

# HN / 2N 4402/4403

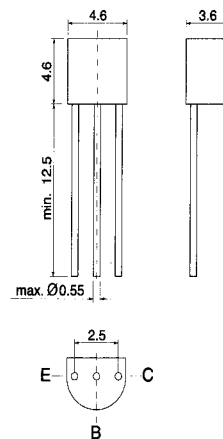
## PNP EPITAXIAL SILICON TRANSISTOR

General purpose transistor

Collector Emitter Voltage:  $V_{CEO} = 40V$

Collector Dissipation:  $P_c(\text{max}) = 625mW$

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.

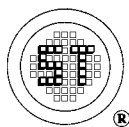


TO-92 Plastic Package  
Weight approx. 0.18 g  
Dimensions in mm

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	$V_{CBO}$	-40	V
Collector-Emitter Voltage	$V_{CEO}$	-40	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Collector Current	$I_c$	-600	mA
Collector Dissipation	$P_{tot}$	625	mW
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_s$	-55 to + 150	$^\circ C$

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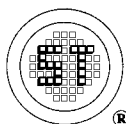
## PNP EPITAXIAL SILICON TRANSISTOR

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

	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain. at $-V_{CE} = 1\text{V}$ , $-I_C = 0.1\text{mA}$	<b>HN / 2N 4403</b> $h_{FE}$	30	-	-	-
at $-V_{CE} = 1\text{V}$ , $-I_C = 1\text{mA}$	<b>HN / 2N 4402</b> $h_{FE}$	30	-	-	-
	<b>HN / 2N 4403</b> $h_{FE}$	60	-	-	-
at $-V_{CE} = 1\text{V}$ , $-I_C = 10\text{mA}$	<b>HN / 2N 4402</b> $h_{FE}$	50	-	-	-
	<b>HN / 2N 4403</b> $h_{FE}$	100	-	-	-
at $-V_{CE} = 1\text{V}$ , $-I_C = 150\text{mA}$	<b>HN / 2N 4402</b> $h_{FE}$	50	-	150	-
	<b>HN / 2N 4403</b> $h_{FE}$	100	-	300	-
at $-V_{CE} = 2\text{V}$ , $-I_C = 500\text{mA}$	<b>HN / 2N 4402</b> $h_{FE}$	20	-	-	-
	<b>HN / 2N 4403</b> $h_{FE}$	20	-	-	-
Collector Cutoff Current at $-V_{CE} = 35\text{V}$ , at $-V_{EB} = 0.4\text{V}$	$-I_{CEX}$	-	-	100	nA
Base Cutoff Current at $-V_{CE} = 35\text{V}$ , at $-V_{EB} = 0.4\text{V}$	$-I_{BEV}$	-	-	100	nA
Collector Emitter Breakdown Voltage at $-I_C = 1\text{mA}$	$-V_{(BR)CEO}$	40	-	-	V
Collector Base Breakdown Voltage at $-I_C = 100\mu\text{A}$	$-V_{(BR)CBO}$	40	-	-	V
Collector Saturation Voltage at $-I_C = 150\text{mA}$ , $-I_B = 15\text{mA}$	$-V_{CEsat}$	-	-	0.4	V
Base Saturation Voltage at $-I_C = 150\text{mA}$ , $-I_B = 15\text{mA}$	$-V_{BEsat}$	0.75	-	0.95	V
Emitter Base Breakdown Voltage at $-I_E = 100\mu\text{A}$	$-V_{BR(EBO)}$	5	-	-	V
Gain Bandwidth Product at $-V_{CE} = 10\text{V}$ , $-I_C = 20\text{mA}$ , $f = 100\text{MHz}$	<b>HN / 2N 4402</b> <b>HN / 2N 4403</b> $f_T$	150 200	- -	- -	MHz MHz
Collector Base Capacitance at $-V_{CB} = 10\text{V}$ , $f = 140\text{MHz}$ , $-I_E = 0$	$C_{(CBO)}$	-	-	8.5	pF
Turn On Time at $-V_{CC} = 30\text{V}$ , $-V_{BE} = 2\text{V}$ , $-I_C = 150\text{mA}$ , $-I_{B1} = 15\text{mA}$	$t_{on}$	-	-	35	ns
Turn Off Time at $-V_{CC} = 30\text{V}$ , $-I_C = 150\text{mA}$ , $-I_{B1} = -I_{B2} = 15\text{mA}$	$t_{off}$	-	-	255	ns

