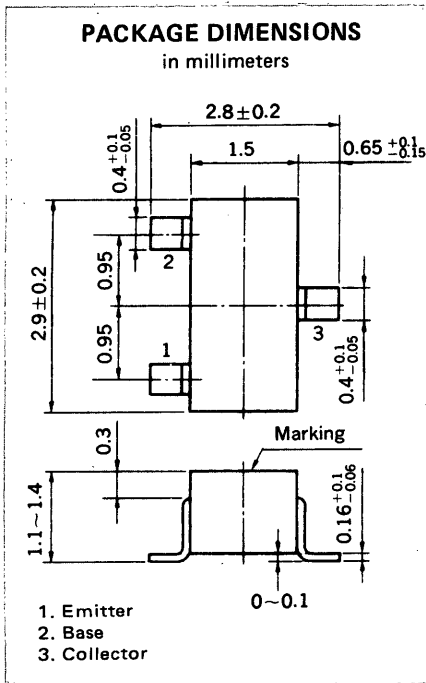


**HIGH VOLTAGE AMPLIFIER AND SWITCHING
NPN SILICON EPITAXIAL TRANSISTOR
MINI MOLD**



FEATURES

- High Voltage $V_{CEO} = 200 \text{ V}$
- High DC Current Gain $h_{FE} = 90$ to 450
- Complementary to 2SA1330

ABSOLUTE MAXIMUM RATINGS

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

Collector to Base Voltage	V_{CBO}	200	V
Collector to Emitter Voltage	V_{CEO}	200	V
Emitter to Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	100	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	$^\circ \text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^\circ \text{C}$

