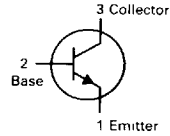
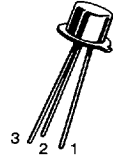
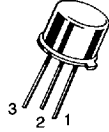


MAXIMUM RATINGS

Rating	Symbol	2N718A 2N956	2N1711	Unit
Collector-Emitter Voltage	V_{CE}	50		Vdc
Collector-Base Voltage	V_{CBO}	75		Vdc
Emitter-Base Voltage	V_{EBO}	7.0		Vdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	500 2.86	800 4.57	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.8 10.3	3.0 17.15	Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	2N718A 2N956	2N1711	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	350	58	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	97	219	$^\circ\text{C/W}$

**2N718A
2N956**
**CASE 22-03, STYLE 1
TO-18 (TO-206AA)**

2N1711
**CASE 79-04, STYLE 1
TO-39 (TO-205AD)**

**GENERAL PURPOSE
TRANSISTORS**
NPN SILICON

Refer to 2N3019 for graphs.

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage ($I_C = 100 \text{ mAdc}$, pulsed; $R_{BE} \leq 10 \text{ ohms}$)(1)	$V_{CE(sus)}$	50	—	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 100 \mu\text{Adc}$, $I_E = 0$)	$V_{(BR)CBO}$	75	—	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 100 \mu\text{Adc}$, $I_C = 0$)	$V_{(BR)EBO}$	7.0	—	—	Vdc
Collector Cutoff Current ($V_{CB} = 60 \text{ Vdc}$, $I_E = 0$) ($V_{CB} = 60 \text{ Vdc}$, $I_E = 0$, $T_A = 150^\circ\text{C}$)	I_{CBO}	—	0.001	0.01 10	μAdc
Emitter Cutoff Current ($V_{EB} = 5.0 \text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	—	0.010 0.005	μAdc
		2N718A, 2N956, 2N1711			

ON CHARACTERISTICS

DC Current Gain ($I_C = 0.01 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	2N956, 2N1711	h_{FE}	20	—	—	—
($I_C = 0.1 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	2N718A, 2N956, 2N1711		20 35	—	—	—
($I_C = 10 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	2N718A, 2N956, 2N1711		35 75	—	—	—
($I_C = 10 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $T_A = -55^\circ\text{C}$)	2N718A, 2N956, 2N1711		20 35	—	—	—
($I_C = 150 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)(1)	2N718A, 2N956, 2N1711		40 100	—	120 300	—
($I_C = 500 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)(1)	2N718A, 2N956, 2N1711		20 40	—	—	—
Collector-Emitter Saturation Voltage(1) ($I_C = 150 \text{ mAdc}$, $I_B = 15 \text{ mAdc}$)		$V_{CE(sat)}$	—	0.24	1.5	Vdc
Base-Emitter Saturation Voltage(1) ($I_C = 150 \text{ mAdc}$, $I_B = 15 \text{ mAdc}$)		$V_{BE(sat)}$	—	1.0	1.3	Vdc

 (1) Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

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2N718A, 2N956, 2N1711ELECTRICAL CHARACTERISTICS (continued) ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Typ	Max	Unit
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product ($I_C = 50 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 20 \text{ MHz}$)	f_T	60 70	300 300	—	MHz
Output Capacitance ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 1 \text{ MHz}$)	C_{obo}	—	4.0	25	pF
Input Capacitance ($V_{EB} = 0.5 \text{ Vdc}$, $I_C = 0$, $f = 1 \text{ MHz}$)	C_{ibo}	—	20	80	pF
Input Impedance ($I_C = 1.0 \text{ mAdc}$, $V_{CB} = 5.0 \text{ Vdc}$, $f = 1.0 \text{ kHz}$) ($I_C = 5.0 \text{ mAdc}$, $V_{CB} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	h_{ib}	24 4.0	— —	34 8.0	ohms
Voltage Feedback Ratio ($I_C = 1.0 \text{ mAdc}$, $V_{CB} = 5.0 \text{ Vdc}$, $f = 1.0 \text{ kHz}$) ($I_C = 5.0 \text{ mAdc}$, $V_{CB} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	h_{rb}	— —	— —	3.0 5.0	$\times 10^{-4}$
Small-Signal Current Gain ($I_C = 1.0 \text{ mAdc}$, $V_{CE} = 5.0 \text{ Vdc}$, $f = 1.0 \text{ kHz}$) ($I_C = 5.0 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	h_{fe}	30 50	— —	100 200	—
Output Admittance ($I_C = 1.0 \text{ mAdc}$, $V_{CB} = 5.0 \text{ Vdc}$, $f = 1.0 \text{ kHz}$) ($I_C = 5.0 \text{ mAdc}$, $V_{CB} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	h_{ob}	0.05 0.05	— —	0.5 0.5	μmhos
Noise Figure ($I_C = 300 \mu\text{A}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	NF	— —	— —	12 8.0	dB

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