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

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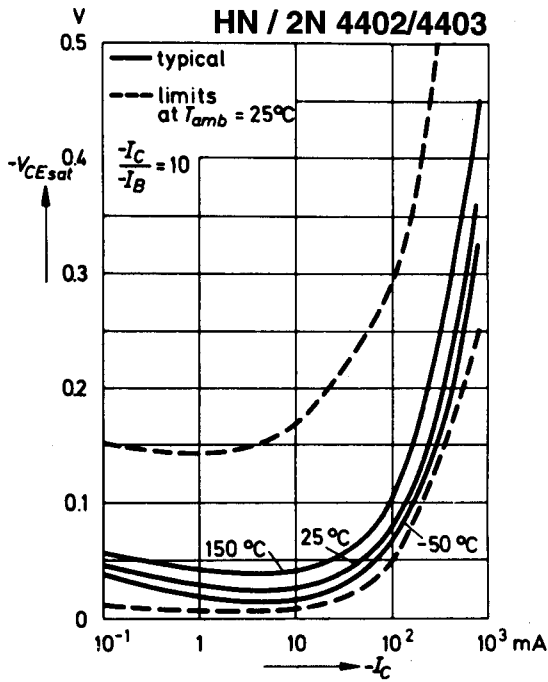
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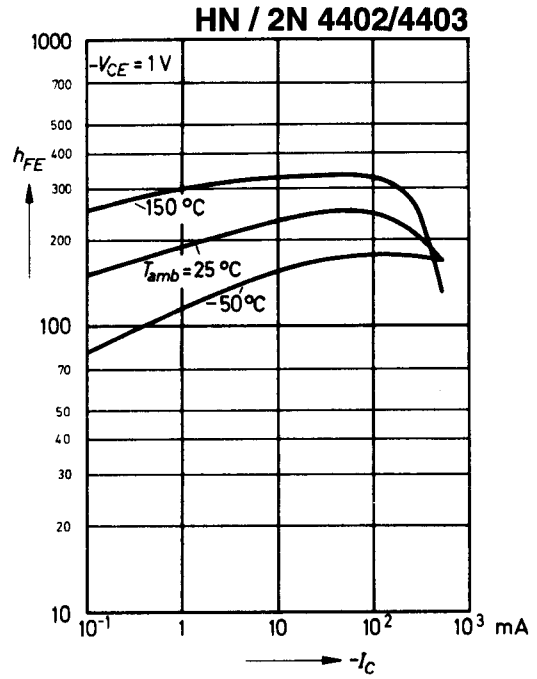


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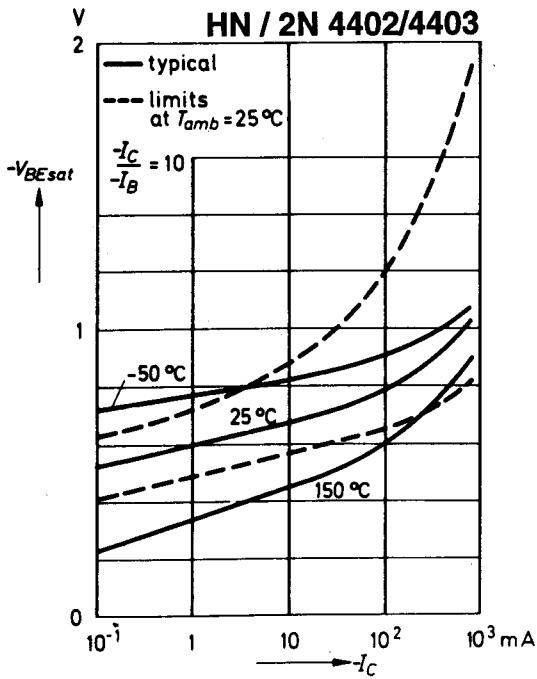
Collector saturation voltage  
versus collector current



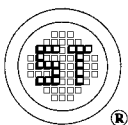
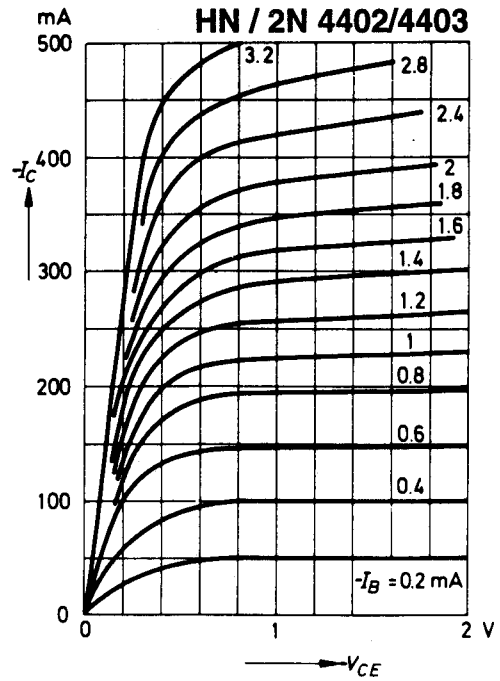
DC current gain  
versus collector current



Base saturation voltage  
versus collector current



Common emitter collector  
characteristics



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