

2N3905 / 2N3906

PNP Silicon Epitaxial Planar Transistor

for switching and amplifier applications.

As complementary types the NPN transistors 2N3903 and 2N3904 are recommended.

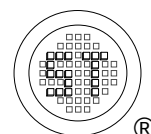
On special request, these transistors can be manufactured in different pin configurations.



1. Emitter 2. Base 3. Collector
TO-92 Plastic Package

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

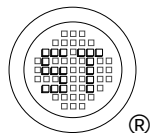
Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{\text{CBO}}$	40	V
Collector Emitter Voltage	$-V_{\text{CEO}}$	40	V
Emitter Base Voltage	$-V_{\text{EBO}}$	6	V
Collector Current	$-I_{\text{C}}$	200	mA
Power Dissipation	P_{tot}	625	mW
Junction Temperature	T_{j}	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	- 55 to + 150	$^\circ\text{C}$



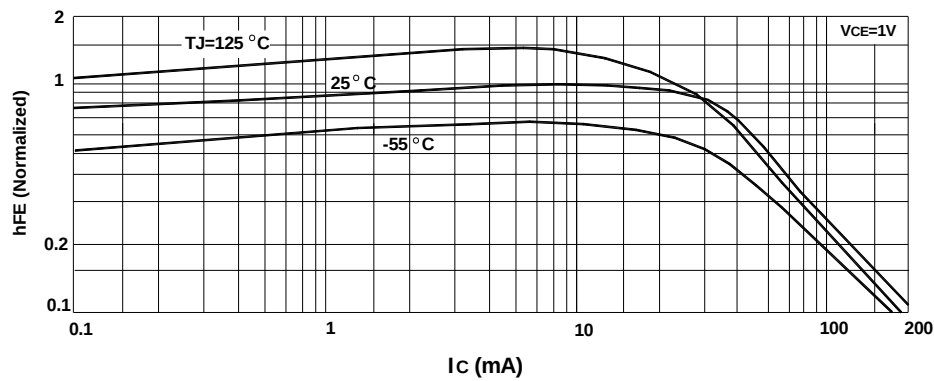
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Characteristics at $T_a = 25\text{ }^{\circ}\text{C}$

Parameter		Symbol	Min.	Max.	Unit
DC Current Gain					
at $-V_{CE} = 1\text{ V}$, $-I_C = 0.1\text{ mA}$	2N3905	h_{FE}	30	-	-
	2N3906	h_{FE}	60	-	-
at $-V_{CE} = 1\text{ V}$, $-I_C = 1\text{ mA}$	2N3905	h_{FE}	40	-	-
	2N3906	h_{FE}	80	-	-
at $-V_{CE} = 1\text{ V}$, $-I_C = 10\text{ mA}$	2N3905	h_{FE}	50	150	-
	2N3906	h_{FE}	100	300	-
at $-V_{CE} = 1\text{ V}$, $-I_C = 50\text{ mA}$	2N3905	h_{FE}	30	-	-
	2N3906	h_{FE}	60	-	-
at $-V_{CE} = 1\text{ V}$, $-I_C = 100\text{ mA}$	2N3905	h_{FE}	15	-	-
	2N3906	h_{FE}	30	-	-
Collector Base Cutoff Current at $-V_{CB} = 30\text{ V}$		$-I_{CBO}$	-	50	nA
Emitter Base Cutoff Current at $-V_{EB} = 6\text{ V}$		$-I_{EBO}$	-	50	nA
Collector Base Breakdown Voltage at $-I_C = 10\text{ }\mu\text{A}$		$-V_{(BR)CBO}$	40	-	V
Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$		$-V_{(BR)CEO}$	40	-	V
Emitter Base Breakdown Voltage at $-I_E = 10\text{ }\mu\text{A}$		$-V_{(BR)EBO}$	6	-	V
Collector Emitter Saturation Voltage at $-I_C = 10\text{ mA}$, $-I_B = 1\text{ mA}$ at $-I_C = 50\text{ mA}$, $-I_B = 5\text{ mA}$		$-V_{CE(sat)}$ $-V_{CE(sat)}$	- -	0.25 0.4	V
Base Emitter Saturation Voltage at $-I_C = 10\text{ mA}$, $-I_B = 1\text{ mA}$ at $-I_C = 50\text{ mA}$, $-I_B = 5\text{ mA}$		$-V_{BE(sat)}$ $-V_{BE(sat)}$	- -	0.85 0.95	V
Gain Bandwidth Product at $-V_{CE} = 20\text{ V}$, $-I_C = 10\text{ mA}$, $f = 100\text{ MHz}$	2N3905 2N3906	f_T	200 250	- -	MHz
Collector Base Capacitance at $-V_{CB} = 5\text{ V}$, $f = 100\text{ KHz}$		C_{ob}	-	4.5	pF
Delay Time at $-V_{CC} = 3\text{ V}$, $-V_{BE} = 0.5\text{ V}$, $-I_C = 10\text{ mA}$, $-I_{B1} = 1\text{ mA}$		t_d	-	35	ns
Rise Time at $-V_{CC} = 3\text{ V}$, $-V_{BE} = 0.5\text{ V}$, $-I_C = 10\text{ mA}$, $-I_{B1} = 1\text{ mA}$		t_r	-	35	ns
Storage Time at $-V_{CC} = 3\text{ V}$, $-I_C = 10\text{ mA}$, $-I_{B1} = I_{B2} = 1\text{ mA}$		t_s	-	225	ns
Fall Time at $-V_{CC} = 3\text{ V}$, $-I_C = 10\text{ mA}$, $-I_{B1} = I_{B2} = 1\text{ mA}$		t_f	-	75	ns



DC Current Gain



Collector Saturation Region

