

PNP Silicon Epitaxial 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.



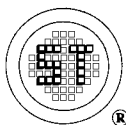
TO-92 Plastic Package
Weight approx. 0.18 g
Dimensions in mm

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

	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 $T_{amb} = 25^\circ\text{C}$	P_{tot}	500 ¹⁾	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_s	-55 to +150	$^\circ\text{C}$

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

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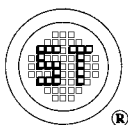
SEMTECH ELECTRONICS LTD.
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Characteristics at $T_{amb} = 25\text{ }^{\circ}\text{C}$

		Symbol	Min.	Typ.	Max.	Unit
DC Current Gain at $-V_{CE} = 1\text{V}$, $-I_C = 0.1\text{ mA}$	HN / 2N 3905	h_{FE}	30	-	-	-
	HN / 2N 3906	h_{FE}	60	-	-	-
at $-V_{CE} = 1\text{V}$, $-I_C = 1\text{ mA}$	HN / 2N 3905	h_{FE}	40	-	-	-
	HN / 2N 3906	h_{FE}	80	-	-	-
at $-V_{CE} = 1\text{V}$, $-I_C = 10\text{ mA}$	HN / 2N 3905	h_{FE}	50	-	150	-
	HN / 2N 3906	h_{FE}	100	-	300	-
at $-V_{CE} = 1\text{V}$, $-I_C = 50\text{ mA}$	HN / 2N 3905	h_{FE}	30	-	-	-
	HN / 2N 3906	h_{FE}	60	-	-	-
at $-V_{CE} = 1\text{V}$, $-I_C = 100\text{ mA}$	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 $-I_C = 10\text{ mA}$, $-I_B = 1\text{ mA}$ at $-I_C = 50\text{ mA}$, $-I_B = 5\text{ mA}$		$-V_{CE\text{ sat}}$	-	-	0.25	V
		$-V_{CE\text{ sat}}$	-	-	0.4	V
Base Saturation Voltage at $-I_C = 10\text{ mA}$, $-I_B = 1\text{ mA}$ at $-I_C = 50\text{ mA}$, $-I_B = 5\text{ mA}$		$-V_{BE\text{ sat}}$	-	-	0.85	V
		$-V_{BE\text{ sat}}$	-	-	0.95	V
Collector Cutoff Current at $-V_{EB} = 3\text{ V}$, $-V_{CE} = 30\text{ V}$		$-I_{CEV}$	-	-	50	nA
Emitter Cutoff Current at $-V_{EB} = 3\text{ V}$, $-V_{CE} = 30\text{ V}$		$-I_{EBV}$	-	-	50	nA
Collector Base Breakdown Voltage at $-I_C = 10\text{ }\mu\text{A}$, $I_E = 0$		$-V_{(BR)CBO}$	40	-	-	V
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$, $I_B = 0$		$-V_{(BR)CEO}$	40	-	-	V
Emitter Base Breakdown Voltage at $-I_E = 10\text{ }\mu\text{A}$, $I_C = 0$		$-V_{(BR)EBO}$	5	-	-	V
Gain Bandwidth Product at $-V_{CE} = 20\text{ V}$, $-I_C = 10\text{ mA}$, $f = 100\text{ MHz}$	HN / 2N 3905	f_T	200	-	-	MHz
	HN / 2N 3906	f_T	250	-	-	MHz
Collector Base Capacitance at $-V_{CB} = 5\text{ V}$, $f = 100\text{ kHz}$		C_{CBO}	-	-	4.5	pF
Emitter Base Capacitance at $-V_{EB} = 0.5\text{ V}$, $f = 100\text{ kHz}$		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 $-I_{B1} = 1 \text{ mA}$, $-I_C = 10\text{mA}$	t_r	-	-	70	ns
Fall Time (see Fig. 2) at $I_{B1} = -I_{B2} = 1 \text{ mA}$, $-I_C = 10\text{mA}$	t_f t_f	- -	- -	200	ns ns

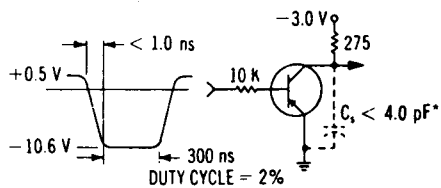


Fig. 1: Test circuit for delay and rise time

* total shunt capacitance of test jig and connectors

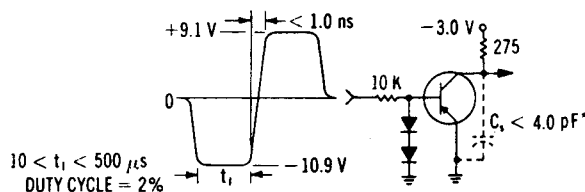
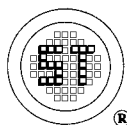


Fig. 2: Test circuit for storage and fall time

* total shunt capacitance of test jig and connectors



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Datasheets for electronics components.