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

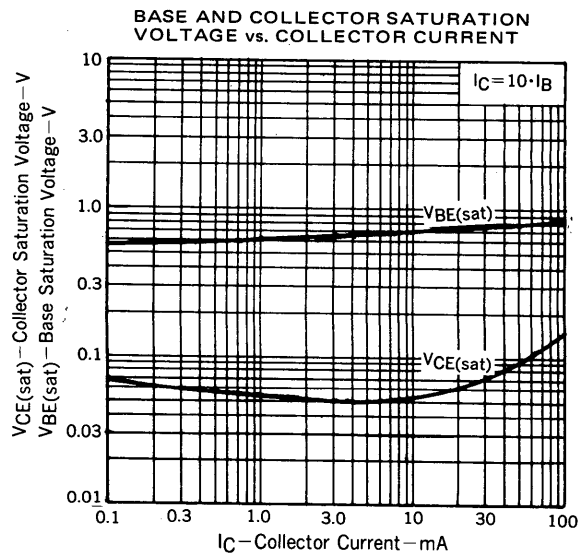
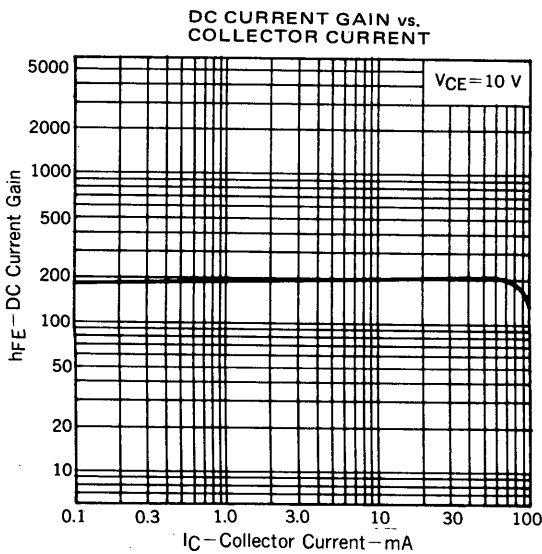
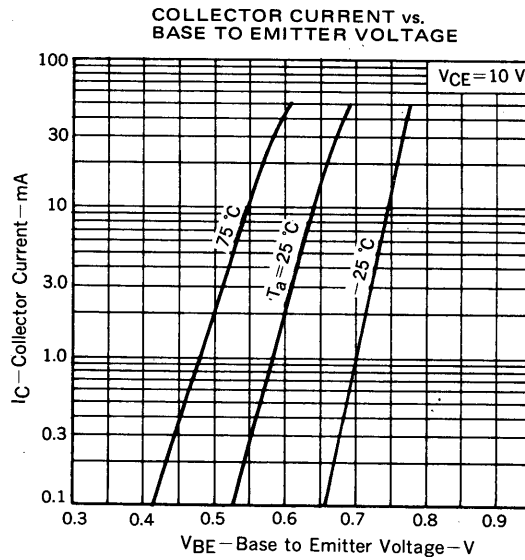
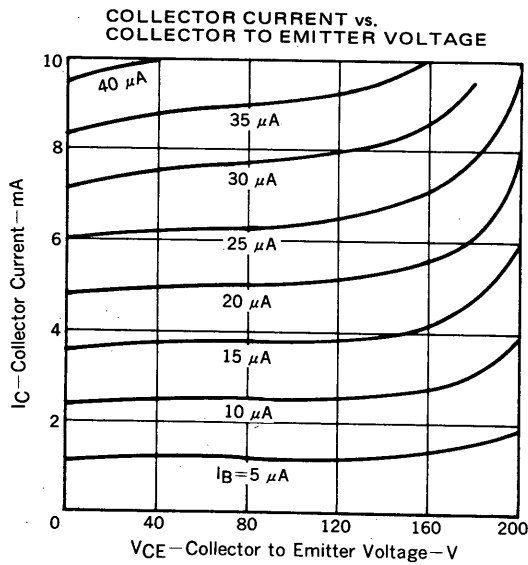
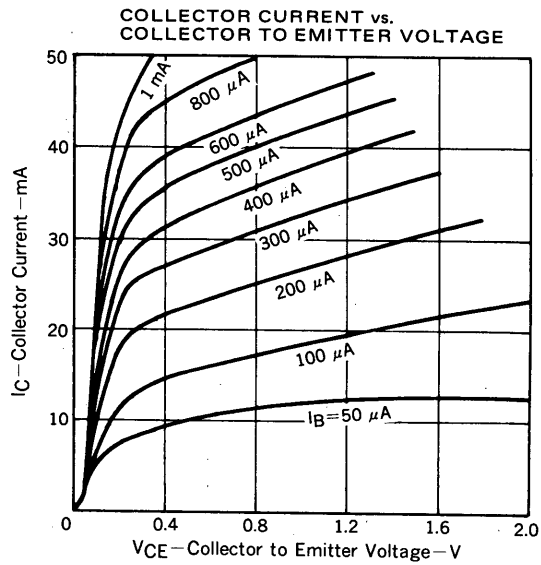
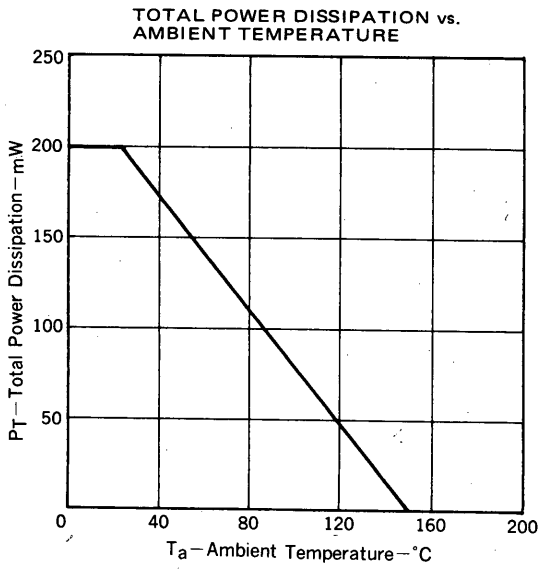
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Collector Cutoff Current	I_{CBO}			100	nA	$V_{CB} = 200 \text{ V}, I_E = 0$
Emitter Cutoff Current	I_{EBO}			100	nA	$V_{EB} = 5.0 \text{ V}, I_C = 0$
DC Current Gain	h_{FE1}^*	90	200	450		$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$
DC Current Gain	h_{FE2}^*	50	200			$V_{CE} = 10 \text{ V}, I_C = 50 \text{ mA}$
Base to Emitter Voltage	V_{BE}^*	0.6	0.64	0.7	V	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$
Collector Saturation Voltage	$V_{CE(sat)}^*$		0.1	0.3	V	$I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$
Base Saturation Voltage	$V_{BE(sat)}^*$		0.8	1.2	V	$I_C = 50 \text{ mA}, I_B = 5.0 \text{ mA}$
Gain Bandwidth Product	f_T		160		MHz	$V_{CE} = 10 \text{ V}, I_E = -10 \text{ mA}$
Output Capacitance	C_{ob}		2.8		pF	$V_{CB} = 30 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$
Turn-on Time	t_{on}		0.15		μs	$V_{CC} = 10 \text{ V}, V_{BE(off)} = -2.5 \text{ V}$
Storage Time	t_{stg}		1.3		μs	$I_C = 10 \text{ mA}$
Turn-off Time	t_{off}		0.3		μs	$I_{B1} = -I_{B2} = 1.0 \text{ mA}$

