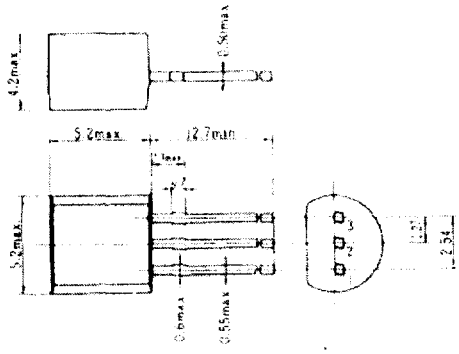
HITACHI

2SA781 (K)

SILICON PNP EPITAXIAL

HIGH FREQUNCY AMPLIFIER
HIGH SPEED SWITCHING



1. Emitter
2. Collector
3. Base

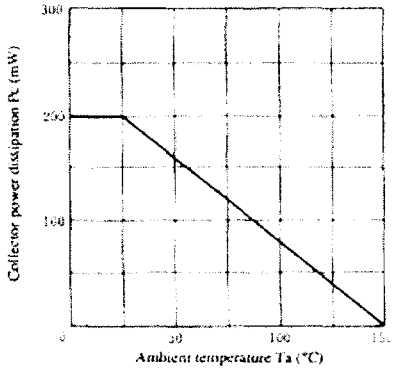
(Dimensions in mm)

(JEDEC TO-92)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Item	Symbol	2SA781(K)	Unit
Collector to base voltage	V_{CBO}	−20	V
Collector to emitter voltage	V_{CEO}	−15	V
Emitter to base voltage	V_{EBO}	−4	V
Collector current	I_C	−200	mA
Collector power dissipation	P_C	200	mW
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

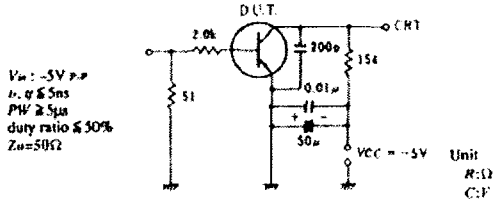
MAXIMUM COLLECTOR DISSIPATION CURVE



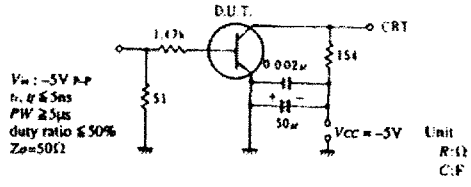
■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Collector to base breakdown voltage	$V_{(BR)CBO}$	I_C = −10μA, I_E = 0	−20	—	—	V
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	I_C = −10mA, R_{BE} = ∞	−15	—	—	V
Emitter to base breakdown voltage	$V_{(BR)EBO}$	I_E = −100μA, I_C = 0	−4	—	—	V
Collector cutoff current	I_{CBO}	V_{CB} = −16V, I_E = 0	—	—	−0.2	μA
Emitter cutoff current	I_{EBO}	V_{EB} = −2V, I_C = 0	—	—	−0.2	μA
DC current transfer ratio	h_{FE}	V_{CE} = −0.5V, I_C = −30mA	20	—	200	
Base to emitter saturation voltage	$V_{BE(sat)}$	I_C = −30mA, I_B = −1mA	—	—	−1.0	V
Collector to emitter saturation voltage	$V_{CE(sat)}$	I_C = −30mA, I_B = −1mA	—	—	−0.5	V
Gain bandwidth product	f_T	V_{CE} = −1V, I_C = −30mA	—	550	—	MHz
Turn on time	t_{on}	V_{CC} = −5V, I_{B1} = −2mA I_C = −30mA, I_{B2} = 0	—	—	70	ns
Turn off time	t_{off}	V_{CC} = −5V, I_{B1} = −2.7mA I_C = −30mA, I_{B2} = 0	—	—	120	μs

