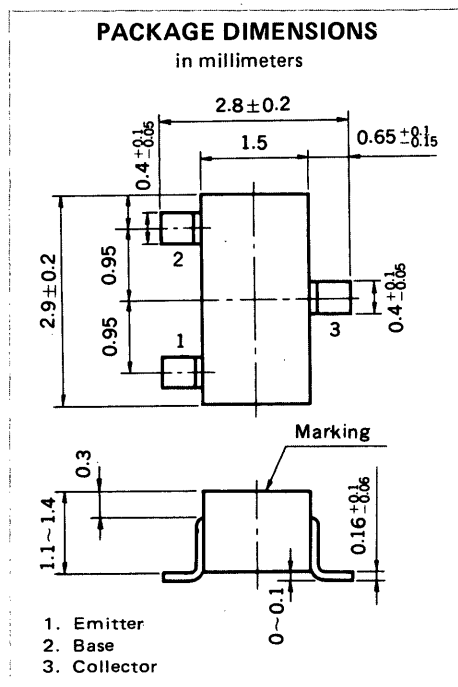


HIGH FREQUENCY AMPLIFIER AND SWITCHING
NPN SILICON EPITAXIAL TRANSISTOR
MINI MOLD
**FEATURES**

- High Gain Bandwidth Product: $f_T = 200$ MHz MIN.
- Complementary to 2SA1464

ABSOLUTE MAXIMUM RATINGSMaximum Voltages and Current ($T_a = 25^\circ\text{C}$)

Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	40	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current (DC)	I_C	500	mA

Maximum Power Dissipation

Total Power Dissipation

at 25°C Ambient Temperature

P_T	200	mW
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Maximum Temperatures

Junction Temperature

T_j	150	$^\circ\text{C}$
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Storage Temperature Range

T_{stg}	-55 to +150	$^\circ\text{C}$
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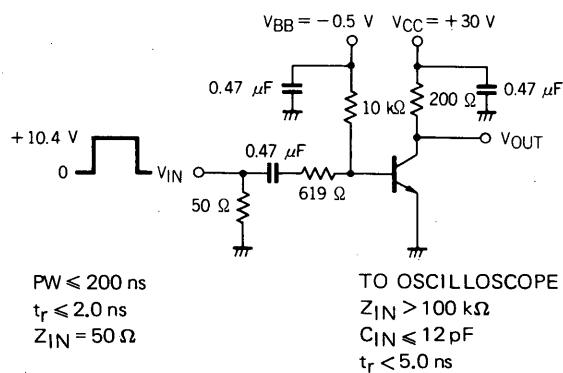
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			100	nA	$V_{CB} = 40$ V, $I_E = 0$
Emitter Cutoff Current	I_{EBO}			100	nA	$V_{EB} = 4.0$ V, $I_C = 0$
DC Current Gain	h_{FE1}	75	150	300		$V_{CE} = 1.0$ V, $I_C = 150$ mA
DC Current Gain	h_{FE2}	20	75			$V_{CE} = 2.0$ V, $I_C = 500$ mA
Collector Saturation Voltage	$V_{CE(sat)}$		0.25	0.75	V	$I_C = 500$ mA, $I_B = 50$ mA
Base Saturation Voltage	$V_{BE(sat)}$		1.0	1.2	V	$I_C = 500$ mA, $I_B = 50$ mA
Gain Bandwidth Product	f_T	200	400		MHz	$V_{CE} = 10$ V, $I_E = -20$ mA
Output Capacitance	C_{ob}		3.5	8.0	pF	$V_{CB} = 10$ V, $I_E = 0$, $f = 1.0$ MHz
Turn-on Time	t_{on}			35	ns	$V_{CC} = 30$ V $I_C = 150$ mA $I_{B1} = -I_{B2} = 15$ mA
Storage Time	t_{stg}			225	ns	
Turn-off Time	t_{off}			275	ns	