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

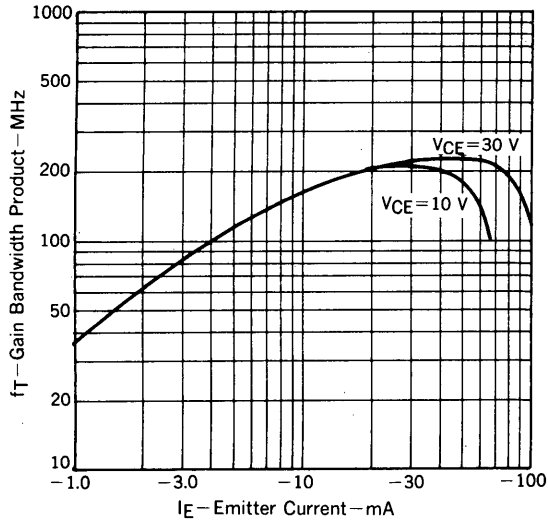
h_{FE} Classification

Marking	N15	N16	N17
h_{FE1}	90 to 180	135 to 270	200 to 450

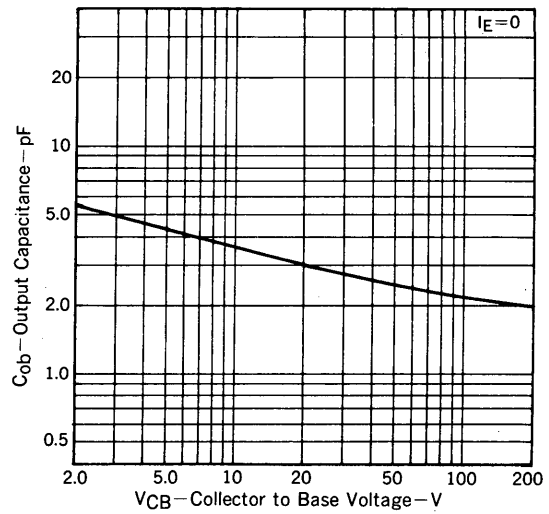
TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



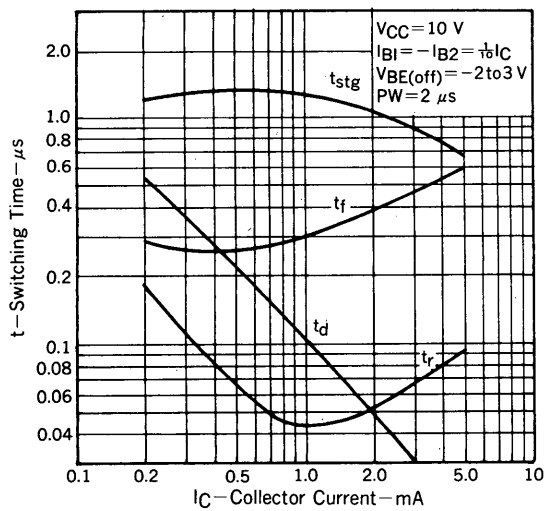
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



OUTPUT CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE



SWITCHING TIME vs. COLLECTOR CURRENT



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TC-1643
JULY-15-85M
Printed in Japan