

MICRO ELECTRONICS

2N 2907
2N2907A
PN 2907
PN2907A

THE 2N2907, 2N2907A, PN2907, PN2907A ARE PNP SILICON PLANAR EPITAXIAL TRANSISTORS FOR GENERAL PURPOSE AMPLIFIERS AND MEDIUM SPEED SWITCHING APPLICATIONS. THEY ARE COMPLEMENTARY TO THE NPN TYPE 2N2222, 2N2222A, PN2222, PN2222A RESPECTIVELY. THE 2N2907, 2N2907A ARE PACKED IN TO-18. THE PN2907, PN2907A ARE PACKED IN TO-92A.

CASE TO-18



CBE

2N2907
2N2907A

CASE TO-92A



EBC

PN2907
PN2907A

ABSOLUTE MAXIMUM RATINGS

		2N2907	2N2907A	PN2907	PN2907A
Collector-Base Voltage	$-V_{CBO}$	60V	60V	60V	60V
Collector-Emitter Voltage	$-V_{CEO}$	40V	60V	40V	60V
Emitter-Base Voltage	$-V_{EBO}$	5V	5V	5V	5V
Collector Current	$-I_C$	0.6A	0.6A	0.6A	0.6A
Total Power Dissipation ($T_C \leq 25^\circ\text{C}$)	P_{tot}	1.8W	1.8W	1.2W	1.2W
		400mW	400mW	500mW	500mW
Junction Temperature	T_j	200°C	200°C	150°C	150°C
Storage Temperature Range	T_{stg}	-65 to 200°C		-55 to 150°C	

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

PARAMETER	SYMBOL	2N2907 PN2907 MIN MAX	2N2907A PN2907A MIN MAX	UNIT	TEST CONDITIONS
Collector-Base Breakdown Voltage	$-BV_{CBO}$	60	60	V	$-I_C=0.01\text{mA}$ $I_E=0$
Collector-Emitter Breakdown Voltage	$-LV_{CEO}^*$	40	60	V	$-I_C=10\text{mA}$ $I_B=0$
Emitter-Base Breakdown Voltage	$-BV_{EBO}$	5	5	V	$-I_E=0.01\text{mA}$ $I_C=0$
Collector Cutoff Current	$-I_{CBO}$	20	10	nA	$-V_{CB}=50\text{V}$ $I_E=0$
		20	10	μA	$-V_{CB}=50\text{V}$ $I_E=0$ $T_A=150^\circ\text{C}$
Collector Cutoff Current	$-I_{CEV}$	50	50	nA	$-V_{CE}=30\text{V}$ $-V_{EB}=0.5\text{V}$
Base Cutoff Current	$-I_{BL}$	50	50	nA	$-V_{CE}=30\text{V}$ $-V_{EB}=0.5\text{V}$
Collector-Emitter Saturation Voltage	$-V_{CE(sat)}^*$	0.4	0.4	V	$-I_C=150\text{mA}$ $-I_B=15\text{mA}$
		1.6	1.6	V	$-I_C=500\text{mA}$ $-I_B=50\text{mA}$

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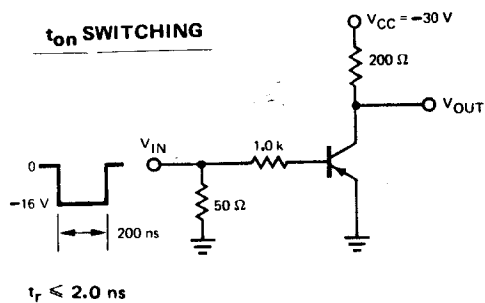
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PARAMETER	SYMBOL	2N2907	2N2907A	UNIT	TEST CONDITIONS
		PN2907 MIN MAX	PN2907A MIN MAX		
Base-Emitter Saturation Voltage	$V_{BE(sat)}$ *	1.3	1.3	V	$-I_C=150mA$ $-I_B=15mA$
		2.6	2.6	V	$-I_C=500mA$ $-I_B=50mA$
D.C. Current Gain	H_{FE} *	35	75		$-I_C=0.1mA$ $-V_{CE}=10V$
		50	100		$-I_C=1mA$ $-V_{CE}=10V$
		75	100		$-I_C=10mA$ $-V_{CE}=10V$
		100 300	100 300		$-I_C=150mA$ $-V_{CE}=10V$
		30	50		$-I_C=500mA$ $-V_{CE}=10V$
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	$-I_C=150mA$ $-I_{B1}=I_{B2}=15mA$ $-V_{CC}=6V$

