

SEMICONDUCTOR TECHNICAL DATA

2N3906

EPITAXIAL PLANAR PNP TRANSISTOR

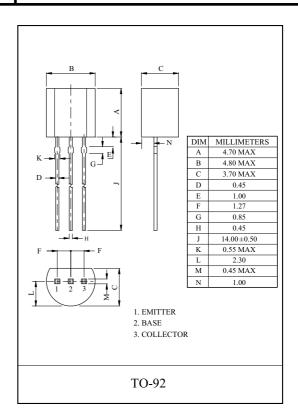
GENERAL PURPOSE APPLICATION. SWITCHING APPLICATION.

FEATURES

- · Low Leakage Current
 - : I_{CEX} =-50nA(Max.), I_{BL} =-50nA(Max.) @ V_{CE} =-30V, V_{EB} =-3V.
- · Excellent DC Current Gain Linearity.
- · Low Saturation Voltage
 - : $V_{CE(sat)}$ =-0.4V(Max.) @ I_{C} =-50mA, I_{B} =-5mA.
- · Low Collector Output Capacitance
 - : C_{ob} =4.5pF(Max.) @ V_{CB} =5V.
- · Complementary to 2N3904.

MAXIMUM RATING (Ta=25 ℃)

CHARACTERISTIC		SYMBOL	RATING	UNIT	
Collector-Base Voltage		V _{CBO}	-40	V	
Collector-Emitter Voltage		V _{CEO}	-40	V	
Emitter-Base Voltage		$V_{\rm EBO}$	-5	V	
Collector Current		I_C	-200	mA	
Base Current		I_{B}	-50	mA	
Collector Power	llector Power Ta=25 °C P _C		625	mW	
Dissipation	Tc=25 ℃	1 C	1.5	W	
Junction Temperature		T _j	150	$^{\circ}$ C	
Storage Temperature Range		T_{stg}	-55 ~ 150	$^{\circ}$	



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ELECTRICAL CHARACTERISTICS (Ta=25 °C)

CHARACT	ERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT	
Collector Cut-off Curr	ff Current I_{CEX} V_{CE} =-30V, V_{EB} =-3V		V _{CE} =-30V, V _{EB} =-3V	-	-	-50	nA	
Base Cut-off Current		I_{BL}	V _{CE} =-30V, V _{EB} =-3V	-	-	-50	nA	
Collector-Base Breakdown Voltage		V _{(BR)CBO}	$I_{C}=-10\mu A, I_{E}=0$	-40	-	-	V	
Collector-Emitter Breakdown Voltage *		V _{(BR)CEO}	I _C =-1mA, I _B =0	-40	-	-	V	
Emitter-Base Breakdown Voltage		V _{(BR)EBO}	$I_{E}=-10 \mu A, I_{C}=0$	-5.0	-	-	V	
DC Current Gain *		h _{FE} (1)	V _{CE} =-1V, I _C =-0.1mA	60	-	-		
		h _{FE} (2)	V _{CE} =-1V, I _C =-1mA	80	-	-		
		h _{FE} (3)	V _{CE} =-1V, I _C =-10mA	100	-	300		
		h _{FE} (4)	V _{CE} =-1V, I _C =-50mA	60	-	-		
		h _{FE} (5)	V _{CE} =-1V, I _C =-100mA	30	-	-		
Collector-Emitter Saturation Voltage *	V _{CE(sat)} 1	I _C =-10mA, I _B =-1mA	-	-	-0.25	X7		
	V _{CE(sat)} 2	I _C =-50mA, I _B =-5mA	-	-	-0.4	V		
D E:44 C44			I _C =-10mA, I _B =-1mA	-0.65	-	-0.85		
Base-Emitter Saturation Voltage *		V _{BE(sat)} 2	I_C =-50mA, I_B =-5mA	-	-	-0.95	V	
Transition Frequency		f_T	V _{CE} =-20V, I _C =-10mA, f=100MHz	250	-	-	MHz	
Collector Output Capacitance		C _{ob}	V_{CB} =-5V, I_E =0, f=1MHz	-	-	4.5	pF	
Input Capacitance		C_{ib}	V _{BE} =-0.5V, I _C =0, f=1MHz	-	-	10	pF	
Input Impedance		h _{ie}	V_{CE} =-10V, I_{C} =-1mA, f=1kHz	2.0	-	12	kΩ	
Voltage Feedback Ratio		h _{re}		1.0	-	10	x10-4	
Small-Signal Current Gain		h _{fe}	V _{CE} =-10V, I _C =-1111A, 1=1KHZ	100	-	400		
Collector Output Admittance		h _{oe}		3.0	-	60	μ ⁷ 5	
Noise Figure		NF	V_{CE} =-5V, I_{C} =-0.1mA, Rg=1k Ω , f=10Hz \sim 15.7kHz	-	-	4.0	dB	
Switching Time	Delay Time	\mathbf{t}_{d}	$V_{in} \circ \frac{10k\Omega}{}$ $V_{in} \circ \frac{10k\Omega}{}$ $V_{out} \circ V_{out} \circ V_$	-	-	35		
	Rise Time	t _r	$\begin{array}{c c} 0.5V & -10.6V & -10.6$	-	-	35	nS	
	Storage Time	t _{stg}	$V_{\text{in}} \circ \frac{10k\Omega}{V_{\text{in}}}$ $V_{\text{in}} \circ \frac{10k\Omega}{V_{\text{out}}}$	-	-	225		
	Fall Time	$\mathbf{t_f}$	or equiv. $\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	-	-	75		

^{*} Pulse Test : Pulse Width ≤300 \(\int_{\mathcal{S}}\), Duty Cycle ≤2%.

