

TO-92 Plastic-Encapsulate Transistors

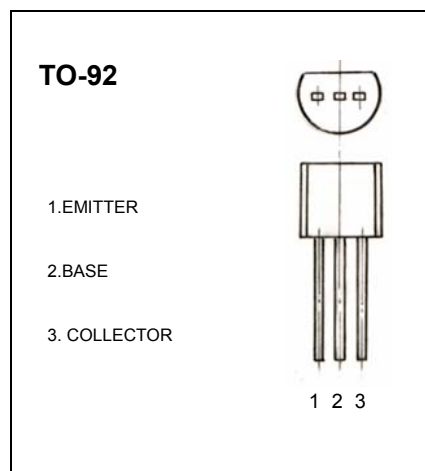
2N3906 TRANSISTOR (PNP)

FEATURE

- PNP silicon epitaxial planar transistor for switching and Amplifier applications
- As complementary type, the NPN transistor 2N3904 is Recommended
- This transistor is also available in the SOT-23 case with the type designation MMBT3906

MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Units
V <sub>CB0</sub>	Collector-Base Voltage	-40	V
V <sub>CE0</sub>	Collector-Emitter Voltage	-40	V
V <sub>EBO</sub>	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current -Continuous	-0.2	A
P <sub>C</sub>	Collector Power Dissipation	0.625	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55-150	°C



ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = -10μA, I <sub>E</sub> =0	-40			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = -1mA, I <sub>B</sub> =0	-40			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = -10μA, I <sub>C</sub> =0	-5			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = -40 V, I <sub>E</sub> =0			-0.1	μA
Collector cut-off current	I <sub>CEX</sub>	V <sub>CE</sub> = -30 V, V <sub>BE(off)</sub> =-3V			-50	nA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = -5 V, I <sub>C</sub> =0			-0.1	μA
DC current gain	h <sub>FE1</sub>	V <sub>CE</sub> =-1 V, I <sub>C</sub> = -10mA	100		400	
	h <sub>FE2</sub>	V <sub>CE</sub> =-1 V, I <sub>C</sub> = -50mA	60			
	h <sub>FE3</sub>	V <sub>CE</sub> =-1 V, I <sub>C</sub> = -100mA	30			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -50mA, I <sub>B</sub> = -5mA			-0.4	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = -50mA, I <sub>B</sub> = -5mA			-0.95	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> =-20V, I <sub>C</sub> = -10mA f = 100MHz	250			MHz
Delay Time	t <sub>d</sub>	V <sub>CC</sub> =-3V, V <sub>BE</sub> =-0.5V, I <sub>C</sub> =-10mA, I <sub>B1</sub> =-1mA			35	ns
Rise Time	t <sub>r</sub>				35	ns
Storage Time	t <sub>s</sub>	V <sub>CC</sub> =-3V, I <sub>C</sub> =-10mA			225	ns
Fall Time	t <sub>f</sub>	I <sub>B1</sub> =I <sub>B2</sub> =-1mA			75	ns

CLASSIFICATION OF h<sub>FE1</sub>

Rank	O	Y	G
Range	100-200	200-300	300-400