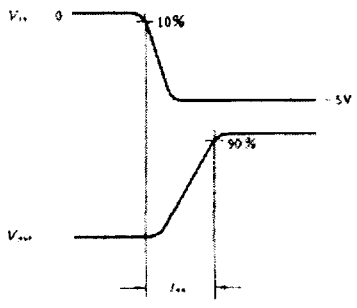
SWITCHING TIME TEST CIRCUIT



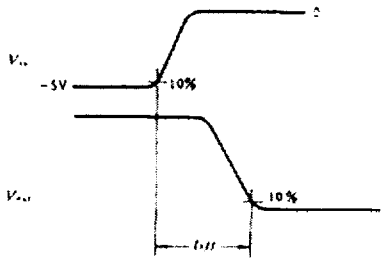
SWITCHING TIME TEST CIRCUIT



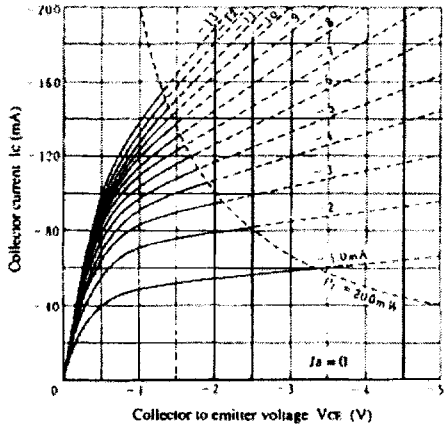
RESPONSE WAVEFORM



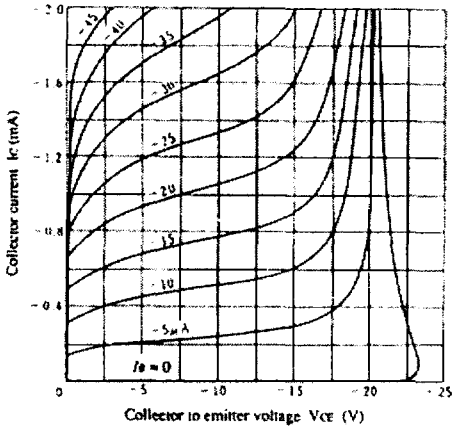
RESPONSE WAVEFORM



TYPICAL OUTPUT CHARACTERISTICS (1)



TYPICAL OUTPUT CHARACTERISTICS (2)



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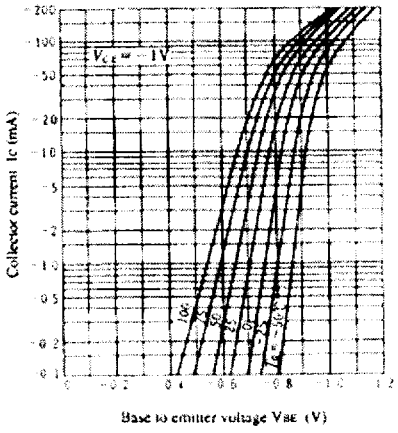
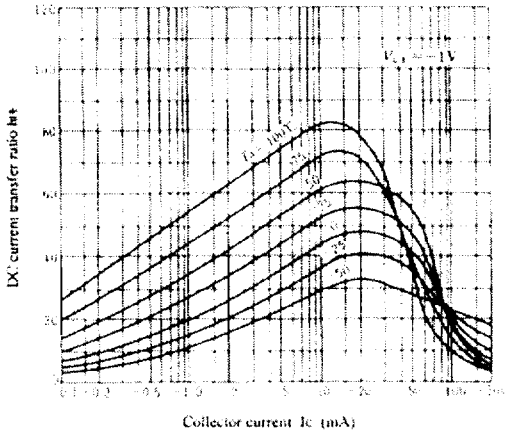
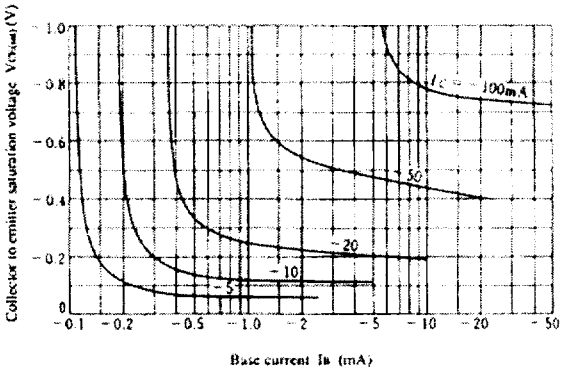
TYPICAL TRANSFER CHARACTERISTICS



