2N5583

JAN, JTX, JTXV AVAILABLE
CASE 79-02, STYLE 1
TO-39 (TO-205AD)

HIGH FREQUENCY TRANSISTOR

PNP SILICON

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	30	Vdc
Collector-Base Voltage	V_{CBO}	30	Vdc
Emitter-Base Voltage	V_{EBO}	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

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage(1) (I_C = 10 mAdc, I_B = 0)	$V_{(BR)CEO}$	30	—	—	Vdc
Collector-Base Breakdown Voltage (I_C = 10 μAdc, I_E = 0)	$V_{(BR)CBO}$	30	—	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	$V_{(BR)EBO}$	3.0	—	—	Vdc
Collector Cutoff Current (V_{CB} = 20 Vdc, I_E = 0)	I_{CBO}	—	—	50	nAdc
Emitter Cutoff Current (V_{EB} = 2.0 Vdc, I_C = 0)	I_{EBO}	—	—	0.5	μAdc
ON CHARACTERISTICS					
DC Current Gain(1) (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)	h_{FE}	 20 25 15	 40 40 22	 — 100 —	—
Collector-Emitter Saturation Voltage(1) (I_C = 100 mAdc, I_B = 10 mAdc)	$V_{CE(sat)}$	—	0.6	0.8	Vdc
Base-Emitter On Voltage(1) (I_C = 100 mAdc, V_{CE} = 2.0 Vdc)	$V_{BE(on)}$	—	0.84	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)	f_T	 1000 1300	 1300 1500	 — —	MHz
Collector-Base Capacitance (V_{CB} = 15 Vdc, I_E = 0, f = 100 kHz)	C_{cb}	—	2.5	5.0	pF
Emitter-Base Capacitance (V_{EB} = 0.5 Vdc, I_C = 0, f = 100 kHz)	C_{eb}	—	18	35	pF
Collector Base Time Constant (I_C = 50 mAdc, V_{CB} = 10 Vdc, f = 63.6 MHz)	$rb'C_c$	—	8.0	—	ps
SWITCHING CHARACTERISTICS (FIGURE 10)					
Turn-On Delay Time	(V_{CC} = 31.4 Vdc, I_C = 150 mAdc, R_C = 160 Ohms, R_E = 26.6 Ohms)	t_d	—	1.0	—	ns
Rise Time		t_r	—	2.1	—	ns
Fall Time		t_f	—	1.8	—	ns

