



# DATA SHEET

SEMICONDUCTOR

YS2N3906

## TRANSISTOR (PNP)

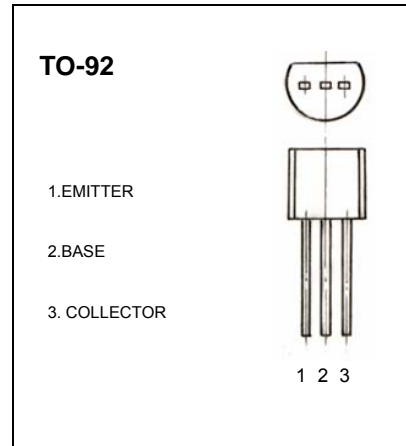


### FEATURE

- 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 ( $T_A=25^\circ\text{C}$ 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	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-55-150	$^\circ\text{C}$



### ELECTRICAL CHARACTERISTICS ( $T_{amb}=25^\circ\text{C}$ unless otherwise specified)

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

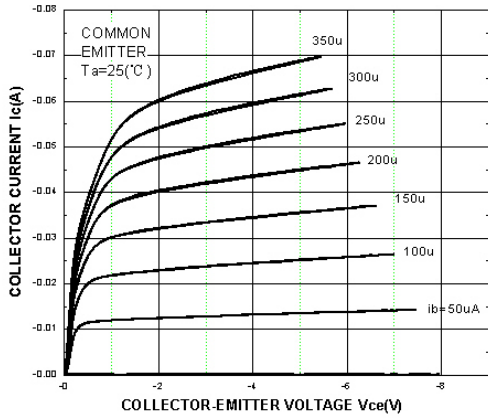
### CLASSIFICATION OF $h_{FE1}$

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

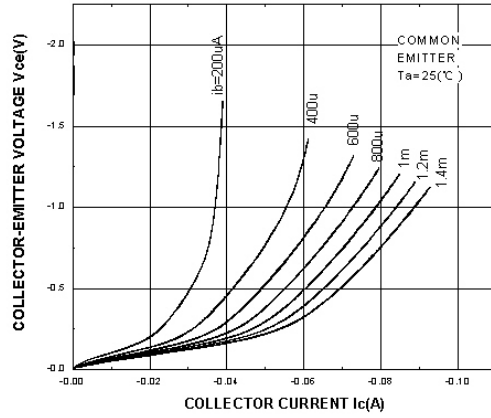
# DEVICE CHARACTERISTICS

## YS2N3906

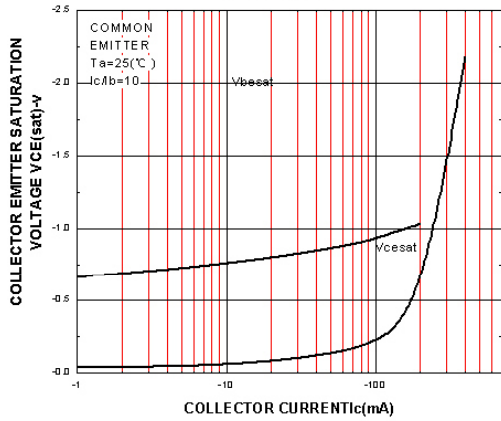
Ic-Vce



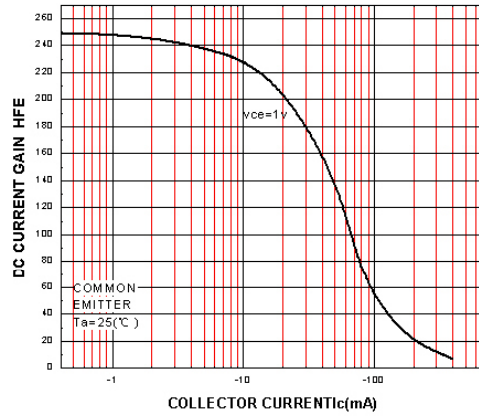
Vce-Ic



Vcesat-Ic  
Vbesat-Ic



hFE-Ic



Pc-Ta

