

# MICRO ELECTRONICS

## 2N/PN2905

PNP  
SILICON  
TRANSISTORS

2N/PN2905 are PNP silicon planar epitaxial transistors. It is intended for driver stage of power amplifiers and switching applications.

2N2905  
TO-39



PN2905  
TO-92A



### ABSOLUTE MAXIMUM RATINGS

		2N2905	PN2905
Collector-Base Voltage	VCBO	60V	60V
Collector-Emitter Voltage	VCEO	40V	40V
Emitter-Base Voltage	VEBO	5V	5V
Collector Current	IC	600mA	600mA
Total Power Dissipation @ Ta=25°C	Ptot	600mW	500mW
Operating Junction & Storage Temperature	Tj, Tstg	-65 to +200°C	-55 to +150°C

### ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted)

PARAMETER	SYMBOL	MIN	MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage	BV <sub>CB0</sub>	-60		V	I <sub>C</sub> =-10uA I <sub>E</sub> =0
Collector-Emitter Breakdown Voltage	LV <sub>CEO</sub>	-40		V	I <sub>C</sub> =-10mA I <sub>B</sub> =0
Emitter-Base Breakdown Voltage	BV <sub>EBO</sub>	-5		V	I <sub>E</sub> =-10uA I <sub>C</sub> =0
Collector Cutoff Current	I <sub>CB0</sub>		-20	nA	V <sub>CB</sub> =-50V I <sub>E</sub> =0
Collector Cutoff Current	I <sub>CBO</sub>		-20	uA	V <sub>CB</sub> =-50V I <sub>E</sub> =0
Collector Cutoff Current	I <sub>CEX</sub>		-50	nA	T <sub>A</sub> =150°C V <sub>CE</sub> =-30V V <sub>BE</sub> =0.5V
Base Current	I <sub>B</sub>		50	nA	V <sub>CE</sub> =-30V V <sub>BE</sub> =0.5V
D.C. Current Gain	h <sub>FE</sub>	35			V <sub>CE</sub> =-10V I <sub>C</sub> =-100uA
D.C. Current Gain	h <sub>FE</sub>	50			V <sub>CE</sub> =-10V I <sub>C</sub> =-1mA
D.C. Current Gain	h <sub>FE</sub>	75			V <sub>CE</sub> =-10V I <sub>C</sub> =-10mA
D.C. Current Gain	h <sub>FE</sub>	100	300		V <sub>CE</sub> =-10V I <sub>C</sub> =-150mA
D.C. Current Gain	h <sub>FE</sub>	30			V <sub>CE</sub> =-10V I <sub>C</sub> =-500mA
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>		-0.4	V	I <sub>C</sub> =-150mA I <sub>B</sub> =-15mA
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>		-1.6	V	I <sub>C</sub> =-500mA I <sub>B</sub> =-50mA
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>		-1.3	V	I <sub>C</sub> =-150mA I <sub>B</sub> =-15mA
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>		-2.6	V	I <sub>C</sub> =-500mA I <sub>B</sub> =-50mA
Output Capacitance	C <sub>ob</sub>		8	pF	V <sub>CB</sub> =-10V I <sub>E</sub> =0
Input Capacitance	C <sub>ib</sub>		30	pF	V <sub>EB</sub> =-2V I <sub>C</sub> =0
High Frequency Current Gain	h <sub>fe</sub>	2			V <sub>CE</sub> =-20V I <sub>C</sub> =-50mA f=100MHz

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ELECTRICAL CHARACTERISTICS @  $T_A=25^{\circ}\text{C}$  (unless otherwise stated) :

PARAMETER	SYMBOL	MIN	MAX	UNIT	TEST CONDITIONS
Delay Time	$t_d$		10	nsec	$I_C=-150\text{mA}$ $I_{B1}=-15\text{mA}$
Rise Time	$t_r$		40	nsec	$V_{BE}(\text{off})=0$ $R_L=200\text{ohm}$
Turn On Time	$t_{on}$		45	nsec	
Storage Time	$t_s$		80	nsec	$I_C=-150\text{mA}$ $I_{B1}=-13\text{mA}$
Fall Time	$t_f$		30	nsec	$I_{B2}=17\text{mA}$ $R_L=37\text{ohm}$
Turn Off Time	$t_{off}$		100	nsec	