

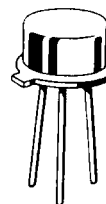


PNP SILICON ANNULAR TRANSISTOR

... designed for applications in high frequency amplifiers and non-saturated switching circuits. Large signal capabilities, low-noise and high gain-bandwidth product characteristics of the 2N5583 provide excellent performance in a variety of small signal and linear amplifier applications. Ideal for C A T V circuits.

- High Current-Gain-Bandwidth Product –
 $f_T = 1300$ (Min) @ $I_C = 100$ mA dc

PNP SILICON AMPLIFIER TRANSISTOR

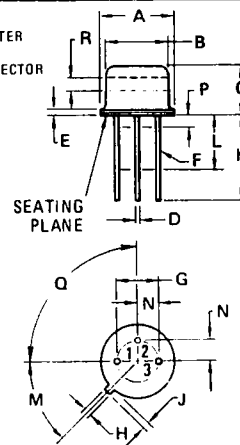


MAXIMUM RATINGS

Rating	Symbol	Value	Unit
* Collector-Emitter Voltage	V_{CEO}	30	Vdc
* Collector-Base Voltage	V_{CB}	30	Vdc
* Emitter-Base Voltage	V_{EB}	3.0	Vdc
* Collector Current – Continuous	I_C	500	mA dc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$	P_D	1.0	Watt
Derate above 25°C		5.71	mW/ $^\circ\text{C}$
* Total Device Dissipation @ $T_C = 25^\circ\text{C}$	P_D	5.0	Watts
Derate above 25°C		28.6	mW/ $^\circ\text{C}$
* Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$

* Indicates JEDEC Registered Data.

STYLE 1:
PIN 1. EMITTER
2. BASE
3. COLLECTOR



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.89	9.40	0.350	0.370
B	8.00	8.51	0.315	0.335
C	6.10	6.60	0.240	0.260
D	0.406	0.533	0.016	0.021
E	0.229	3.18	0.009	0.125
F	0.406	0.483	0.016	0.019
G	4.83	5.33	0.190	0.210
H	0.711	0.864	0.028	0.034
J	0.737	1.02	0.029	0.040
K	12.70	-	0.500	-
L	6.35	-	0.250	-
M	45°	NOM	45°	NOM
P	-	1.27	-	0.050
Q	90°	NOM	90°	NOM
R	2.54	-	0.100	-

All JEDEC dimensions and notes apply.

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

Characteristic	Figure No.	Symbol	Min	Max	Unit
*OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (1) ($I_C = 10 \text{ mAdc}$, $I_B = 0$)	—	BV_{CEO}	30	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 10 \mu\text{A}$, $I_E = 0$)	—	BV_{CBO}	30	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 100 \mu\text{A}$, $I_C = 0$)	—	BV_{EBO}	3.0	—	Vdc
Collector Cutoff Current ($V_{CB} = 20 \text{ Vdc}$, $I_E = 0$)	4	I_{CBO}	—	50	nA
Emitter Cutoff Current ($V_{EB} = 2.0 \text{ Vdc}$, $I_C = 0$)	—	I_{EBO}	—	0.5	μA
*ON CHARACTERISTICS (1)					
DC Current Gain ($I_C = 40 \text{ mAdc}$, $V_{CE} = 2.0 \text{ Vdc}$) ($I_C = 100 \text{ mAdc}$, $V_{CE} = 2.0 \text{ Vdc}$) ($I_C = 300 \text{ mAdc}$, $V_{CE} = 5.0 \text{ Vdc}$)	1	h_{FE}	20 25 15	— 100 —	—
Collector-Emitter Saturation Voltage ($I_C = 100 \text{ mAdc}$, $I_B = 10 \text{ mAdc}$)	2,3	$V_{CE(sat)}$	—	0.8	Vdc
Base-Emitter On Voltage ($I_C = 100 \text{ mAdc}$, $V_{CE} = 2.0 \text{ Vdc}$)	3	$V_{BE(on)}$	—	1.8	Vdc
SMALL-SIGNAL CHARACTERISTICS					
*Current-Gain-Bandwidth Product ($I_C = 40 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 100 \text{ MHz}$) ($I_C = 100 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 100 \text{ MHz}$)	7	f_T	1000 1300	— —	MHz
*Collector-Base Capacitance ($V_{CB} = 15 \text{ Vdc}$, $I_E = 0$, $f = 100 \text{ kHz}$)	5	C_{cb}	—	5.0	pF
*Emitter-Base Capacitance ($V_{EB} = 0.5 \text{ Vdc}$, $I_C = 0$, $f = 100 \text{ kHz}$)	5	C_{eb}	—	35	pF

* Indicates JEDEC Registered Data.

(1) Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle = 2.0%.

