2N5583 (SILICON)

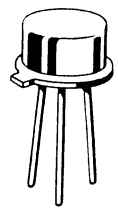
SOLID STATE INC.
46 FARRAND STREET
BLOOMFIELD, NEW JERSEY 07003
www.solidstateinc.com

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 mAdc

PNP SILICON
AMPLIFIER
TRANSISTOR

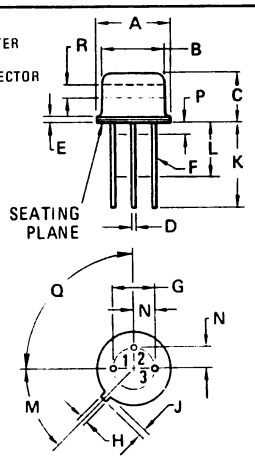


MAXIMUM RATINGS

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	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	1.0 5.71	Watt mW/°C
*Total Device Dissipation @ T_C = 25°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

*Indicates JEDEC Registered Data.

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



DIM	MILLIMETERS MIN	MILLIMETERS MAX	INCHES MIN	INCHES 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.

TO-39

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

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

*Indicates JEDEC Registered Data.

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle = 2.0%.

FIGURE 1 – DC CURRENT GAIN

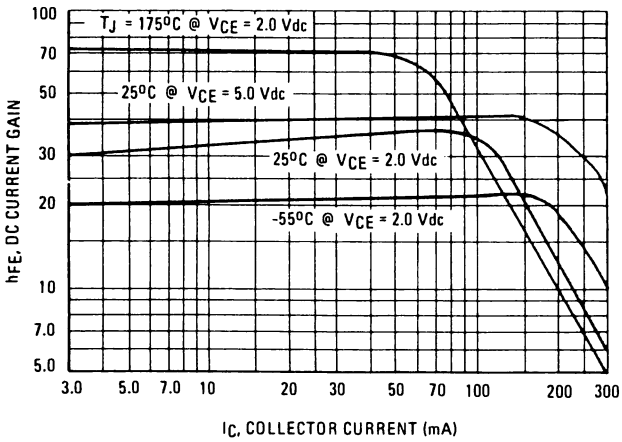


FIGURE 2 – COLLECTOR SATURATION REGION

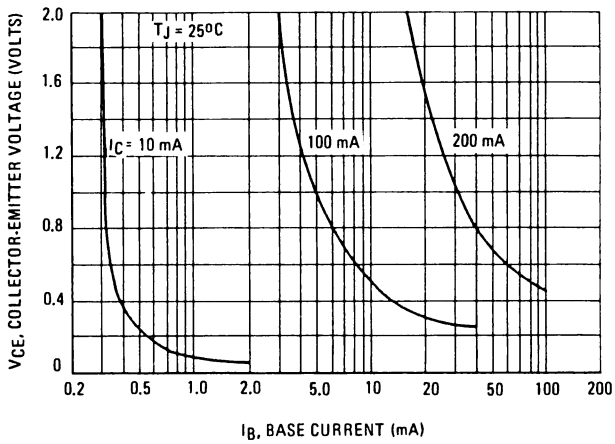


FIGURE 3 – "ON" VOLTAGES

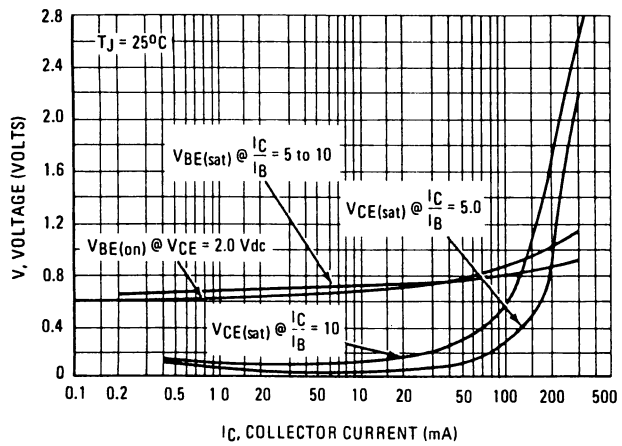


FIGURE 4 – COLLECTOR CURRENT versus BASE VOLTAGE

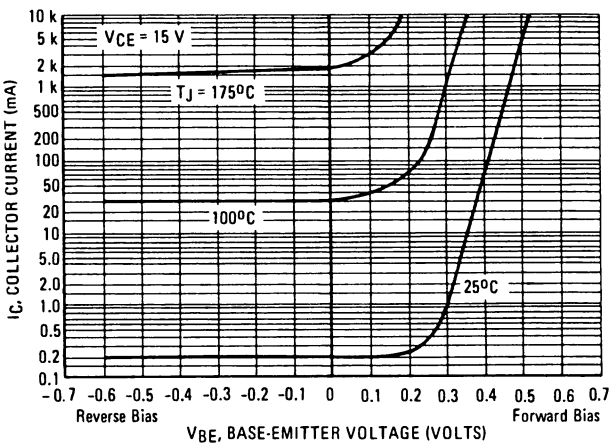


FIGURE 5 – CAPACITANCES

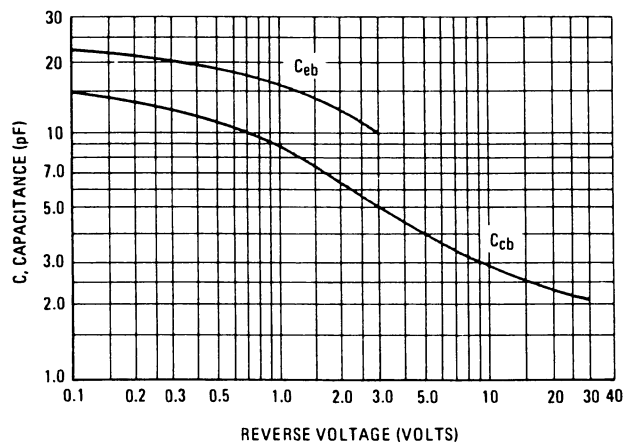


FIGURE 6 – TEMPERATURE COEFFICIENTS

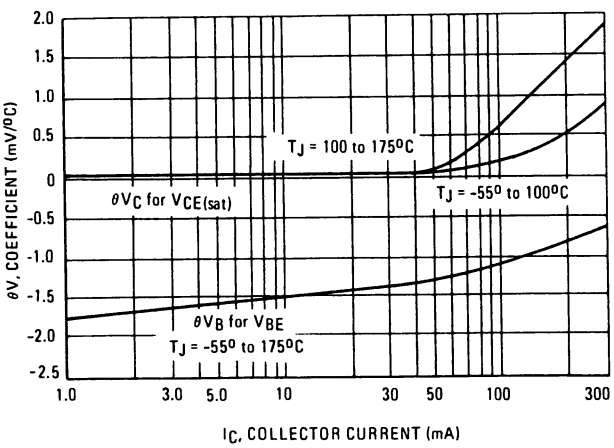


FIGURE 7 – CURRENT-GAIN–BANDWIDTH PRODUCT

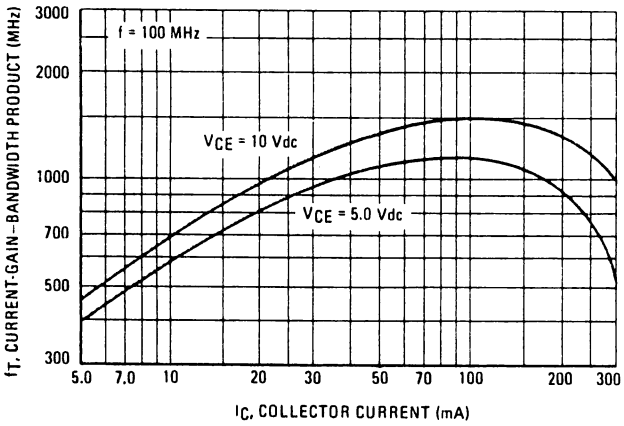


FIGURE 8 – COLLECTOR-BASE TIME CONSTANT

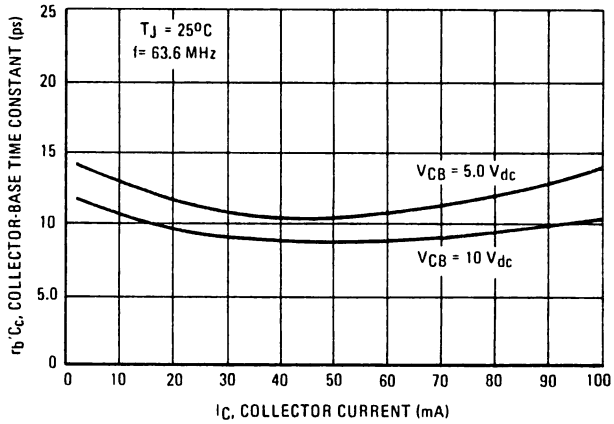


FIGURE 9 – SWITCHING TIME

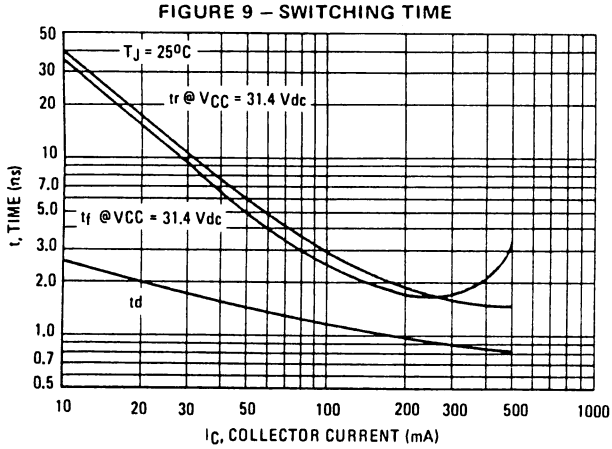
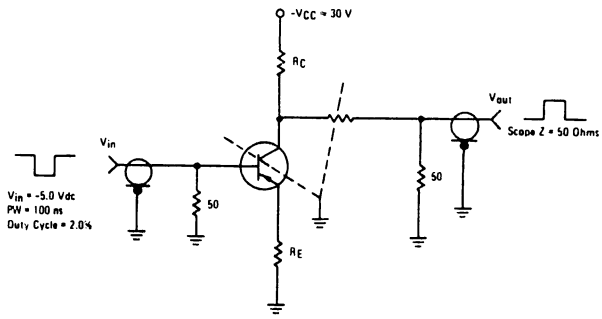


FIGURE 10 – SWITCHING TIME TEST CIRCUIT



IC mA	RC Ohms	RE Ohms	VCC 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