

MAXIMUM RATINGS

Rating	Symbol	2N3634 2N3635	2N3636 2N3637	Unit
Collector-Emitter Voltage	V_{CEO}	-140	-175	Vdc
Collector-Base Voltage	V_{CBO}	-140	-175	Vdc
Emitter-Base Voltage	V_{EBO}	-5.0		Vdc
Collector Current — Continuous	I_C	-1.0		Adc
Total Device Dissipation (at $T_A = 25^\circ\text{C}$ Derate above 25°C)	P_D	1.0 5.71		Watt mW/°C
Total Device Dissipation (at $T_C = 25^\circ\text{C}$ Derate above 25°C)	P_D	5.0 28.6		Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	175	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	35	°C/W

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

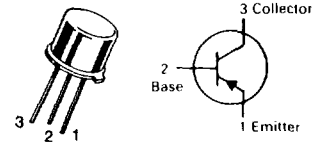
Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(1) ($I_C = -10\text{ mAdc}, I_B = 0$)	$V_{(BR)CEO}$	-140 -175	—	Vdc
Collector-Base Breakdown Voltage ($I_C = -100\text{ }\mu\text{Adc}, I_E = 0$)	$V_{(BR)CBO}$	-140 -175	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = -10\text{ }\mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	-5.0	—	Vdc
Collector Cutoff Current ($V_{CB} = -100\text{ Vdc}, I_E = 0$)	I_{CBO}	—	-100	nAdc
Emitter Cutoff Current ($V_{EB} = -3.0\text{ Vdc}, I_C = 0$)	I_{EBO}	—	-50	nAdc
ON CHARACTERISTICS				
DC Current Gain ($I_C = -0.1\text{ mAdc}, V_{CE} = -10\text{ Vdc}$)	h_{FE}	40	—	—
		80	—	
($I_C = -1.0\text{ mAdc}, V_{CE} = -10\text{ Vdc}$)		45	—	
		90	—	
($I_C = -10\text{ mAdc}, V_{CE} = -10\text{ Vdc}$)(1)		50	—	
		100	—	
($I_C = -50\text{ mAdc}, V_{CE} = -10\text{ Vdc}$)(1)		50	150	
		100	300	
($I_C = -150\text{ mAdc}, V_{CE} = -10\text{ Vdc}$)(1)		25	—	
		50	—	
Collector-Emitter Saturation Voltage(1) ($I_C = -10\text{ mAdc}, I_B = -1.0\text{ mAdc}$) ($I_C = -50\text{ mAdc}, I_B = -5.0\text{ mAdc}$)	$V_{CE(sat)}$	— —	-0.3 -0.5	Vdc
Base-Emitter Saturation Voltage(1) ($I_C = -10\text{ mAdc}, I_B = -1.0\text{ mAdc}$) ($I_C = -50\text{ mAdc}, I_B = -5.0\text{ mAdc}$)	$V_{BE(sat)}$	— -0.65	-0.8 -0.9	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain — Bandwidth Product ($V_{CE} = -30\text{ Vdc}, I_C = -30\text{ mAdc}, f = 100\text{ MHz}$)	f_T	150 200	—	MHz

2N3634

thru

2N3637

**CASE 79-04, STYLE 1
TO-39 (TO-205AD)**



**GENERAL PURPOSE
TRANSISTORS**

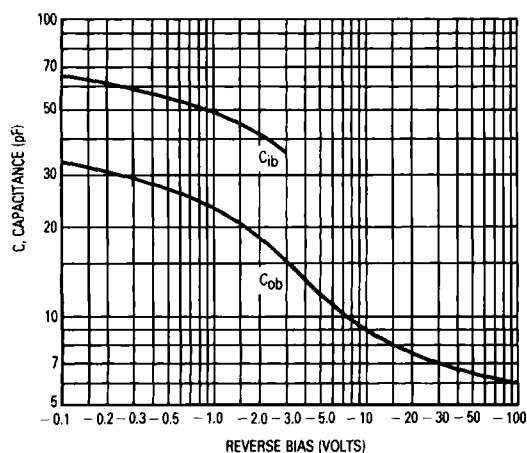
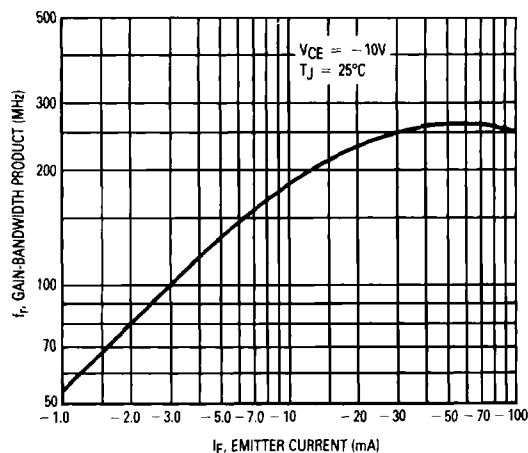
PNP SILICON