FIGURE 1 – DC CURRENT GAIN

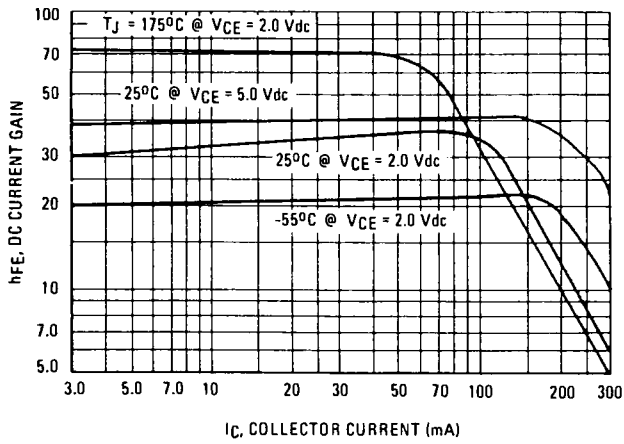


FIGURE 2 – COLLECTOR SATURATION REGION

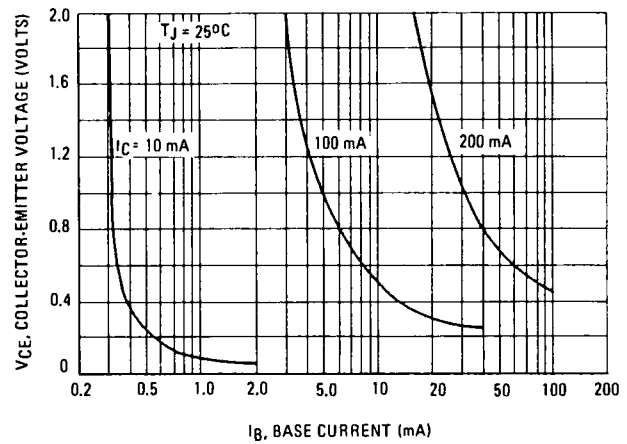


FIGURE 3 – "ON" VOLTAGES

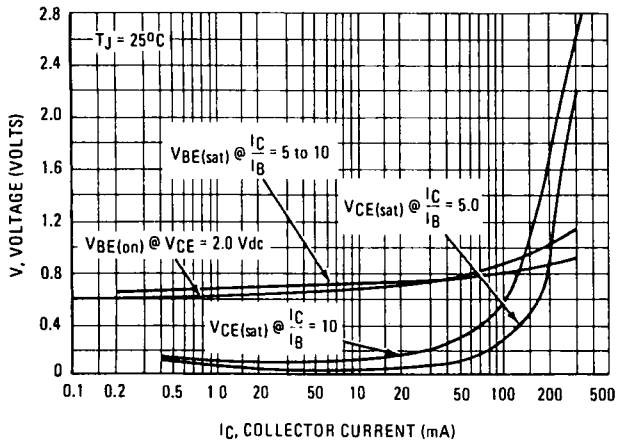


FIGURE 4 – COLLECTOR CURRENT versus BASE VOLTAGE

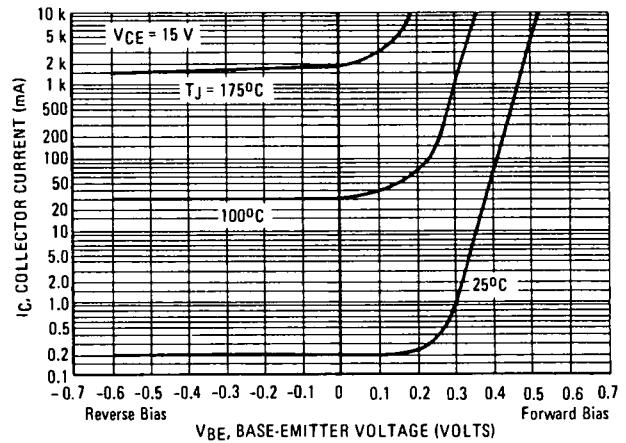


FIGURE 5 – CAPACITANCES

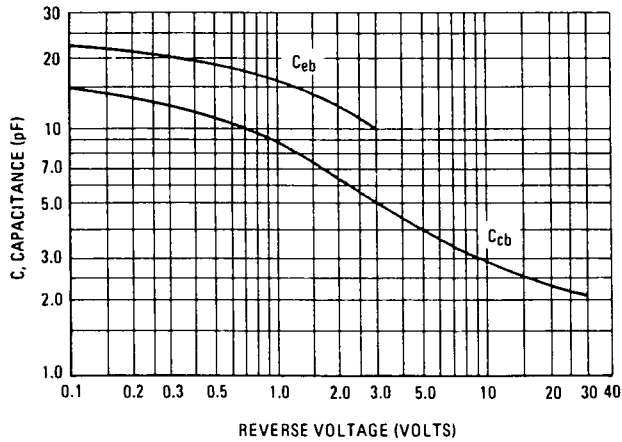


FIGURE 6 – TEMPERATURE COEFFICIENTS

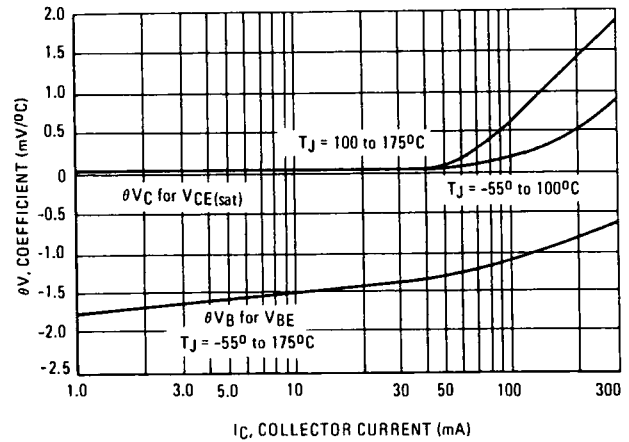


