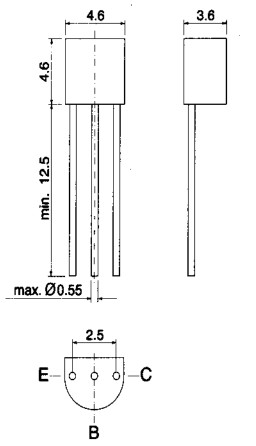
HN / 2N 3905/3906

PNP Silicon Expitaxial Planar Transistor
for switching and amplifier applications.

As complementary types the NPN transistors HN / 2N3903 and HN / 2N 3904 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°C)

	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	$-I_C$	100	mA
Peak Collector Current	$-I_{CM}$	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	-55 to +150	°C

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

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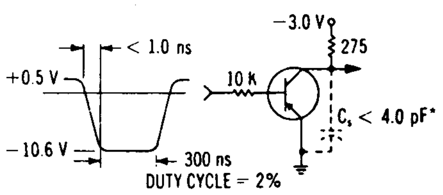
Characteristics at T_{amb} =25 °C

	Symbol	Min.	Typ.	Max.	Unit
DC Current Gain					
at $-V_{CE}$ = 1V, $-I_C$ = 0.1 mA **HN / 2N 3905**	h_{FE}	30	-	-	-
HN / 2N 3906	h_{FE}	60	-	-	-
at $-V_{CE}$ = 1V, $-I_C$ = 1 mA **HN / 2N 3905**	h_{FE}	40	-	-	-
HN / 2N 3906	h_{FE}	80	-	-	-
at $-V_{CE}$ = 1V, $-I_C$ = 10 mA **HN / 2N 3905**	h_{FE}	50	-	150	-
HN / 2N 3906	h_{FE}	100	-	300	-
at $-V_{CE}$ = 1V, $-I_C$ = 50 mA **HN / 2N 3905**	h_{FE}	30	-	-	-
HN / 2N 3906	h_{FE}	60	-	-	-
at $-V_{CE}$ = 1V, $-I_C$ = 100 mA **HN / 2N 3905**	h_{FE}	15	-	-	-
HN / 2N 3906	h_{FE}	30	-	-	-
Thermal Resistance Junction to Ambient	R_{thA}	-	-	250 [1]	K/W
Collector Saturation Voltage at $-I_C$ = 10 mA, $-I_B$ = 1 mA	$-V_{CE\ sat}$	-	-	0.25	V
at $-I_C$ = 50 mA, $-I_B$ = 5 mA	$-V_{CE\ sat}$	-	-	0.4	V
Base Saturation Voltage at $-I_C$ = 10 mA, $-I_B$ = 1 mA	$-V_{BE\ sat}$	-	-	0.85	V
at $-I_C$ = 50 mA, $-I_B$ = 5 mA	$-V_{BE\ sat}$	-	-	0.95	V
Collector Cutoff Current at $-V_{EB}$ = 3 V, $-V_{CE}$ = 30 V	$-I_{CEV}$	-	-	50	nA
Emitter Cutoff Current at $-V_{EB}$ = 3 V, $-V_{CE}$ = 30 V	$-I_{EBV}$	-	-	50	nA
Collector Base Breakdown Voltage at $-I_C$ = 10 µA, I_E = 0	$-V_{(BR)CBO}$	40	-	-	V
Collector Emitter Breakdown Voltage at $-I_C$ = 1 mA, I_B = 0	$-V_{(BR)CEO}$	40	-	-	V
Emitter Base Breakdown Voltage at $-I_E$ = 10 µA, I_C = 0	$-V_{(BR)EBO}$	5	-	-	V
Gain Bandwidth Product at $-V_{CE}$ = 20 V, $-I_C$ = 10 mA, f = 100MHz					
HN / 2N 3905	f_T	200	-	-	MHz
HN / 2N 3906	f_T	250	-	-	MHz
Collector Base Capacitance at $-V_{CB}$ = 5V, f = 100 kHz	C_{CBO}	-	-	4.5	pF
Emitter Base Capacitance at $-V_{EB}$ = 0.5V, f = 100 kHz	C_{EBO}	-	-	10	pF

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

Characteristics (continued)

	Symbol	Min.	Typ.	Max.	Unit
Rise Time (see Fig. 1) at $-I_{B1}$ = 1 mA, $-I_C$ = 10mA	t_r	-	-	70	ns
Fall Time (see Fig. 2) at I_{B1} = $-I_{B2}$= 1 mA, $-I_C$ = 10mA	t_f t_f	- -	- -	200	ns ns



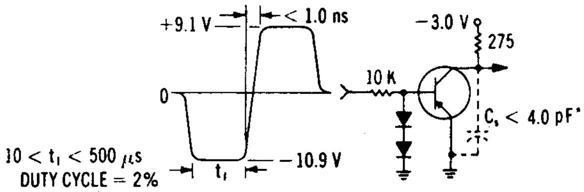


Fig. 1: Test circuit for delay and rise time
* total shunt capacitance of test jig and connectors

Fig. 2: Test circuit for storage and fall time
* total shunt capacitance of test jig and connectors