ELECTRICAL CHARACTERISTICS (continued) ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
Output Capacitance ($V_{CB} = -20\text{ Vdc}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	C_{obo}	—	10	pF
Input Capacitance ($V_{EB} = -1.0\text{ Vdc}$, $I_C = 0$, $f = 1.0\text{ MHz}$)	C_{ibo}	—	75	pF
Input Impedance ($I_C = -10\text{ mAdc}$, $V_{CE} = -10\text{ Vdc}$, $f = 1.0\text{ kHz}$)	h_{ie}	100 200	600 1200	ohms
Voltage Feedback Ratio ($I_C = -10\text{ mAdc}$, $V_{CE} = -10\text{ Vdc}$, $f = 1.0\text{ kHz}$)	h_{re}	—	3.0	$\times 10^{-4}$
Small-Signal Current Gain ($I_C = -10\text{ mAdc}$, $V_{CE} = -10\text{ Vdc}$, $f = 1.0\text{ kHz}$)	h_{fe}	40 80	160 320	—
Output Admittance ($I_C = -10\text{ mAdc}$, $V_{CE} = -10\text{ Vdc}$, $f = 1.0\text{ kHz}$)	h_{oe}	—	200	μmhos
Noise Figure ($I_C = -0.5\text{ mAdc}$, $V_{CE} = -10\text{ Vdc}$, $R_S = 1.0\text{ k ohms}$, $f = 1.0\text{ kHz}$)	NF	—	3.0	dB

SWITCHING CHARACTERISTICS

Turn-On Time	($V_{CC} = -100\text{ Vdc}$, $V_{BE} = 4.0\text{ Vdc}$, $I_C = -50\text{ mAdc}$, $I_{B1} = I_{B2} = -5.0\text{ mAdc}$)	t_{on}	—	400	ns
Turn-Off Time		t_{off}	—	600	ns

(1) Pulse Test: Pulse Width $\leq 300\text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$.**FIGURE 1 — JUNCTION CAPACITANCE VARIATIONS****FIGURE 2 — GAIN-BANDWIDTH PRODUCT**