FIGURE 7 – CURRENT-GAIN-BANDWIDTH PRODUCT

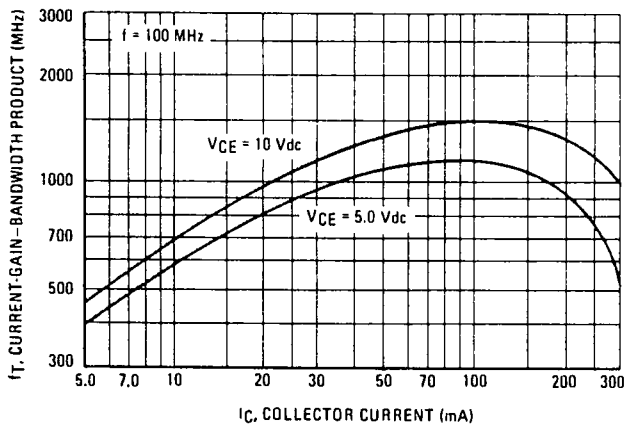


FIGURE 8 – COLLECTOR-BASE TIME CONSTANT

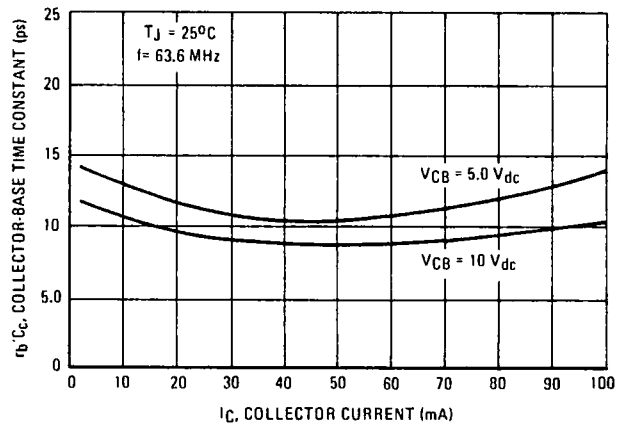


FIGURE 9 – SWITCHING TIME

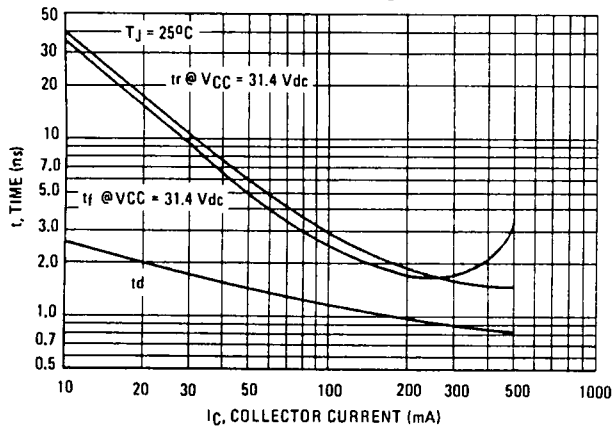
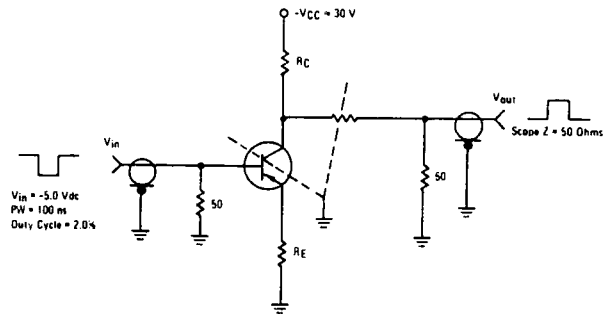


FIGURE 10 – SWITCHING TIME TEST CIRCUIT



I_C mA	R_C Ohms	R_E Ohms	V_{CC} Volts
50	526	80	34.4
150	160	26.6	31.4
300	78	13.3	30.6
500	46.5	8.0	30.3