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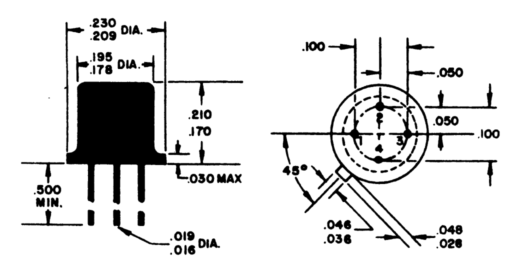
2N2907

PNP SILICON PLANEX TRANSISTOR

2N2907 is a silicon PNP PLANEX* transistor designed primarily for saturated switching, D.C. amplifier and VHF-UHF communication applications. It features low saturation voltage, wide gain linearity, and high current gain bandwidth product. Manufactured in accordance with Raytheon's MARK XII Reliability Program.†



MECHANICAL DATA

CASE: JEDEC TO-18

TERMINAL CONNECTIONS:
Lead 1 Emitter
Lead 2 Base
Lead 3 Collector (Electrically connected to case)

ELECTRICAL DATA

ABSOLUTE MAXIMUM RATINGS:

Collector to Base Voltage V_{CBO}	—60 volts
Collector to Emitter Voltage V_{CEO}	—40 volts
Emitter to Base Voltage V_{EBO}	—5 volts
Total Device Dissipation	
@ Case Temperature 25° C	1.8 watts
@ Free Air Temperature 25° C	0.4 watts
Junction Temperature (Operating)	—65° C to +200° C
Storage Temperature	—65° C to +300° C

ELECTRICAL CHARACTERISTICS: @25° C (unless otherwise noted)

	SYM.	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Collector to Base Breakdown Voltage	BV_{CBO}	I_C= —10 μA	—60	....	....	volts
Collector to Emitter Breakdown Voltage	BV_{CEO}	I_C= —10 mA ▲	—40	....	....	volts
Emitter to Base Breakdown Voltage	BV_{EBO}	I_E= —10 μA	—5	....	....	volts
Collector Cutoff Current	I_{CBO1}	V_{CB}= —50 V	....	....	20	nA
	I_{CBO2}	V_{CB}= —50 V, TA= +150° C	....	....	20	μA
Base Current	I_B	V_{BE}=0.5 V, V_{CE}= —30 V	....	....	50	nA
Collector Reverse Current	I_{CEX}	V_{CE}= —30 V, V_{BE}=0.5 V	....	....	50	nA
DC Current Gain	h_{FE1}	V_{CE}= —10 V, I_C= —0.1 mA	35	....	....	....
	h_{FE2}	V_{CE}= —10 V, I_C= —1.0 mA	50	....	....	....
	h_{FE3}	V_{CE}= —10 V, I_C= —10 mA	75	....	....	....
	h_{FE4}	V_{CE}= —10 V, I_C= —150 mA▲	100	....	300	....
	h_{FE5}	V_{CE}= —10 V, I_C= —500 mA▲	30	....	....	....
Collector to Emitter Saturation Voltage	$V_{CE(sat)1}$	I_C= —150 mA, I_B= —15 mA▲	...	....	—0.4	volts
	$V_{CE(sat)2}$	I_C= —500 mA, I_B= —50 mA▲	...	....	—1.6	volts
Base to Emitter Saturation Voltage	$V_{BE(sat)1}$	I_C= —150 mA, I_B= —15 mA▲	...	....	—1.3	volts
	$V_{BE(sat)2}$	I_C= —500 mA, I_B= —50 mA▲	...	....	—2.6	volts
High Frequency Small Signal Current Gain	hfe	V_{CE}= —20 V, I_C= —50 mA, f=100 mc	2	....	....	....
Collector Capacitance	Cob	V_{CB}= —10 V, I_E=0 mA, f=1 mc	....	....	8	pf
Input Capacitance	Cib	V_{EB}= —2 V, I_C= 0 mA	....	....	30	pf

▲ Pulse width ≤ 300 μsec, Duty Cycle ≤ 2%

ELECTRICAL DATA (Con't)

SMALL SIGNAL PARAMETERS:

	SYM.	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Delay Time	t_d	V_{CC} = —30 V, I_{CS} = — 150 mA	....	....	10	nsec
Rise Time	t_r	I_{B1} = —15 mA	....	....	40	nsec
Turn-on Time ($t_d + t_r$)	t_{on}	See Figure 1	....	....	45	nsec
Storage Time	t_s	V_{CC} = —6 V, I_{CS} = —150 mA	....	....	80	nsec
Fall Time	t_f	I_{B1} = —15 mA, I_{B2} = 15 mA	....	....	30	nsec
Turn-off Time ($t_s + t_f$)	t_{off}	See Figure 2	....	....	100	nsec