2N3634 thru 2N3637

FIGURE 3 — CURRENT GAIN CHARACTERISTICS versus JUNCTION TEMPERATURE
2N3634

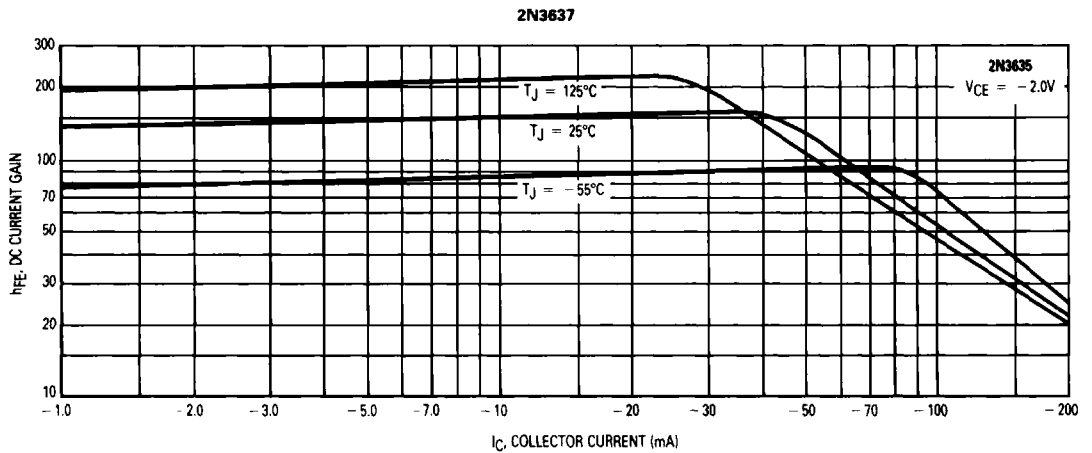
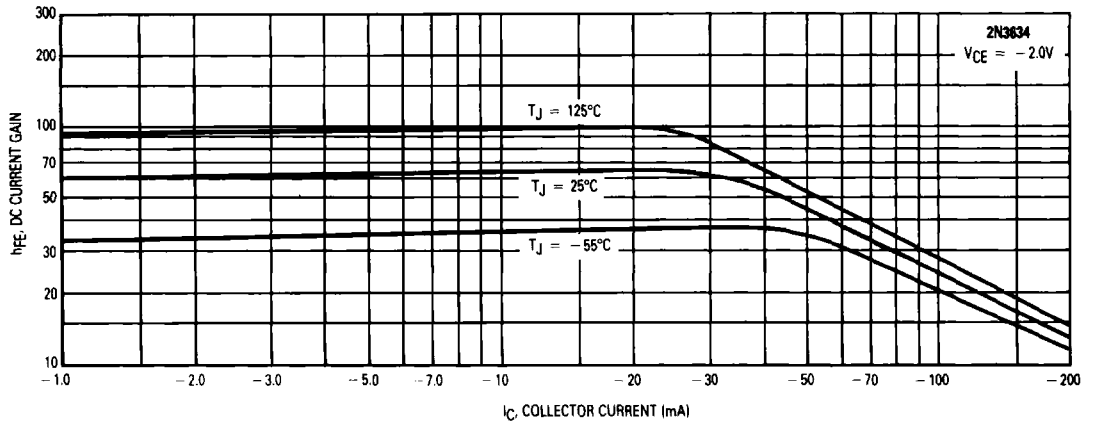


FIGURE 4 — CURRENT GAIN CHARACTERISTICS versus COLLECTOR EMITTER VOLTAGE

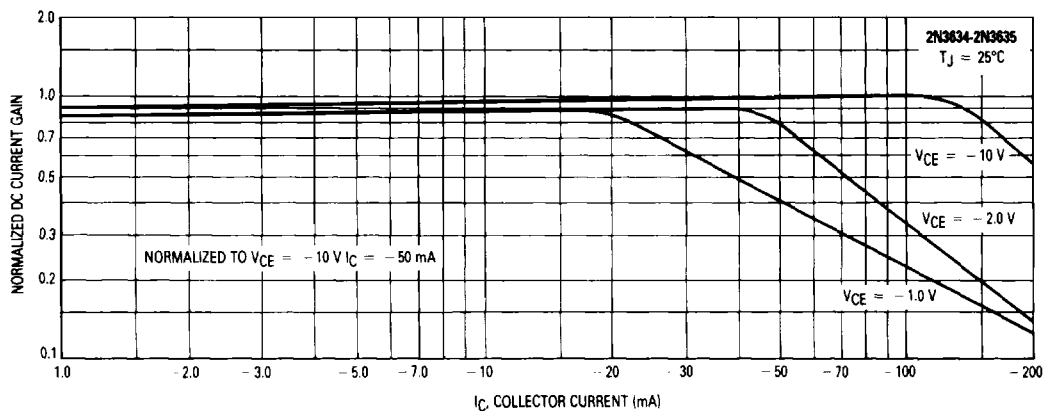
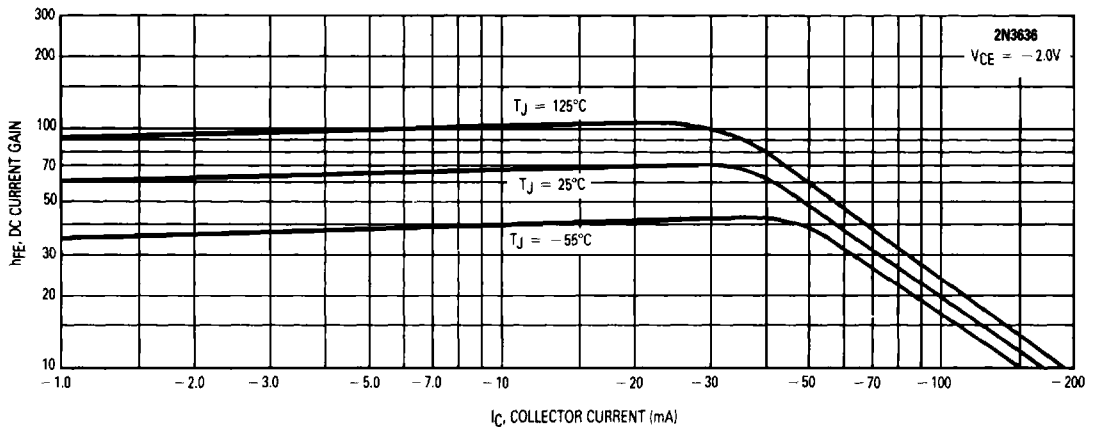


