

# 2N2906 · 2N2906A PN2906 · PN2906A

PNP SILICON GENERAL PURPOSE AMPLIFIERS AND SWITCHES

THE 2N2906, 2N2906A, PN2906, PN2906A ARE PNP SILICON PLANAR EPITAXIAL TRANSISTORS FOR GENERAL PURPOSE AMPLIFIERS AND MEDIUM SPEED SWITCHING APPLICATIONS. THEY ARE COMPLEMENTARY TO THE NPN TYPE 2N2221, 2N2221A, PN2221, PN2221A RESPECTIVELY. THE 2N2906, 2N2906A ARE PACKED IN TO-18. THE PN2906, PN2906A ARE PACKED IN TO-92A.

CASE TO-18

CASE TO-92A



CBE



EBC

2N2906  
2N2906A

PN2906  
PN2906A

## ABSOLUTE MAXIMUM RATINGS

		2N2906	2N2906A	PN2906	PN2906A
Collector-Base Voltage	-V <sub>CB0</sub>	60V	60V	60V	60V
Collector-Emitter Voltage	-V <sub>CEO</sub>	40V	60V	40V	60V
Emitter-Base Voltage	-V <sub>EBO</sub>	5V	5V	5V	5V
Collector Current	-I <sub>C</sub>	0.6A	0.6A	0.6A	0.6A
Total Power Dissipation (T <sub>C</sub> ≤ 25°C)	P <sub>tot</sub>	1.8W	1.8W	1.2W	1.2W
	(T <sub>A</sub> ≤ 25°C)	400mW	400mW	500mW	500mW
Junction Temperature	T <sub>j</sub>	200°C	200°C	150°C	150°C
Storage Temperature Range	T <sub>stg</sub>	-65 to 200°C		-55 to 150°C	

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

PARAMETER	SYMBOL	2N2906	2N2906A	UNIT	TEST CONDITIONS
		PN2906	PN2906A		
		MIN	MAX		
Collector-Base Breakdown Voltage	-BV <sub>CB0</sub>	60	60	V	-I <sub>C</sub> =0.01mA I <sub>E</sub> =0
Collector-Emitter Breakdown Voltage	-LV <sub>CEO</sub> *	40	60	V	-I <sub>C</sub> =10mA I <sub>B</sub> =0
Emitter-Base Breakdown Voltage	-BV <sub>EBO</sub>	5	5	V	-I <sub>E</sub> =0.01mA I <sub>C</sub> =0
Collector Cutoff Current	-I <sub>CB0</sub>	20	10	nA	-V <sub>CB</sub> =50V I <sub>E</sub> =0
		20	10	μA	-V <sub>CB</sub> =50V I <sub>E</sub> =0 T <sub>A</sub> =150°C
Collector Cutoff Current	-I <sub>CEV</sub>	50	50	nA	-V <sub>CE</sub> =30V -V <sub>EB</sub> =0.5V
Base Cutoff Current	-I <sub>BL</sub>	50	50	nA	-V <sub>CE</sub> =30V -V <sub>EB</sub> =0.5V
Collector-Emitter Saturation Voltage	-V <sub>CE(sat)</sub> *	0.4	0.4	V	-I <sub>C</sub> =150mA -I <sub>B</sub> =15mA
		1.6	1.6	V	-I <sub>C</sub> =500mA -I <sub>B</sub> =50mA

**MICRO ELECTRONICS LTD.**

38 HUNG TO ROAD, KWUN TONG, HONG KONG. TELEX 43510  
KWUN TONG P. O. BOX 69477 CABLE ADDRESS "MICROTRON"  
TELEPHONE: 3-430181-6 3-693363, 3-692423

FAX: 3-410321

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PARAMETER	SYMBOL	2N2906 PN2906		2N2906A PN2906A		UNIT	TEST CONDITIONS
		MIN	MAX	MIN	MAX		
Base-Emitter Saturation Voltage	$V_{BE(sat)}^*$	1.3		1.3		V	$-I_C=150mA$ $-I_B=15mA$
		2.6		2.6		V	$-I_C=500mA$ $-I_B=50mA$
D.C. Current Gain	$H_{FE}^*$	20		40			$-I_C=0.1mA$ $-V_{CE}=10V$
		25		40			$-I_C=1mA$ $-V_{CE}=10V$
		35		40			$-I_C=10mA$ $-V_{CE}=10V$
		40	120	40	120		$-I_C=150mA$ $-V_{CE}=10V$
		20		40			$-I_C=500mA$ $-V_{CE}=10V$
Current Gain-Bandwidth Product	$f_T$	200		200		MHz	$-I_C=50mA$ $-V_{CE}=20V$
Collector-Base Capacitance	$C_{ob}$		8		8	pF	$-V_{CB}=10V$ $I_E=0$ $f=100kHz$
Emitter-Base Capacitance	$C_{ib}$		30		30	pF	$-V_{EB}=2V$ $I_C=0$ $f=100kHz$
Turn-On Time	$t_{on}$				45	nS	$-I_C=150mA$ $-I_{B1}=15mA$ $-V_{CC}=30V$
Turn-Off Time	$t_{off}$				100	nS	$-I_C=150mA$ $-I_{B1}=I_{B2}=15mA$ $-V_{CC}=6V$
Delay Time	$t_d$		10		10	nS	$-I_C=150mA$ $-I_{B1}=15mA$ $-V_{CC}=30V$
Rise Time	$t_r$		40		40	nS	$-I_C=150mA$ $-I_{B1}=15mA$ $-V_{CC}=30V$
Storage Time	$t_s$		80		80	nS	$-I_C=150mA$ $-I_{B1}=I_{B2}=15mA$ $-V_{CC}=6V$
Fall Time	$t_f$		30		30	nS	$-I_C=150mA$ $-I_{B1}=I_{B2}=15mA$ $-V_{CC}=6V$

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

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