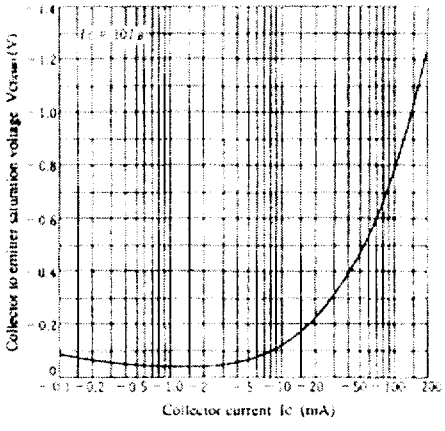
DC CURRENT TRANSFER RATIO VS. COLLECTOR CURRENT



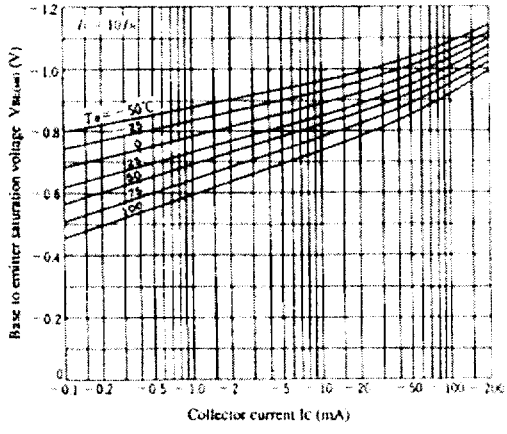
COLLECTOR TO EMITTER SATURATION VOLTAGE VS. BASE CURRENT



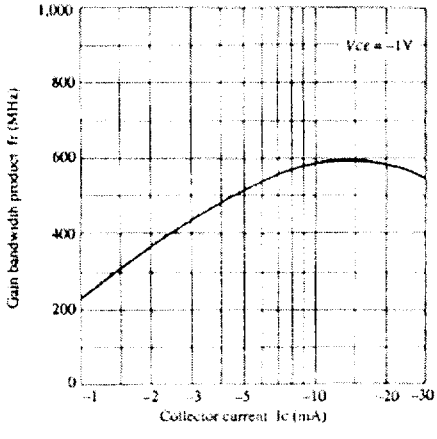
COLLECTOR TO EMITTER SATURATION VOLTAGE VS COLLECTOR CURRENT



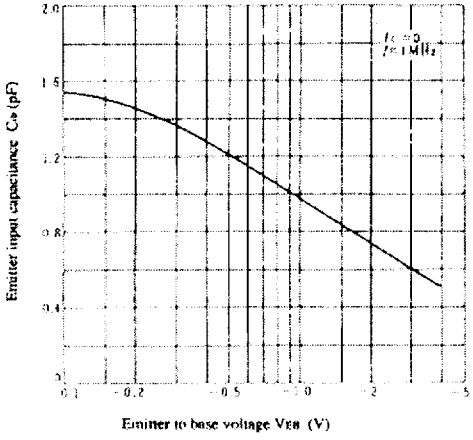
BASE TO EMITTER SATURATION VOLTAGE VS. COLLECTOR CURRENT



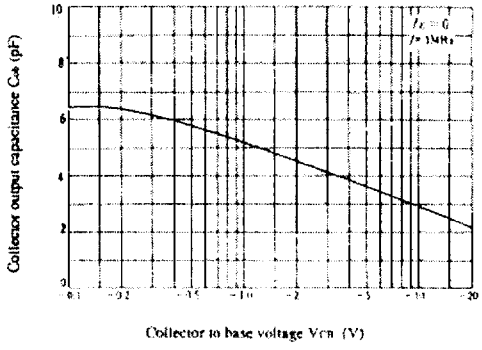
GAIN BANDWIDTH PRODUCT VS. COLLECTOR CURRENT



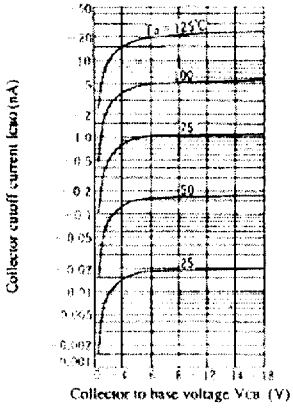
EMITTER INPUT CAPACITANCE VS. EMITTER TO BASE VOLTAGE



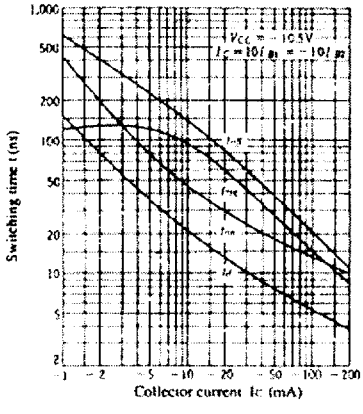
COLLECTOR OUTPUT CAPACITANCE VS. COLLECTOR TO BASE VOLTAGE



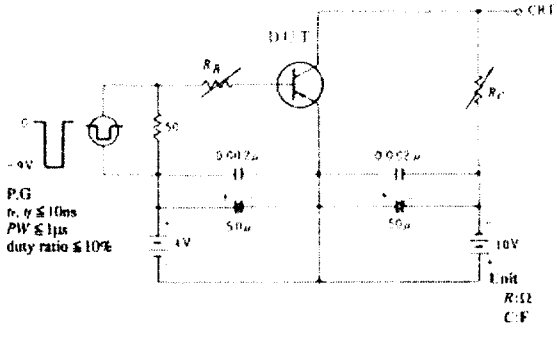
COLLECTOR CUTOFF CURRENT VS. COLLECTOR TO BASE VOLTAGE



SWITCHING TIME VS. COLLECTOR CURRENT



SWITCHING TIME TEST CIRCUIT



RESPONSE WAVEFORM