FIGURE 5 — CURRENT GAIN CHARACTERISTICS versus JUNCTION TEMPERATURE
2N3636



2N3637

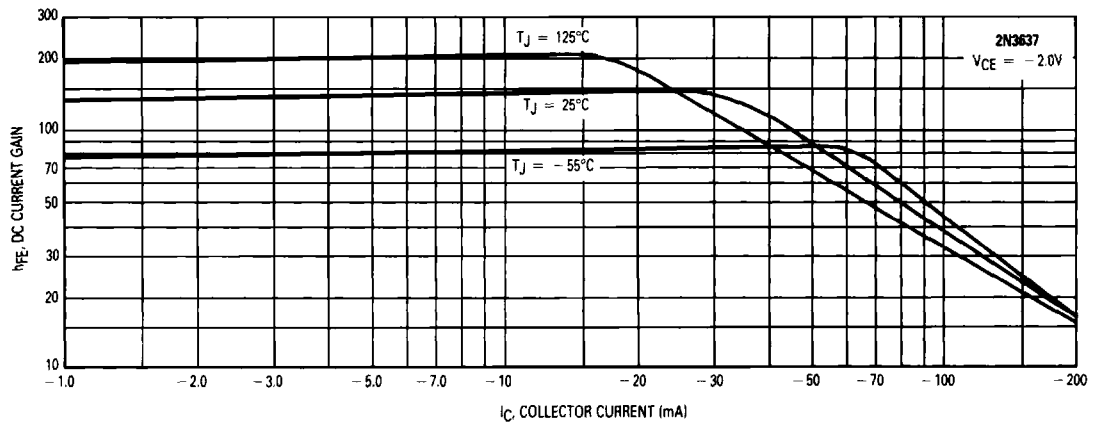
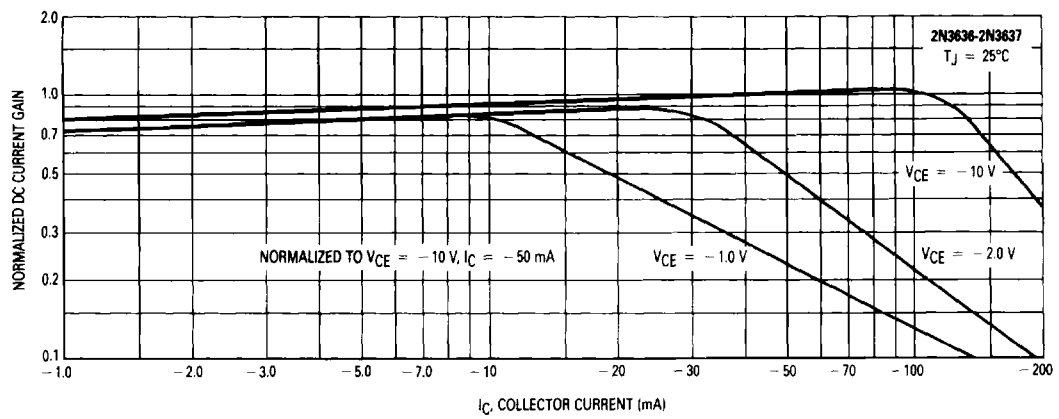


