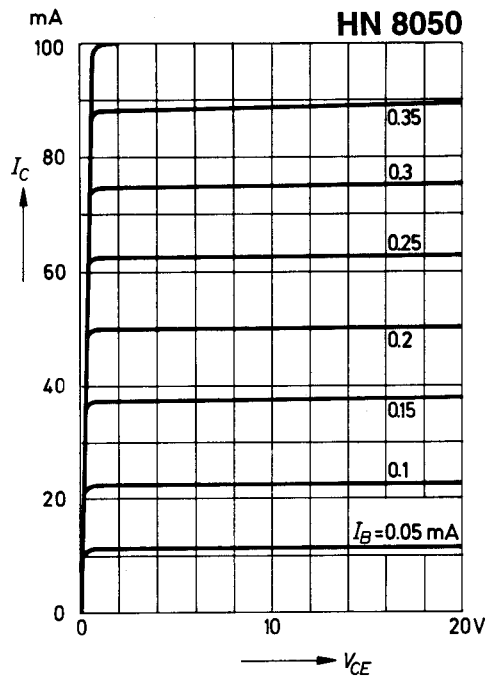

**Base saturation voltage versus collector current**




**Common emitter collector characteristics**



**Common emitter collector characteristics**

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