2N3081 (SILICON)

PNP SILICON ANNULAR TRANSISTOR

. . . designed for medium-speed switching and general-purpose amplification applications in industrial service.

- High Collector-Base Breakdown Voltage — BV_{CBO} = 70 Vdc (Min) @ I_C = 10 μAdc
- Low Collector-Emitter Saturation Voltage — $V_{CE(sat)}$ = 0.3 Vdc (Max) @ I_C = 150 mAdc

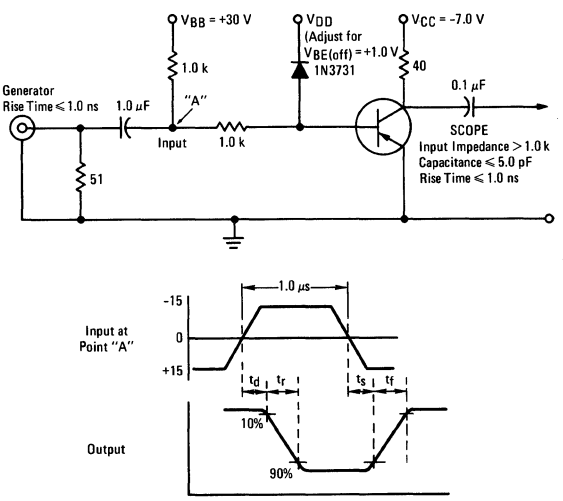
PNP SILICON TRANSISTOR

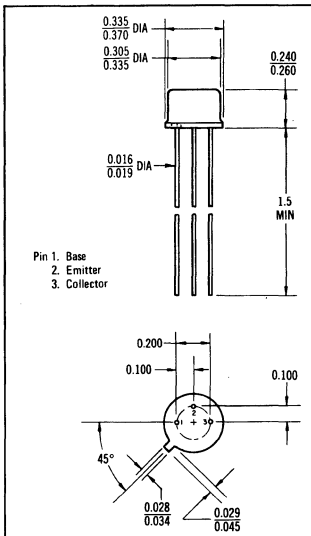
***MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	50	Vdc
Collector-Base Voltage	V_{CB}	70	Vdc
Emitter-Base Voltage	V_{EB}	6.0	Vdc
Collector Current — Continuous	I_C	600	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	0.6 3.4	Watts mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	2.0 11.5	Watts mW/°C
Storage Temperature Range	T_{stg}	-65 to +200	°C

*Indicates JEDEC Registered Data.

FIGURE 1 — SWITCHING TIMES TEST CIRCUIT





CASE 31 (1)
TO-5
Collector Connected to Case

To convert inches to millimeters multiply by 25.4.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (I_C = 10 mAdc, I_B = 0)	$V_{CEO(sus)}$	50	–	Vdc
Collector-Base Breakdown Voltage (I_C = 10 μAdc, I_E = 0)	BV_{CBO}	70	–	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	BV_{EBO}	6.0	–	Vdc
Collector Cutoff Current (V_{CE} = 35 Vdc, $V_{EB(off)}$ = 0.5 Vdc)	I_{CEV}	–	10	nAdc
Collector Cutoff Current	I_{CBO}			
(V_{CB} = 50 Vdc, I_E = 0)		–	10	nAdc
(V_{CB} = 50 Vdc, I_E = 0, T_A = 150°C)		–	10	μAdc
Emitter Cutoff Current (V_{EB} = 5.0 Vdc, I_C = 0)	I_{EBO}	–	100	nAdc
Base Current (V_{CE} = 35 Vdc, $V_{EB(off)}$ = 0.5 Vdc)	I_B	–	10	nAdc
ON CHARACTERISTICS				
DC Current Gain(1)	h_{FE}			–
(I_C = 150 mAdc, V_{CE} = 0.6 Vdc)		20	–	
(I_C = 150 mAdc, V_{CE} = 10 Vdc)		30	90	
(I_C = 500 mAdc, V_{CE} = 2.8 Vdc)		15	–	
(I_C = 500 mAdc, V_{CE} = 10 Vdc)		20	–	
Collector-Emitter Saturation Voltage(1)	$V_{CE(sat)}$			Vdc
(I_C = 150 mAdc, I_B = 15 mAdc)		–	0.3	
(I_C = 500 mAdc, I_B = 50 mAdc)		–	1.4	
Base-Emitter Voltage(1) (I_C = 150 mAdc, I_B = 15 mAdc)	V_{BE}	–	1.1	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain–Bandwidth Product(2) (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)	f_T	150	–	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 1.0 MHz)	C_{ob}	–	13	pF
Input Capacitance (V_{EB} = 0.5 Vdc, I_C = 0, f = 1.0 MHz)	C_{ib}	–	70	pF
SWITCHING CHARACTERISTICS (See Figure 1)				
Turn-On Time	t_{on}	–	60	ns
Turn-Off Time	t_{off}	–	175	ns

*Indicates JEDEC Registered Data.

(1)Pulse Test: Pulse Width ≤300 μs, Duty Cycle = 1.0%.

(2)f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.