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

FIGURE 1 – DC CURRENT GAIN

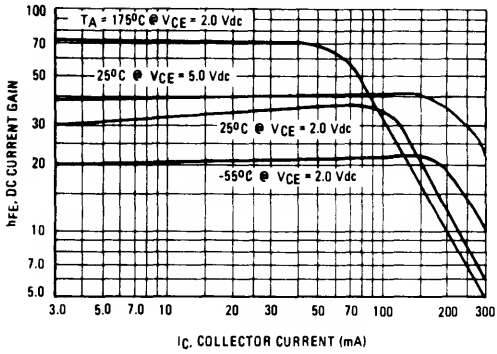


FIGURE 2 – COLLECTOR SATURATION REGION

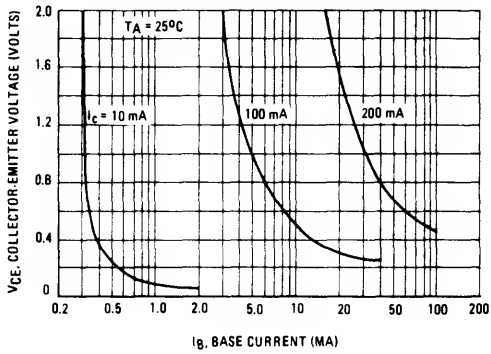


FIGURE 3 – "ON" VOLTAGES

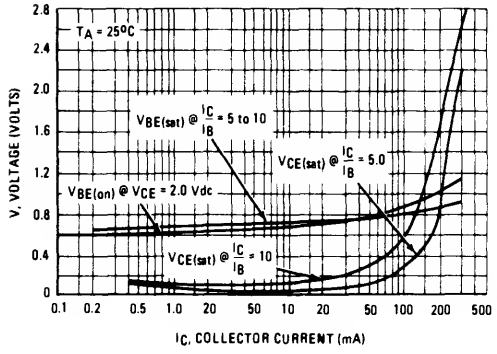


FIGURE 4 – COLLECTOR CURRENT versus BASE VOLTAGE

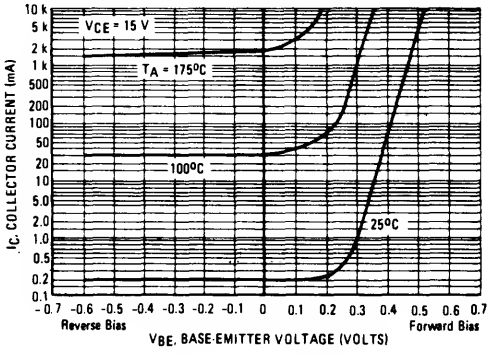


FIGURE 5 – CAPACITANCES

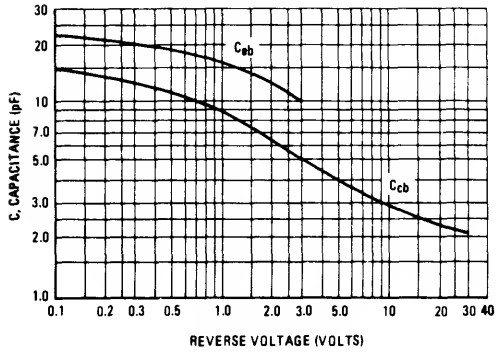


FIGURE 6 – TEMPERATURE COEFFICIENTS

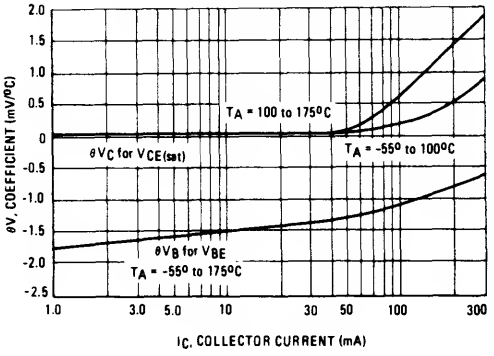


FIGURE 7 – CURRENT-GAIN–BANDWIDTH PRODUCT

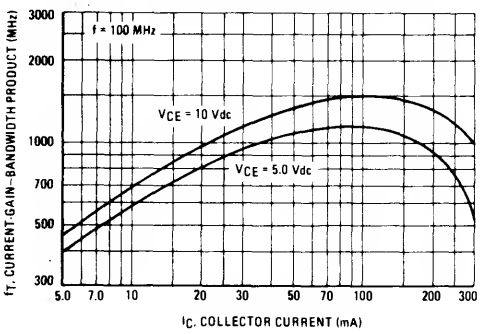


FIGURE 8 – COLLECTOR-BASE TIME CONSTANT

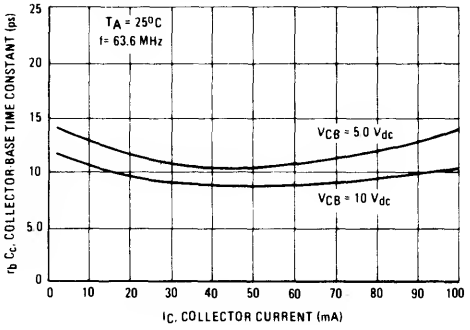


FIGURE 9 – SWITCHING TIMES

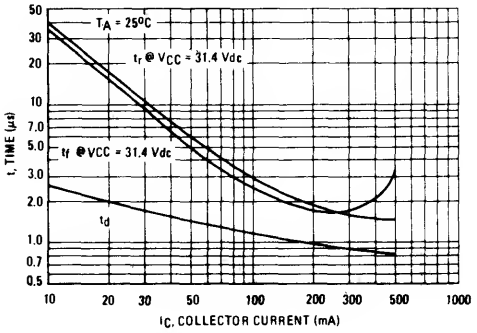
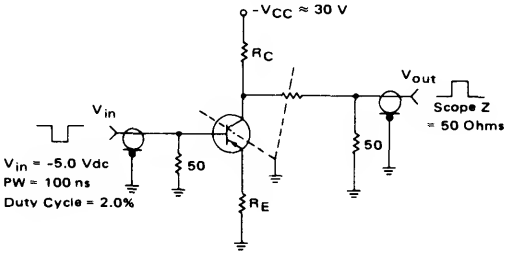


FIGURE 10 – SWITCHING TIMES TEST CIRCUIT



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

2N5829 For Specifications see 2N4957 Data.