2N3906(PNP)

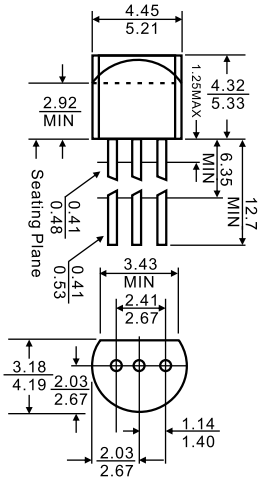
TO-92 Bipolar Transistors

1. EMITTER
2. BASE
3. COLLECTOR

TO-92

Features

- ✧ 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



Dimensions in inches and (millimeters)

MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current -Continuous	-0.2	A
P_C	Collector Power Dissipation	0.625	W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C = -10μA, I_E=0	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C =-1mA , I_B=0	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E= -10μA, I_C=0	-5			V
Collector cut-off current	I_{CBO}	V_{CB}= -40 V,I_E=0			-0.1	μA
Collector cut-off current	I_{CEX}	V_{CE}= -30 V,$V_{BE(off)}$=-3V			-50	nA
Emitter cut-off current	I_{EBO}	V_{EB}= -5 V , I_C=0			-0.1	μA
DC current gain	h_{FE1}	V_{CE}=-1 V, I_C= -10mA	100		400	
	h_{FE2}	V_{CE}=-1 V, I_C= -50mA	60			
	h_{FE3}	V_{CE}=-1 V, I_C= -100mA	30			
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C= -50mA, I_B= -5mA			-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C= -50mA, I_B= -5mA			-0.95	V
Transition frequency	f_T	V_{CE}=-20V, I_C= -10mA f = 100MHz	250			MHz
Delay Time	td	V_{CC}=-3V,V_{BE}=-0.5V, I_C=-10mA,I_{B1}=-1mA			35	ns
Rise Time	tr				35	ns
Storage Time	ts	V_{CC}=-3V,Ic=-10mA I_{B1}=I_{B2}=-1mA			225	ns
Fall Time	tf				75	ns

CLASSIFICATION OF h_{FE1}

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

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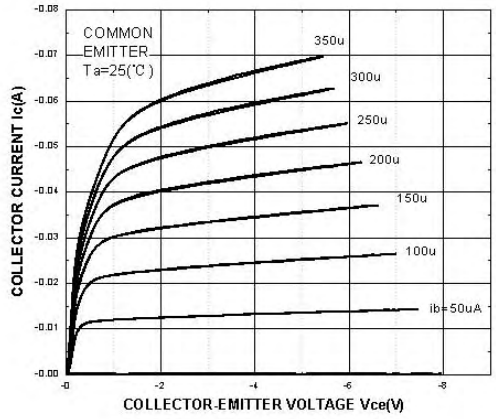
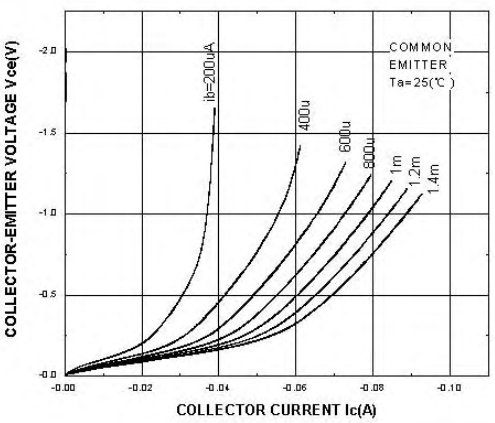
Typical Characteristics

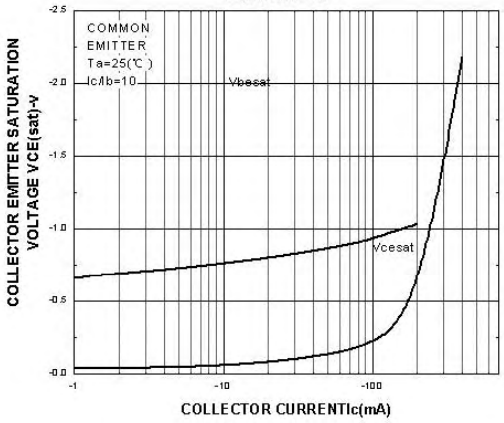
Ic-Vce



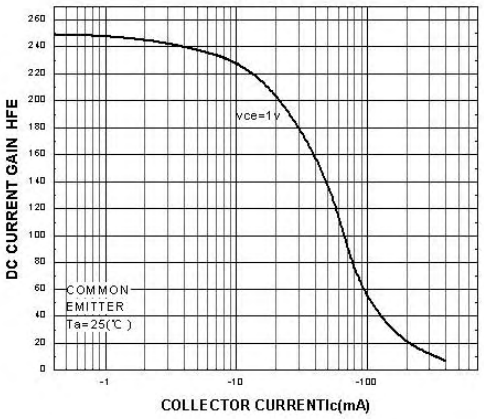
Vce-Ic



Vcesat-Ic
Vbesat-Ic



hFE-Ic



Pc-Ta