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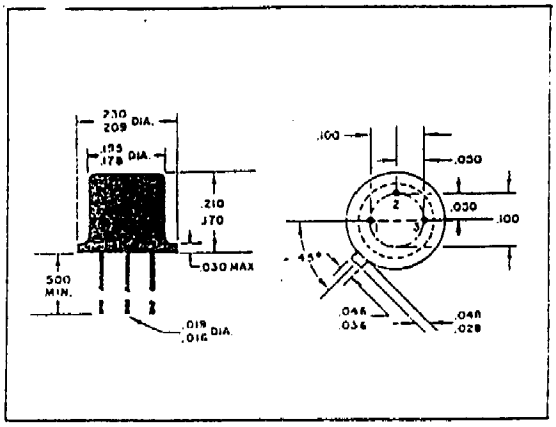
SILICON TRANSISTOR 2N708



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}	40 volts
Collector to Emitter Voltage ($R_{BE} \leq 10\Omega$) V_{CER}	20 volts
Collector to Emitter Voltage V_{CEO}	15 volts
Emitter to Base Voltage V_{EBO}	5.0 volts
Total Device Dissipation	
@ Case Temperature 25° C	1.2 watts
@ Case Temperature 100° C	0.68 watts
@ Free Air Temperature 25° C	0.36 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.	MAX.	UNITS
Collector to Base Breakdown Voltage	BV_{CBO}	I_C=1.0 μA	40	....	volts
Collector to Emitter Breakdown Voltage	BV_{CER}	I_C=30 mA, $R_{BE} \leq 10\Omega$	20	....	volts
	BV_{CEO}	I_C=30 mA	15	....	volts
Emitter to Base Breakdown Voltage	BV_{EBO}	I_E=10 μA	5.0	....	volts
Collector Cutoff Current	I_{CBO1}	V_{CB}=20 V	....	25	nA
Collector Cutoff Current	I_{CBO2}	V_{CB}=20 V, TA=150° C	....	15	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4.0 V	....	0.10	μA
Collector Current	I_{CEX}	V_{CE}=20 V, V_{BE}=0.25 V, TA=125° C	....	10	μA
DC Current Gain	h_{FE1}	V_{CE}=1.0 V, I_C=10 mA ▲	30	120	....
	h_{FE2}	V_{CE}=1.0 V, I_C=10 mA, ▲ TA=—55° C	15	....	....
	h_{FE3}	V_{CE}=1.0 V, I_C=0.5 mA	15	....	....
Base to Emitter Saturation Voltage	V_{BE} (sat) 1	I_C=10 mA, I_B=1.0 mA	0.72	0.80	volts
	V_{BE} (sat) 2	I_C=7.0 mA, I_B=0.7 mA, TA=—55° C	....	0.9	volts
Collector to Emitter Saturation Voltage	V_{CE} (sat) 1	I_C=10 mA, I_B=1 mA	....	0.4	volts
	V_{CE} (sat) 2	I_C=7.0 mA, I_B=0.7 mA, TA=—55° C to +125° C	....	0.4	volts

▲ Measured with 300 μSec. 2% duty cycle pulse

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

	SYM.	CONDITIONS	MIN.	MAX.	UNITS
High Frequency Current Gain	hfe	V_{CE}=10 V, I_C=20 mA, f=100 mc	3.0	....	....
Collector Capacitance	Cob	V_{CB}=10 V, I_E=0	....	6.0	pf
Storage Time Constant	τ_s	(Figure 1)	....	25	nsec
Turn-On Time	(t_d+t_r)	(Figure 2)	....	35	nsec
Turn-Off Time	(t_s+t_f)	(Figure 2)	....	65	nsec
Base Spreading Resistance	r_b'	I_C=10 mA, V_{CE}=10 V, f=300 mc	....	50	ohms