FIGURE 6 — CURRENT GAIN CHARACTERISTICS versus COLLECTOR EMITTER VOLTAGE



2N3634 thru 2N3637

FIGURE 7 — INPUT IMPEDANCE

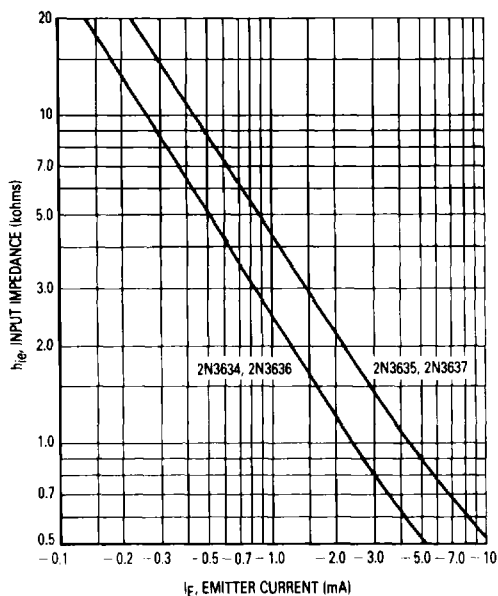


FIGURE 8 — OUTPUT IMPEDANCE

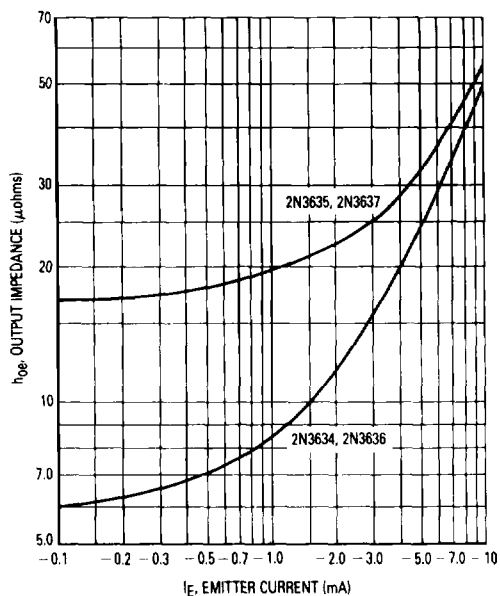


FIGURE 9 — CURRENT GAIN

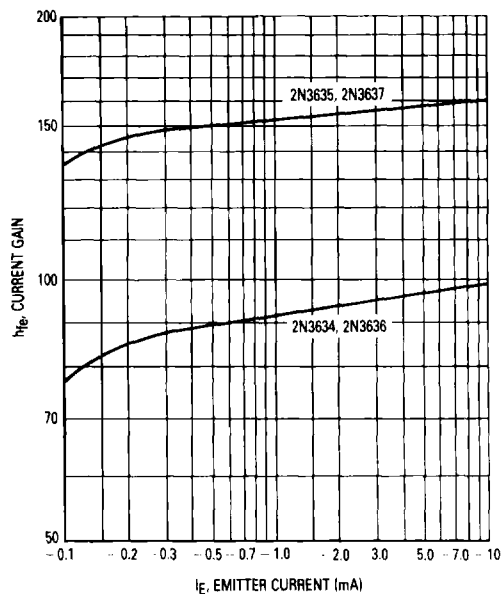


FIGURE 10 — VOLTAGE FEEDBACK RATIO

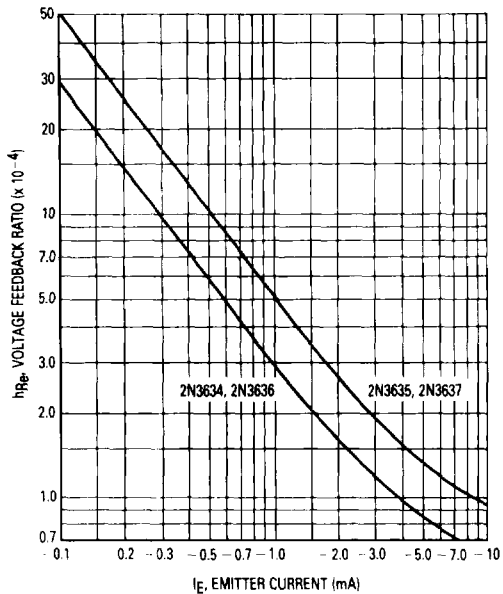


FIGURE 11 — SATURATION VOLTAGES

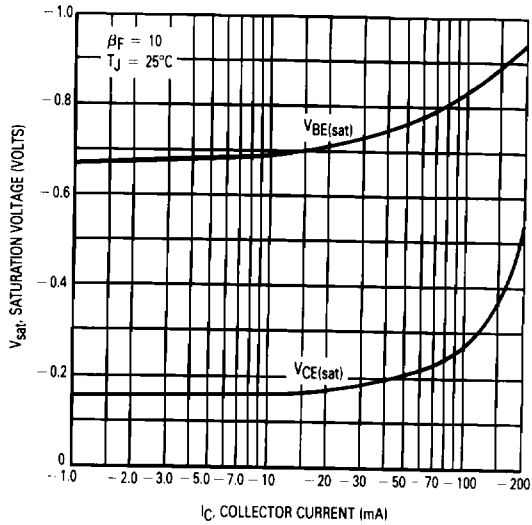


FIGURE 12 — TEMPERATURE COEFFICIENTS

