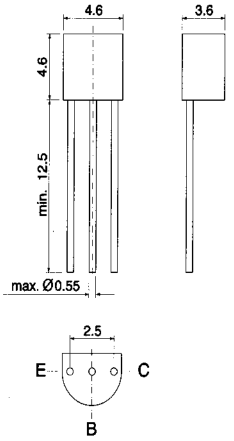
HN 9013

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, G and H, according to its DC current gain. As complementary type the PNP transistor HN 9012 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}	30	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 °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

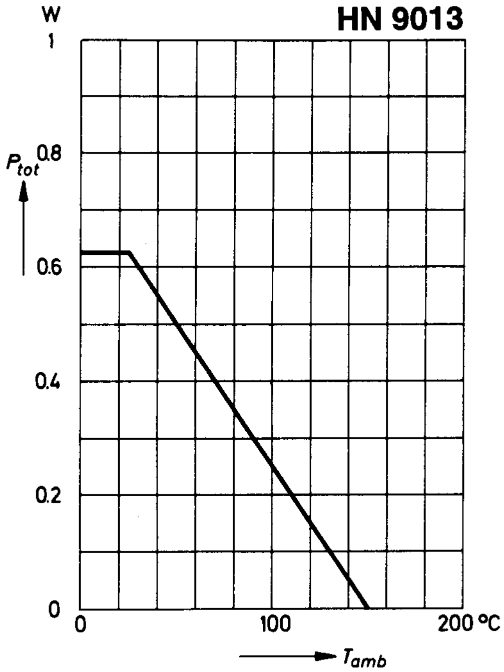
	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at V_{CE} = 1 V, I_C = 50 mA **Current Gain Group G**	h_{FE}	110	-	183	-
H	h_{FE}	177	-	250	-
at V_{CE} = 1 V, I_C = 500 mA	h_{FE}	40	-	-	-
Collector Cutoff Current at V_{CB} = 31 V	I_{CBO}	-	-	100	nA
Collector Emitter Breakdown Voltage at I_C = 1 mA	$V_{(BR)CEO}$	30	-	-	V
Emitter Base Cutoff Current at V_{EB} = 5.1 V	I_{EBO}	-	-	100	nA
Collector Saturation Voltage at I_C = 500 mA, I_B = 20 mA	V_{CEsat}	-	-	0.5	V
Base Saturation Voltage at I_C = 500 mA, I_B = 20 mA	V_{BEsat}	-	-	1.2	V
Base Emitter Voltage at V_{CE} = 1 V, I_C = 50 mA	V_{BE}	0.6	-	0.75	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

