2N3905 2N3906

PNP SILICON PLANAR EPITAXIAL TRANSISTORS

THE 2N3905 AND 2N3906 ARE PNP SILICON PLANAR EPITAXIAL TRANSISTORS. THEY ARE INTENDED FOR GENERAL PURPOSE, SATURATED-SWITCHING AND AMPLIFIER APPLICATIONS. THEY ARE COMPLEMENTARY TO 2N3903 AND 2N3904 RESPECTIVELY.

CASE TO-92A

EBC

ABSOLUTE MAXIMUM RATINGS For pnp devices, voltage and current values are negative.

Collector-Base Voltage	V_{CBO}	40V
Collector-Emitter Voltage	V_{CEO}	-40V
Emitter-Base Voltage	V_{EBO}	5V
Collector Current	I_C	200mA
Total Power Dissipation @ T_A=25°C	P_{tot}	350mW
@ T_C=25°C		1W
Operating Junction & Storage Temperature	T_j, T_{stg}	-55 to +150°C

ELECTRICAL CHARACTERISTICS AT T_A=25°C

PARAMETER	SYMBOL	2N3905 MIN	2N3905 MAX	2N3906 MIN	2N3906 MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage	BVCBO	40		40		V	I_C=10μA I_E=0
Collector-Emitter Breakdown Voltage	LVCEO*	40		40		V	I_C=1mA I_B=0
Emitter-Base Breakdown Voltage	BVEBO	5		5		V	I_E=10μA I_C=0
Collector Cutoff Current	I_{CEV}		50		50	nA	V_{CE}=30V V_{EB}=3V
Base Cutoff Current	I_{BEV}		50		50	nA	V_{CE}=30V V_{EB}=3V
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$*		0.25		0.25	V	I_C=10mA I_B=1mA
			0.4		0.4	V	I_C=50mA I_B=5mA
Base-Emitter Saturation Voltage	$V_{BE(SAT)}$*	.65	0.85	0.65	0.85	V	I_C=10mA I_B=1mA
			0.95		0.95	V	I_C=50mA I_B=5mA
D.C. Current Gain	H_{FE} *	30		60			I_C=0.1mA V_{CE}=1V
		40		80			I_C=1mA V_{CE}=1V
		50	150	100	300		I_C=10mA V_{CE}=1V
		30		60			I_C=50mA V_{CE}=1V
		15		30			I_C=100mA V_{CE}=1V

* Pulse Test : Pulse Width=0.3mS, Duty Cycle=1%.

P.T.O.

7.78.0962

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PARAMETER	SYMBOL	2N3905 MIN	2N3905 MAX	2N3906 MIN	2N3906 MAX	UNIT	TEST CONDITIONS
Current Gain-Bandwidth Product	f_T	200		250		MHz	I_C=10mA V_{CE}=20V f=100MHz
Output Capacitance	Cob		4.5		4.5	pF	V_{CB}=5V I_E=0 f=100kHz
Input Capacitance	Cib		10		10	pF	V_{EB}=0.5V I_C=0 f=100kHz
Input Impedance	h_{ie}	0.5	8	2	12	kΩ	I_C=1mA V_{CE}=10V f=1kHz
Voltage Feedback Ratio	h_{re}	0.1	5	1	10	$x10^{-4}$	I_C=1mA V_{CE}=10V f=1kHz
Small Signal Current Gain	h_{fe}	50	200	100	400		I_C=1mA V_{CE}=10V f=1kHz
Output Admittance	h_{oe}	1	40	3	60	µU	I_C=1mA V_{CE}=10V f=1kHz
Noise Figure	NF		5		4	dB	I_C=100µA V_{CE}=5V R_S=1kΩ f=10Hz to 15.7kHz
Delay Time	t_d		35		35	nS	$-V_{cc}$=3V V_{EB}=0.5V I_C=10mA $-I_{B1}$=1mA
Rise Time	t_r		35		35	nS	V_{cc}=3V V_{EB}=0.5V I_C=10mA $-I_{B1}$=1mA
Storage Time	t_s		200		225	nS	V_{cc}=3V I_C=10mA $-I_{B1}$= I_{B2}=1mA
Fall Time	t_f		60		75	nS	V_{cc}=3V $-I_C$=10mA I_{B1}= I_{B2}=1mA