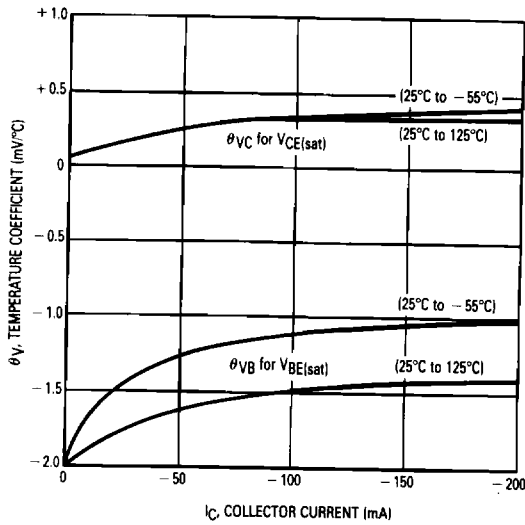
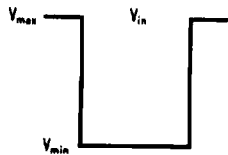


FIGURE 13 — SWITCHING TIME TEST CIRCUIT



P.W. $\approx 20 \mu\text{s}$
DUTY CYCLE $\leq 2\%$
RISE TIME $\leq 20 \text{ ns}$

	V_{max}	V_{min}
TURN-ON	+4.0 V	-5.65 V
TURN-OFF	+4.1 V	-5.9 V

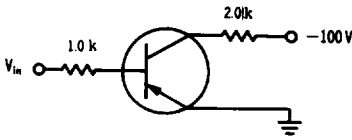


FIGURE 14 — TURN-ON TIME VARIATIONS WITH VOLTAGE

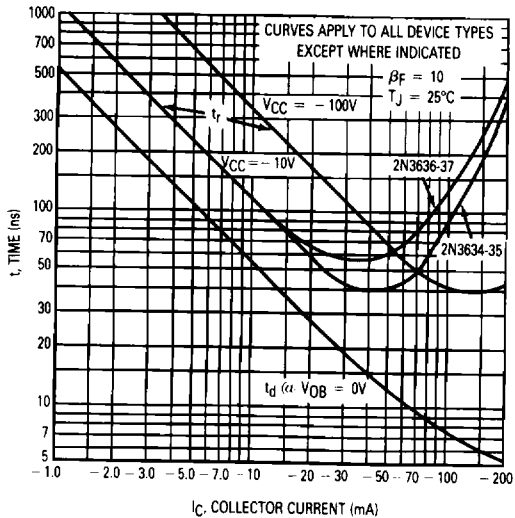


FIGURE 15 — TURN-OFF TIME VARIATIONS WITH CIRCUIT GAIN