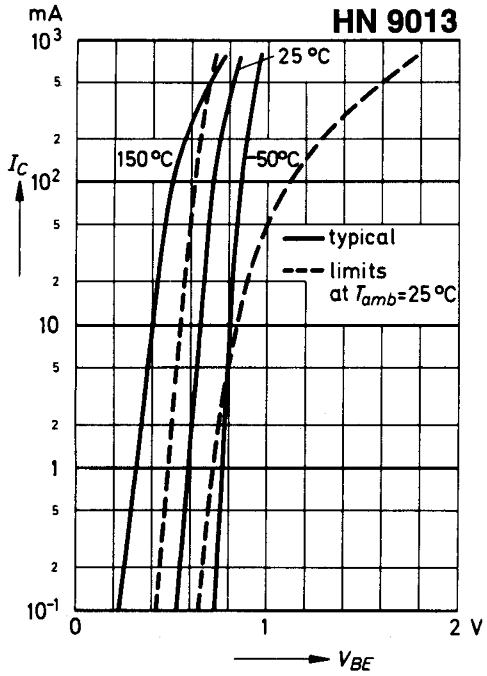
G S P FORM A AVAILABLE

Admissible power dissipation versus ambient temperature

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

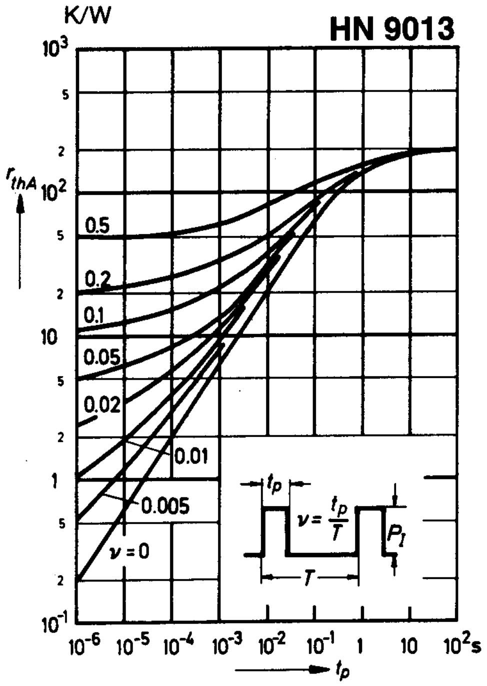


Collector current versus base emitter voltage

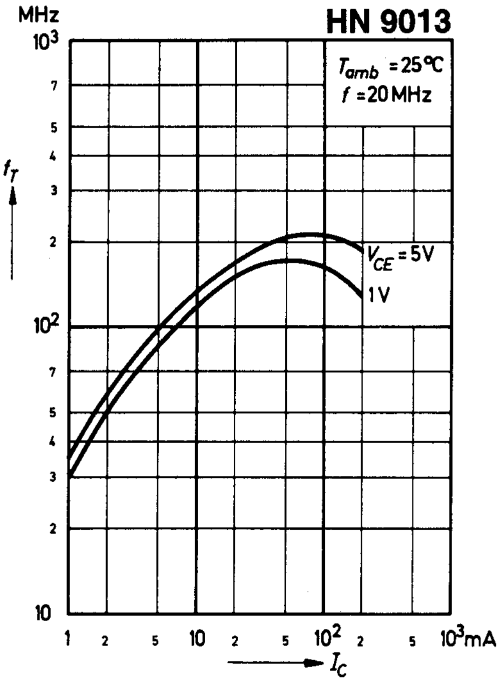


Pulse thermal resistance versus pulse duration

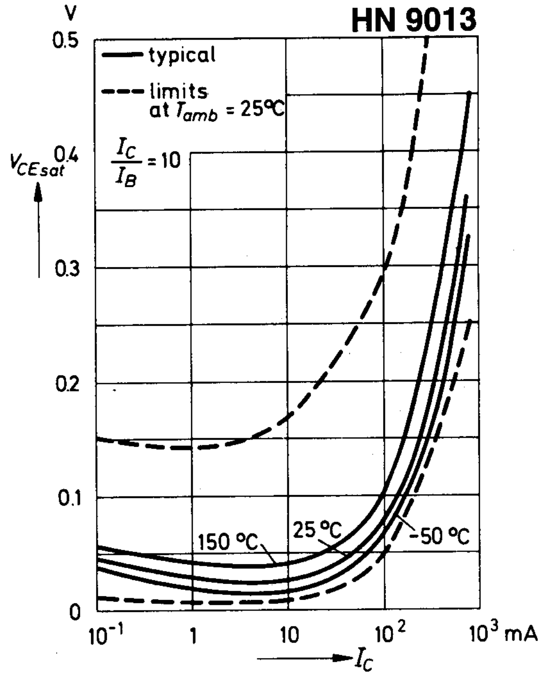
Valid provided that leads are kept at ambient temperature a a distance of 2 mm from case



