

2N718A 2N956, 2N1711

**2N718A JAN, JTX,
JTXV AVAILABLE
CASE 22, STYLE 1
TO-18 (TO-206AA)**

**GENERAL PURPOSE
TRANSISTOR**

NPN SILICON

2N718A: See 2N3019 for graphs.

MAXIMUM RATINGS

Rating	Symbol	2N718A 2N956	2N1711	Unit
Collector-Emitter Voltage	V _{CER}	50		Vdc
Collector-Base Voltage	V _{CBO}	75		Vdc
Emitter-Base Voltage	V _{EBO}	7.0		Vdc
Total Device Dissipation @ T _A = 25°C Derate above 25°C	P _D	500 2.86	800 4.57	mW mW/°C
Total Device Dissipation @ T _C = 25°C Derate above 25°C	P _D	1.8 10.3	3.0 17.15	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
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage (I _C = 100 mAdc, pulsed; R _{BE} ≤ 10 ohms)	V _{CER(sus)}	50	—	—	Vdc
Collector-Base Breakdown Voltage (I _C = 100 μAdc, I _E = 0)	V _{(BR)CBO}	75	—	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 100 μAdc, I _C = 0)	V _{(BR)EBO}	7.0	—	—	Vdc
Collector Cutoff Current (V _{CB} = 60 Vdc, I _E = 0) (V _{CB} = 60 Vdc, I _E = 0, T _A = 150°C)	I _{CBO}	—	0.001	0.01	μAdc
Emitter Cutoff Current (V _{BE} = 5.0 Vdc, I _C = 0)	I _{EBO}	—	—	0.010 0.005	μAdc
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ON CHARACTERISTICS

DC Current Gain (I _C = 0.01 mAdc, V _{CE} = 10 Vdc)	h _{FE}	20	—	—	—
(I _C = 0.1 mAdc, V _{CE} = 10 Vdc)		20 35	— —	— —	
(I _C = 10 mAdc, V _{CE} = 10 Vdc)		35 75	— —	— —	
(I _C = 10 mAdc, V _{CE} = 10 Vdc, T _A = -55°C)		20 35	— —	— —	
(I _C = 150 mAdc, V _{CE} = 10 Vdc)		40 100	— —	120 300	
(I _C = 500 mAdc, V _{CE} = 10 Vdc)		20 40	— —	— —	
Collector-Emitter Saturation Voltage(1) (I _C = 150 mAdc, I _B = 15 mAdc)	V _{CE(sat)}	—	0.24	1.5	Vdc
Base-Emitter Saturation Voltage(1) (I _C = 150 mAdc, I _B = 15 mAdc)	V _{BE(sat)}	—	1.0	1.3	Vdc

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

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ELECTRICAL 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 ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 100 \text{ kHz}$)	C_{obo}	—	4.0	25	pF
Input Capacitance ($V_{BE} = 0.5 \text{ Vdc}$, $I_C = 0$, $f = 100 \text{ kHz}$)	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 ($I_C = 300 \mu\text{Adc}$, $V_{CE} = 10 \text{ Vdc}$, $f = 1.0 \text{ kHz}$)	NF	— —	— —	12 8.0	dB

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