

2N2710 (SILICON)



NPN silicon transistor primarily designed for high-speed, low-power saturated switching applications for industrial service.

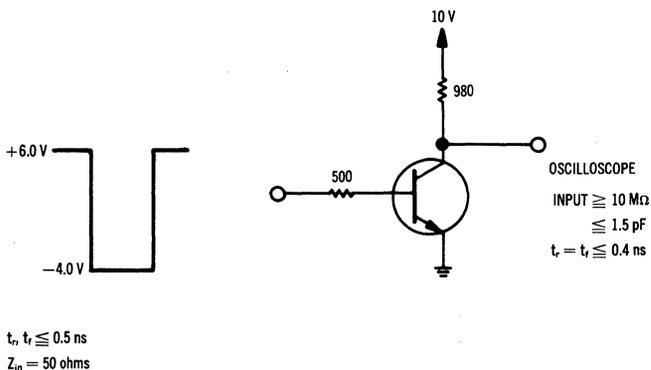
CASE 22 (TO-18)

Collector connected to case

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	20	Vdc
Collector-Emitter Voltage	V_{CES}	30	Vdc
Collector-Base Voltage	V_{CB}	40	Vdc
Emitter-Base Voltage	V_{EB}	5.0	Vdc
Collector Current-Continuous	I_C	500	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	0.36 2.1	W mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$	P_D	1.2	W
Operating Junction Temperature Range	T_J	+200	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +200	$^\circ\text{C}$

FIGURE 1 — STORAGE TIME TEST CIRCUIT



2N2710 (continued)

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

Characteristic	Symbol	Min	Max	Unit
Collector-Emitter Sustaining Voltage ($I_C = 10 \text{ mAdc}$, $I_B = 0$)	V_{CEO}	20	-	Vdc
Collector-Emitter Breakdown Voltage ($I_C = 10 \text{ } \mu\text{Adc}$, $V_{BE} = 0$)	V_{CES}	30	-	Vdc
Collector-Base Breakdown Voltage ($I_C = 10 \text{ } \mu\text{Adc}$, $I_E = 0$)	V_{CBO}	40	-	Vdc
Emitter-Base Breakdown Voltage ($I_E = 10 \text{ } \mu\text{Adc}$, $I_C = 0$)	V_{EBO}	5.0	-	Vdc
Collector-Cutoff Current ($V_{CB} = 20 \text{ Vdc}$, $I_E = 0$) ($V_{CB} = 20 \text{ VDC}$, $I_E = 0$, $T_A = +150^\circ\text{C}$)	I_{CBO}	-	0.03 30	μAdc
Emitter Cutoff Current ($V_{BE} = 3.0 \text{ Vdc}$, $I_C = 0$)	I_{EBO}	-	1.0	μAdc

ON CHARACTERISTICS

DC Current Gain ($I_C = 10 \text{ mAdc}$, $V_{CE} = 1.0 \text{ Vdc}$) ($I_C = 50 \text{ mAdc}$, $V_{CE} = 1.0 \text{ Vdc}$)	h_{FE}	40 40	- -	-
Collector-Emitter Saturation Voltage ($I_C = 10 \text{ mAdc}$, $I_B = 1.0 \text{ mAdc}$) ($I_C = 50 \text{ mAdc}$, $I_B = 5.0 \text{ mAdc}$)	$V_{CE(sat)}$	- -	0.25 0.4	Vdc
Base-Emitter Saturation Voltage ($I_C = 10 \text{ mAdc}$, $I_B = 1.0 \text{ mAdc}$) ($I_C = 50 \text{ mAdc}$, $I_B = 5.0 \text{ mAdc}$)	$V_{BE(sat)}$	- -	0.9 1.3	Vdc

DYNAMIC CHARACTERISTICS

Current-Gain-Bandwidth Product ($I_C = 10 \text{ mAdc}$, $V_{CE} = 20 \text{ Vdc}$, $f = 100 \text{ MHz}$)	f_T	500	-	MHz
Output Capacitance ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 4.0 \text{ MHz}$)	C_{ob}	-	4.0	pF
Turn-On Time (Figure 2) ($V_{CC} = 3.0 \text{ Vdc}$, $V_{BE(off)} = 2.0 \text{ Vdc}$, $I_C = 10 \text{ mAdc}$, $I_{B1} = 3.0 \text{ mAdc}$)	t_{on}	-	20	ns
Turn-Off Time (Figure 2) ($V_{CC} = 3.0 \text{ Vdc}$, $I_C = 10 \text{ mAdc}$, $I_{B1} = 3.0 \text{ mAdc}$, $I_{B2} = 1.0 \text{ mAdc}$)	t_{off}	-	35	ns
Charge-Storage Time (Figure 1) ($V_{CC} = 10 \text{ Vdc}$, $I_C = I_{B1} = I_{B2} = 10 \text{ mAdc}$)	t_s	-	15	ns

FIGURE 2 — TURN ON AND TURN OFF TIME TEST CIRCUIT