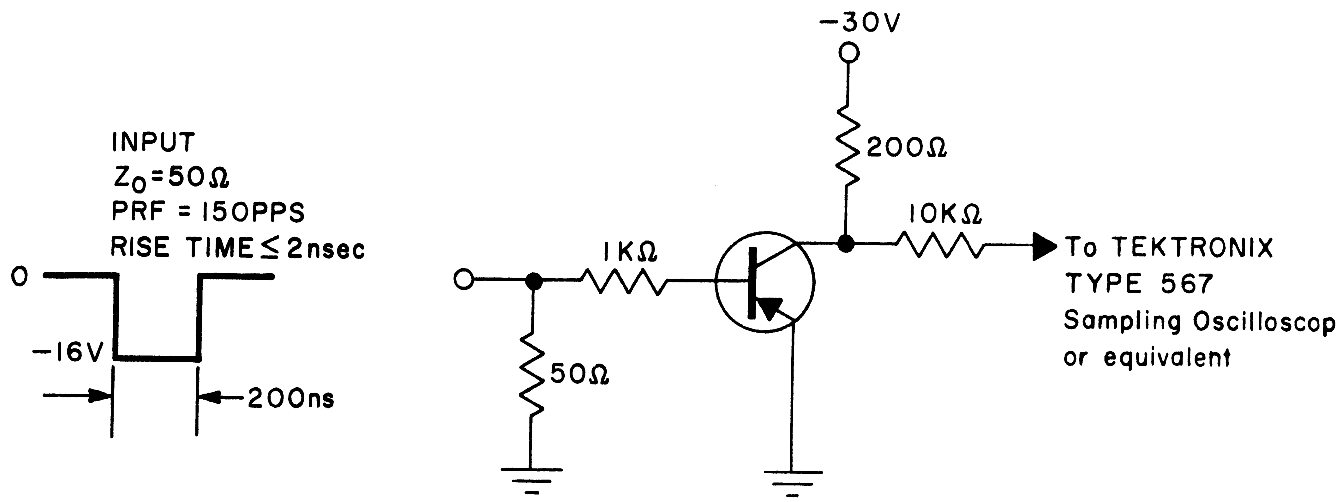


FIGURE 1
TEST CIRCUIT FOR DETERMINING DELAY TIME AND RISE TIME

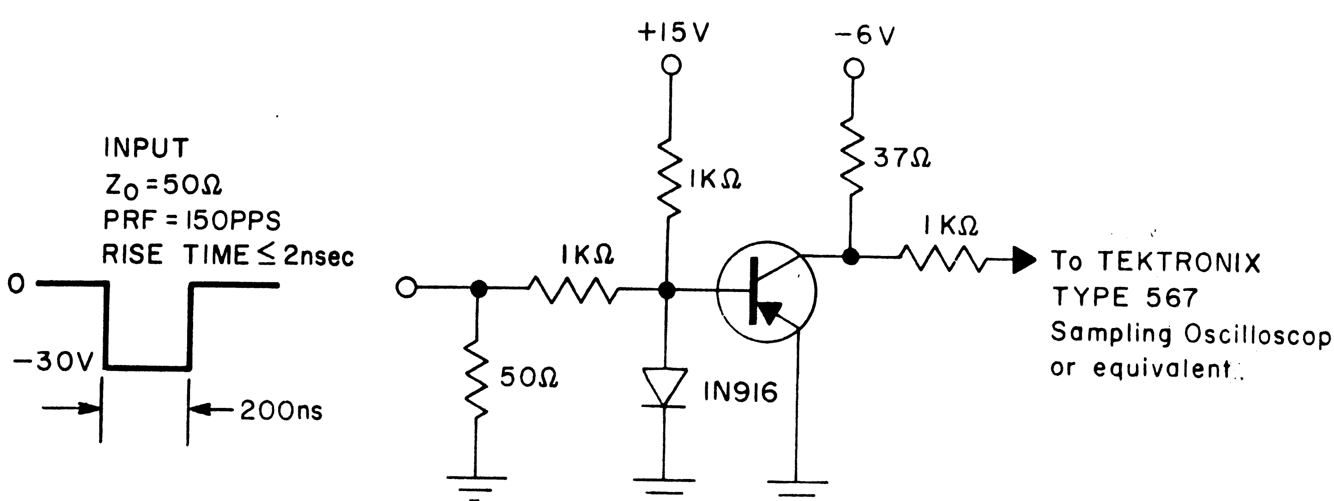


FIGURE 2
TEST CIRCUIT FOR DETERMINING STORAGE TIME AND FALL TIME