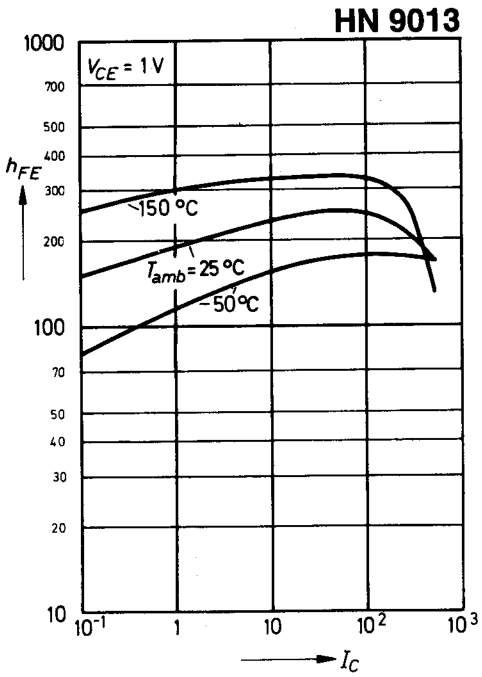
Gain bandwidth product versus collector current



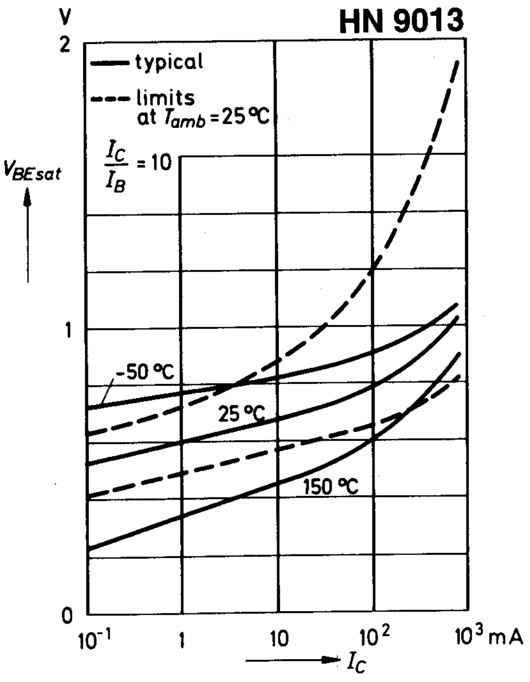
Collector saturation voltage versus collector current



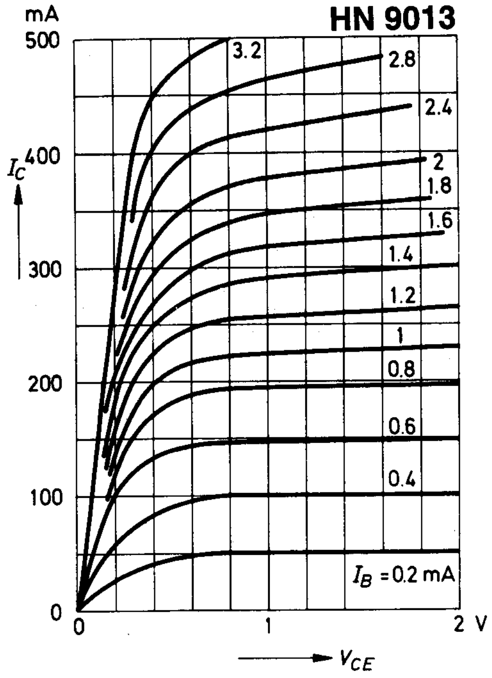
DC current gain versus collector current