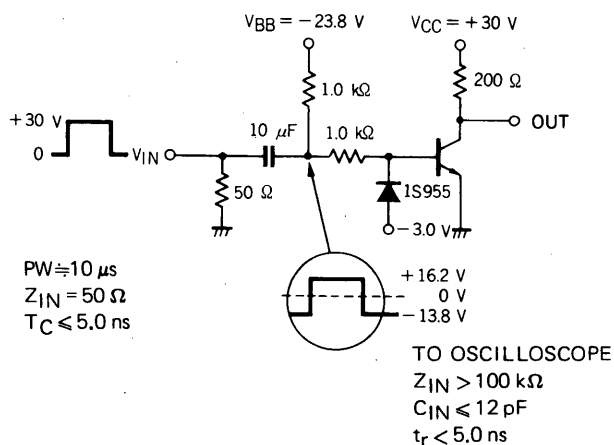
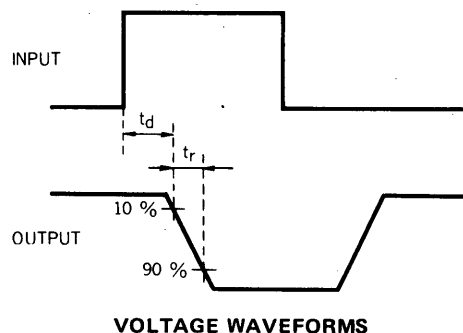
* Pulsed: $PW \leq 350 \mu\text{s}$, Duty Cycle $\leq 2\%$ **h_{FE} Classification**

Marking	B12	B13	B14
h_{FE1}	75 to 150	100 to 200	150 to 300

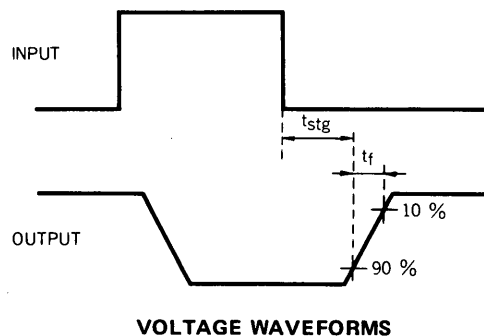
SWITCHING TIME TEST CIRCUIT



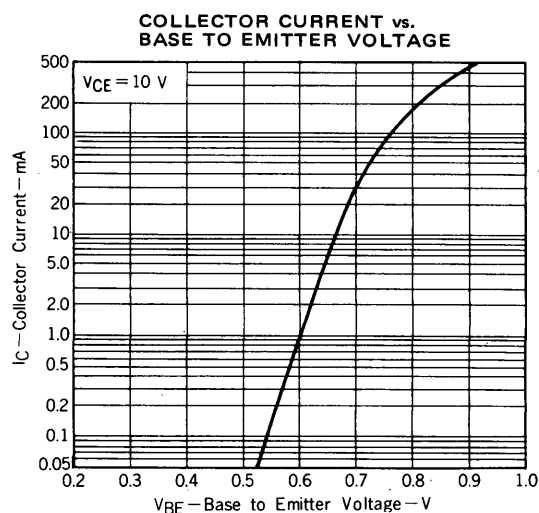
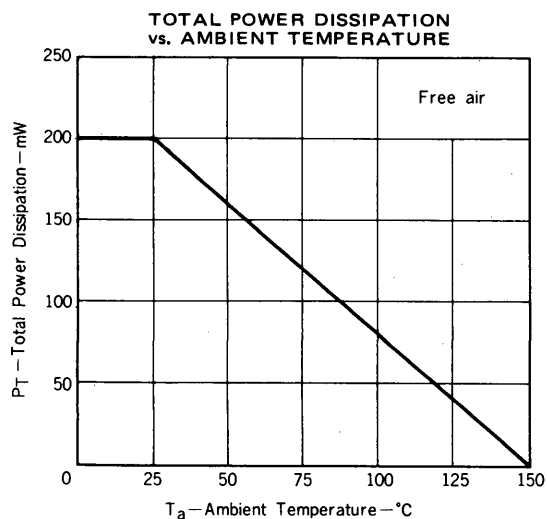
t_{on} SWITCHING

