

T-35-15

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage <small>($I_C = 10 \text{ mA}$, $I_E = 0$)</small>	V_{CE0}	15	Vdc
Collector-Emitter Voltage(1)	V_{CER}	20	Volts
Collector-Base Voltage	V_{CBO}	25	Volts
Emitter-Base Voltage	V_{EBO}	3.0 5.0 5.0	Volts
Collector Current	I_C	50	mA
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	0.3 2.0	Watt mW/°C
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.0 6.67	Watts mW/°C
Total Device Dissipation @ $T_C = 100^\circ\text{C}$ Derate above 100°C	P_D	0.5	Watt
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	°C

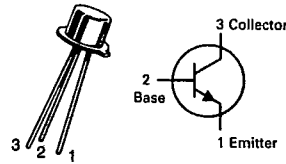
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	150	°C/W
Thermal Resistance, Junction to Ambient 2N706A,B	$R_{\theta JA}$	500	°C/W

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(2) <small>($I_C = 10 \text{ mA}$, $I_E = 0$)</small>	$V_{(BR)CEO}$	15	—	Vdc
Collector-Emitter Breakdown Voltage(2) <small>($R = 10 \text{ ohms}$, $I_C = 10 \text{ mA}$)</small>	$V_{(BR)CER}$	20	—	Vdc
Collector Cutoff Current <small>($V_{CB} = 15 \text{ Vdc}$, $I_E = 0$) ($V_{CB} = 15 \text{ Vdc}$, $I_E = 0$, $T_A = 150^\circ\text{C}$) ($V_{CB} = 25 \text{ Vdc}$, $I_E = 0$)</small>	I_{CBO}	—	0.5 30 10	μAdc
Collector Cutoff Current <small>($V_{CE} = 20 \text{ Vdc}$, $R_{BE} = 100\text{k}$)</small>	I_{CER}	—	10	μAdc
Emitter Cutoff Current <small>($V_{EB} = 3.0 \text{ Vdc}$, $I_C = 0$) ($V_{EB} = 5.0 \text{ Vdc}$, $I_C = 0$)</small>	I_{EBO}	—	10 10	μAdc
ON CHARACTERISTICS				
DC Current Gain(2) <small>($I_C = 10 \text{ mA}$, $V_{CE} = 1.0 \text{ Vdc}$)</small>	h_{FE}	20 20	— 60	—
Collector-Emitter Saturation Voltage(2) <small>($I_C = 10 \text{ mA}$, $I_E = 1.0 \text{ mA}$)</small>	$V_{CE(sat)}$	—	0.6 0.4	Vdc
Base-Emitter Saturation Voltage(2) <small>($I_C = 10 \text{ mA}$, $I_E = 1.0 \text{ mA}$)</small>	$V_{BE(sat)}$	—	0.9 0.9	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain — Bandwidth Product <small>($V_{CE} = 15 \text{ Vdc}$, $I_E = 10 \text{ mA}$, $f = 100 \text{ MHz}$)</small>	f_T	200	—	MHz
Output Capacitance <small>($V_{CB} = 5.0 \text{ Vdc}$, $I_E = 0$) ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$)</small>	C_{ob0}	—	5.0 6.0	pF
Magnitude of Forward Current Transfer Ratio, Common-Emitter <small>($V_{CE} = 15 \text{ Vdc}$, $I_E = 10 \text{ mA}$, $f = 100 \text{ MHz}$) ($V_{CE} = 10 \text{ Vdc}$, $I_E = 10 \text{ mA}$, $f = 100 \text{ MHz}$)</small>	$ h_{fe} $	2.0 2.0	— —	—

2N706, A, B

(2N706 JAN AVAILABLE)
CASE 22-03, STYLE 1
TO-18 (TO-206AA)

SWITCHING TRANSISTORS

NPN SILICON

Refer to 2N2368 for graphs.

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[查询"2N706"供应商](#) ELECTRICAL CHARACTERISTICS (continued) (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
Collector Base Time Constant (V _{CE} = 15 Vdc, I _E = 10 mA, f = 300 MHz)	t _b	—	50	ohms
Storage Time 2N706B	t _s	—	25	ns
Turn-On Time (I _{B1} = 3.0 mA, I _{B2} = 1.0 mA)	t _{on}	—	40	ns
Turn-Off Time (I _{B1} = 3.0 mA, I _{B2} = 1.0 mA)	t _{off}	—	75	ns
Charge Storage Time Constant(2) 2N706 2N706A,B	t _s	—	60 25	ns

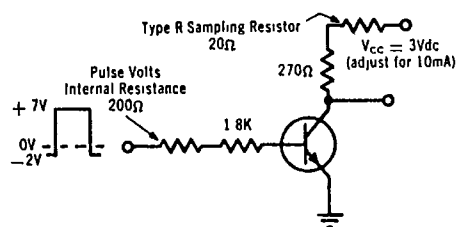
(1) Refers to collector breakdown voltage in the high current region when R_{BE} = 10 Ω

(2) Pulse Test: Pulse Width ≤ 12 μs, Duty Cycle ≤ 2.0%.

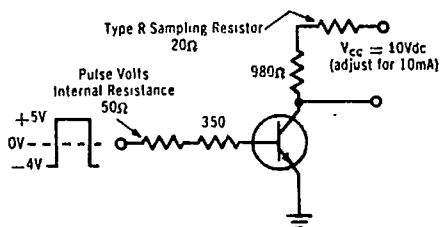
(3) Switching Times Measured with Tektronix Type R Plug-In (50 Ω Internal Impedance).

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SWITCHING TIME TEST CIRCUIT



STORAGE TIME TEST CIRCUIT



MEASUREMENT CIRCUIT