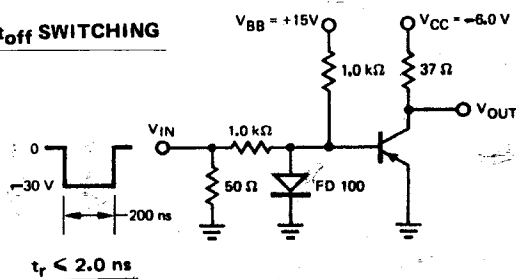
* Pulse Test : Pulse Width=0.3mS, Duty Cycle=1%

SWITCHING TIME TEST CIRCUITS

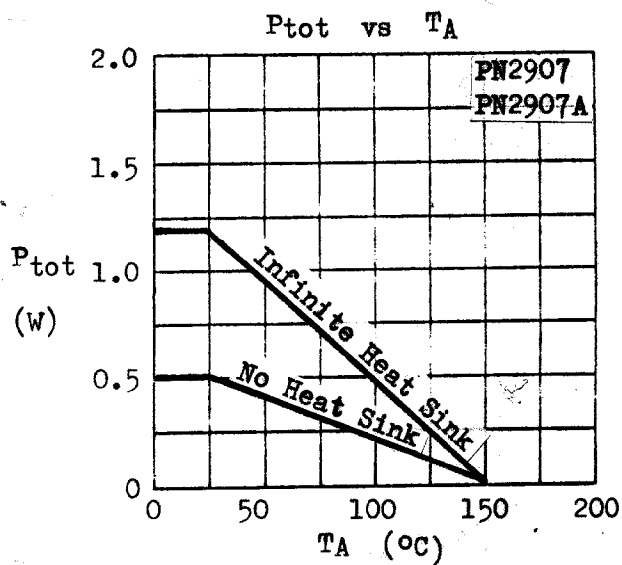
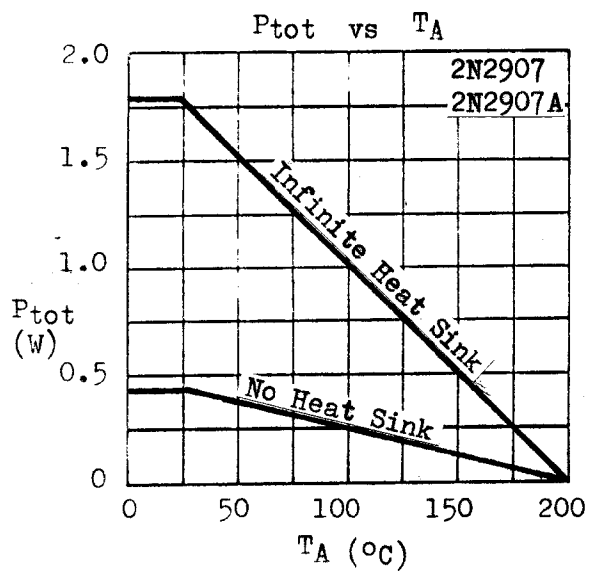
t_{on} SWITCHING



t_{off} SWITCHING



All waveforms are monitored on an oscilloscope with $R_{in} \geq 100K\Omega$, $C_{in} \leq 12pF$, $t_r \leq 5nS$.



TYPICAL CHARACTERISTICS

($T_A=25^\circ\text{C}$ unless otherwise noted)