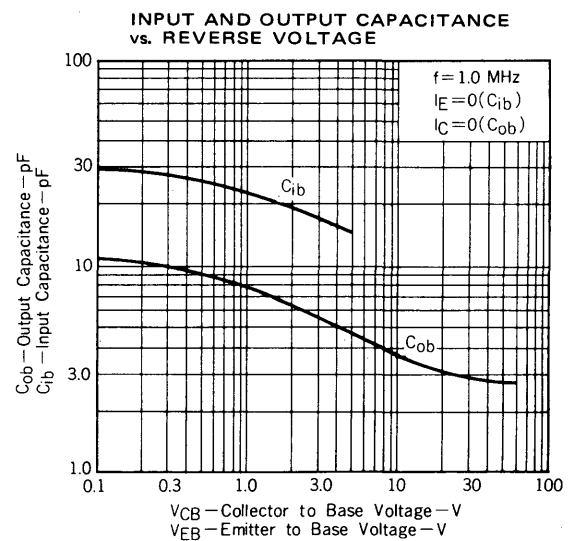
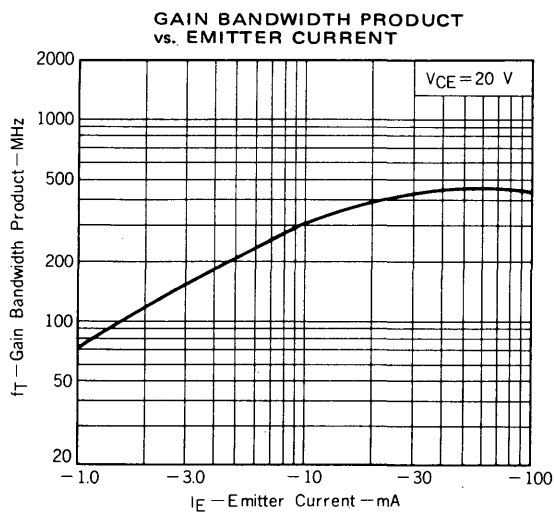
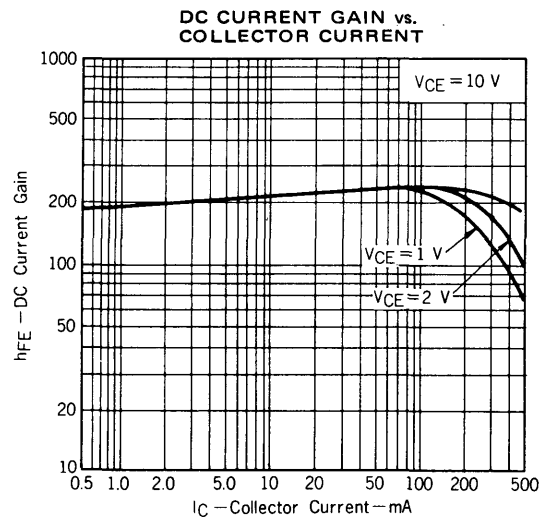
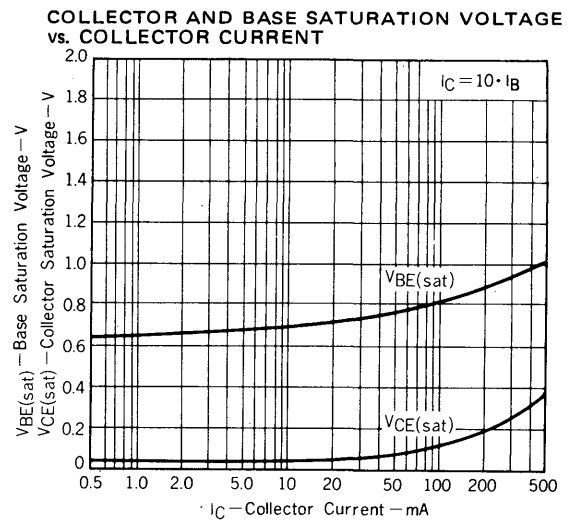
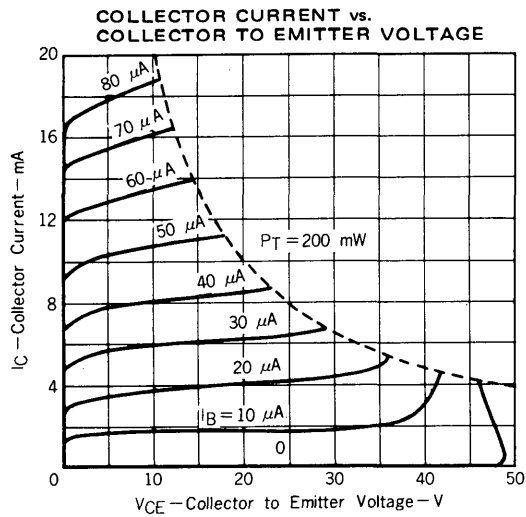