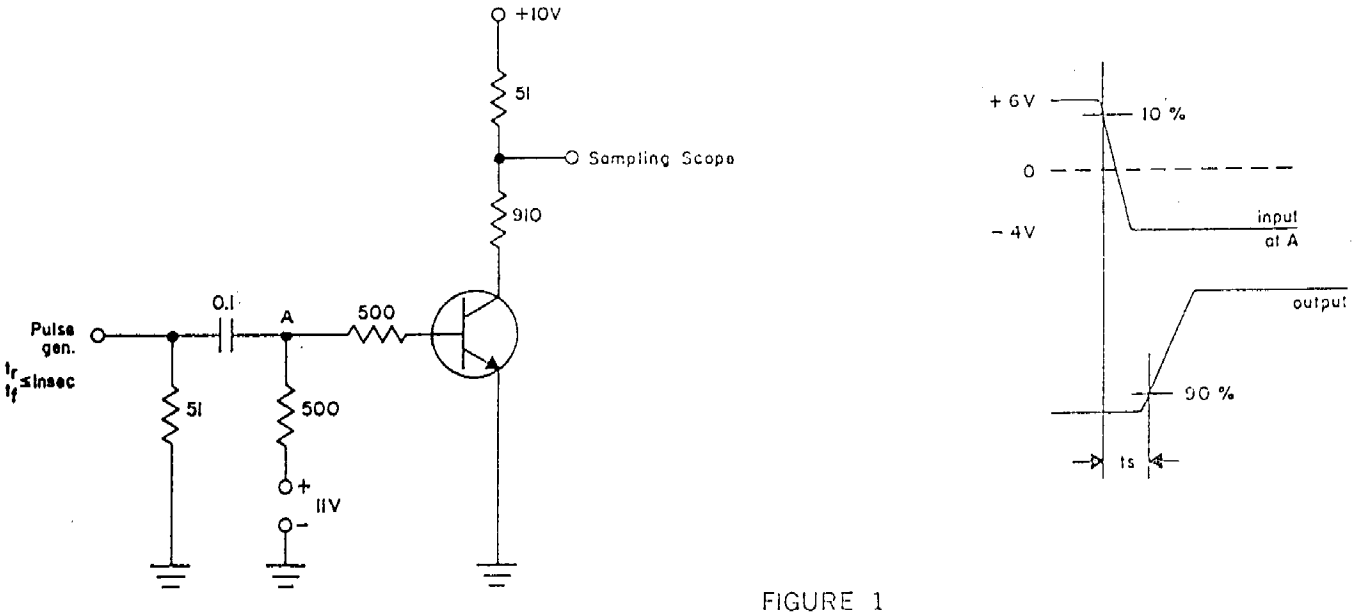
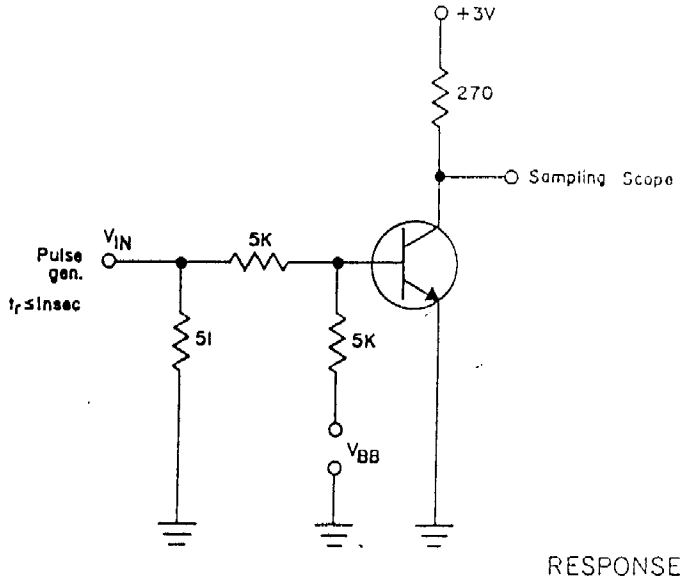


FIGURE 1
CHARGE STORAGE, TIME TEST CIRCUIT



t_{on}
V_{BB} = −4 V DC
V_{IN} = +21 V Pulse

t_{off}
V_{BB} = +17 V DC
V_{IN} = −20 V Pulse

FIGURE 2
RESPONSE TIME TEST CIRCUIT