

MICRO ELECTRONICS

2N/PN2904A
2N/PN2905A

PNP
SILICON
TRANSISTORS

2N/PN2904A & 2N/PN2905A are PNP silicon planar epitaxial transistors. It is intended for high speed medium power switching and general purpose amplifier applications.

T0-39



C B
E

2N2904A
2N2905A

T0-92A



EBC

PN2904A
PN2905A

ABSOLUTE MAXIMUM RATINGS

Collector-Base Voltage	V_{CBO}	60V	60V
Collector-Emitter Voltage	V_{CEO}	60V	60V
Emitter-Base Voltage	V_{EBO}	5V	5V
Collector Current	I_C	600mA	600mA
Total Power Dissipation @ $T_A \leq 25^\circ C$	P_{tot}	600mW	500mW
@ $T_C \leq 25^\circ C$		3W	1.2W
Operating Junction & Storage Temperature T_j, T_{stg}		-65 to +200 $^\circ C$	-55 to +150 $^\circ C$

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

PARAMETER	SYMBOL	2N/PN2904A		2N/PN2905A		UNIT	TEST CONDITIONS
		MIN	MAX	MIN	MAX		
Collector-Base Cutoff Current	I_{CBO}		10	10		nA	$V_{CB} = 50V$ $I_E = 0$
Collector-Base Cutoff Current	I_{CBO}		10	10		uA	$V_{CB} = 50V$ $I_E = 0$ $T_A = 150^\circ C$
Collector Cutoff Current	I_{CEX}		50	50		nA	$V_{CE} = 30V$ $V_{BE} = 0.5V$
Base Cutoff Current	I_B		50	50		nA	$V_{CE} = 30V$ $V_{BE} = 0.5V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		1.6	1.6		V	$I_C = 500mA$ $I_B = 50mA$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.4	0.4		V	$I_C = 150mA$ $I_B = 15mA$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1.3	1.3		V	$I_C = 150mA$ $I_B = 15mA$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		2.6	2.6		V	$I_C = 500mA$ $I_B = 50mA$
D.C. Current Gain	h_{FE}	40		75			$I_C = 0.1mA$ $V_{CE} = 10V$

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PARAMETER	SYMBOL	2N/PN2904 A		2N/PN2905A		UNIT	TEST CONDITIONS
		MIN	MAX	MIN	MAX		
D.C. Current Gain	h_{FE}	40		100			$I_C=1mA$ $V_{CE}=10V$
D.C. Current Gain	h_{FE}	40		100			$I_C=10mA$ $V_{CE}=10V$
D.C. Current Gain	h_{FE}	40	120	100	300		$I_C=150mA$ $V_{CE}=10V$
D.C. Current Gain	h_{FE}	40		50			$I_C=500mA$ $V_{CE}=10V$
Output Capacitance	C_{ob}		8		8	pF	$V_{CB}=10V$ $I_E=0$ $f=1MHz$
Input Capacitance	C_{ib}		30		30	pF	$V_{EB}=2V$ $I_C=0$ $f=1MHz$
High Frequency Current Gain	h_{fe}	2		2			$V_{CE}=20V$ $I_C=50mA$ $f=100MHz$

SWITCHING CHARACTERISTICS :

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITIONS
Delay Time	t_d		6	10	nsec	$I_C=150mA$ $I_B=15mA$
Rise Time	t_r		15	40	nsec	$V_C=30V$
Turn-On Time	t_{on}		21	45	nsec	
Storage Time	t_s		60	80	nsec	$I_C=150mA$
Fall Time	t_f		20	20	nsec	$I_{B1}=I_{B2}=15mA$
Turn-Off Time	t_{off}		80	100	nsec	$V_C=6V$