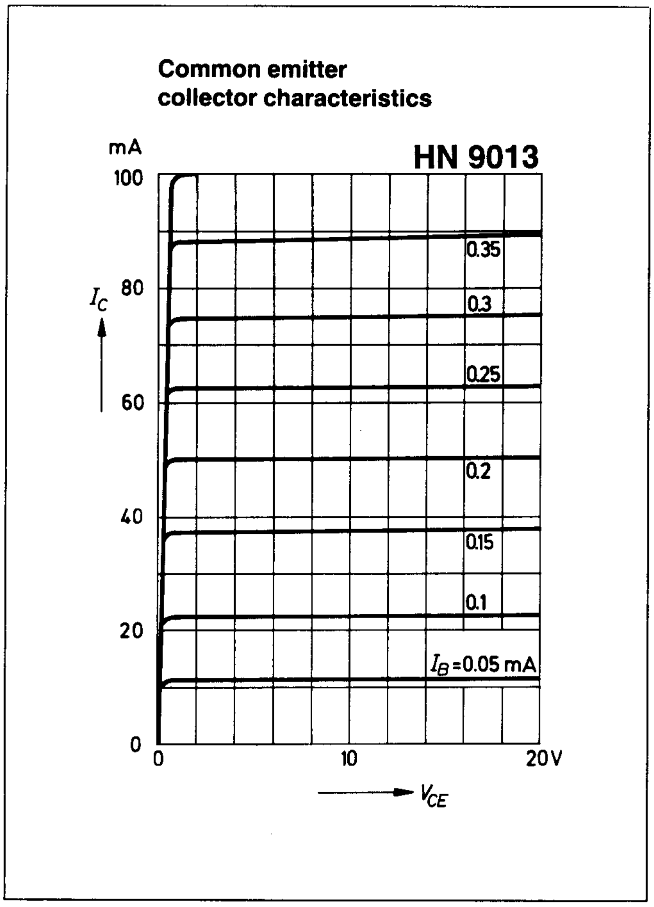


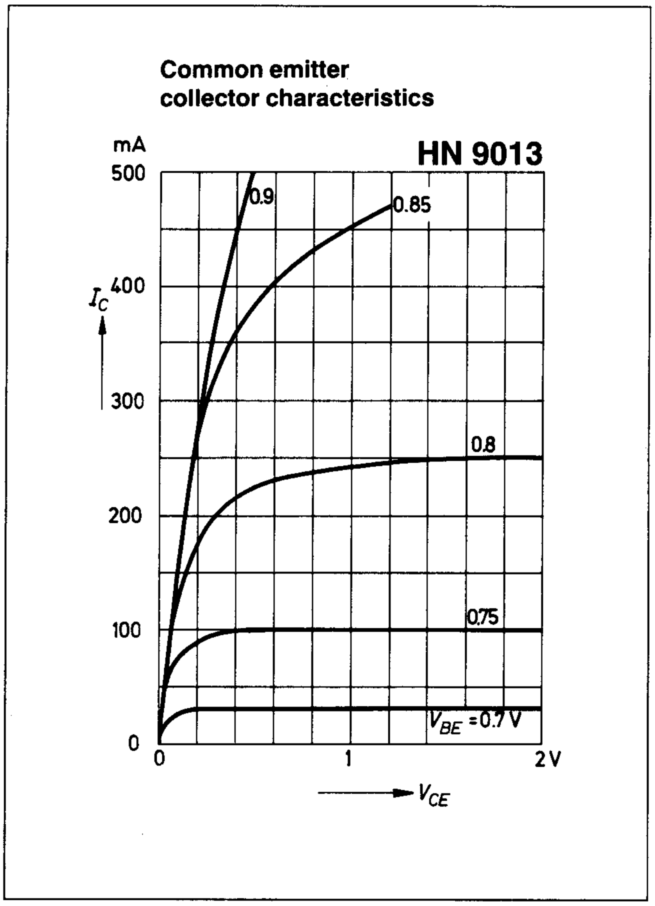
Base saturation voltage versus collector current



Common emitter collector characteristics




Common emitter
collector characteristics
HN 9013
mA
100
80
60
40
20
0
I_C
0
10
20V
V_{CE}
0.35
0.3
0.25
0.2
0.15
0.1
I_B=0.05 mA


Common emitter
collector characteristics
HN 9013
mA
500
400
300
200
100
0
I_C
0
1
2 V
V_{CE}
0.9
0.85
0.8
0.75
V_{BE} =0.7 V