t_{off} SWITCHING

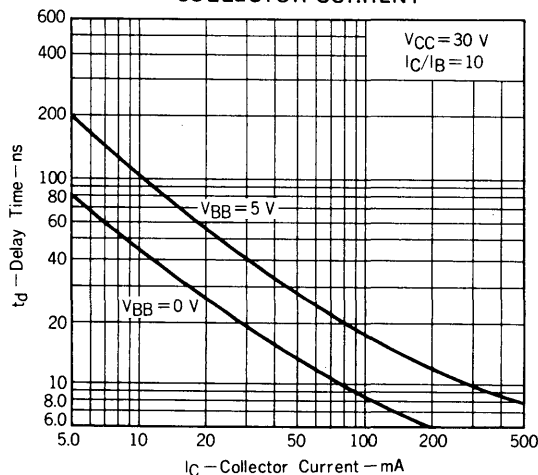


TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

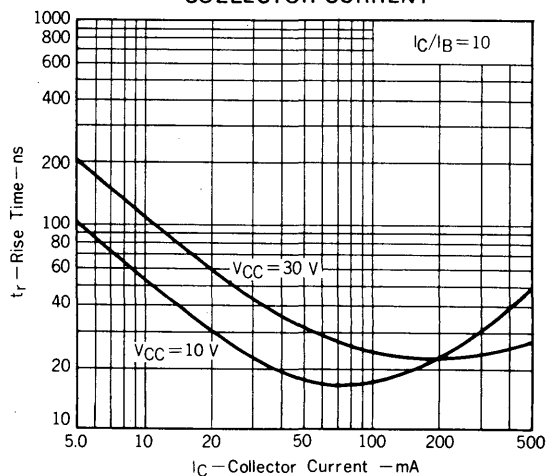




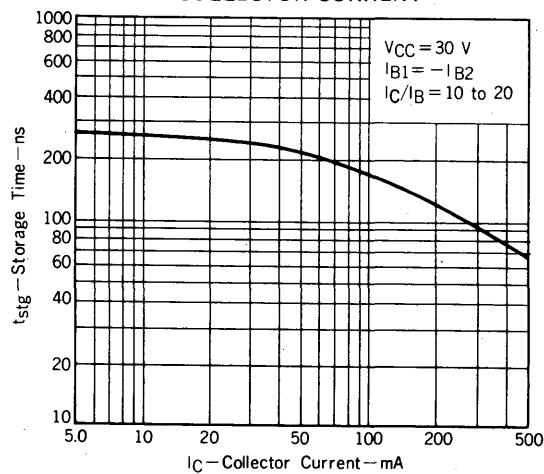
DELAY TIME vs.
COLLECTOR CURRENT



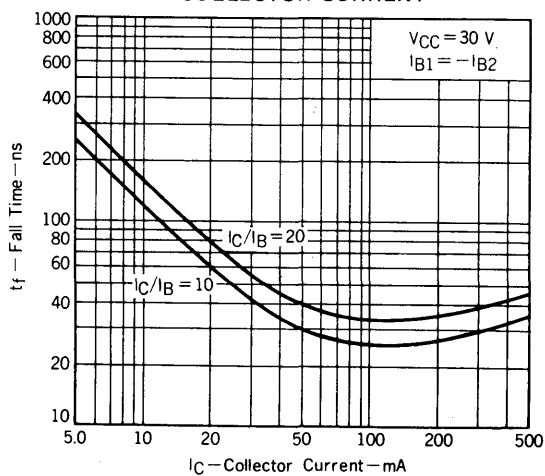
RISE TIME vs.
COLLECTOR CURRENT



STORAGE TIME vs.
COLLECTOR CURRENT



FALL TIME vs.
COLLECTOR CURRENT



[MEMO]

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