

Boca Semiconductor Corp.

2N1711 For Specifications, See 2N718A Data.

MAXIMUM RATINGS

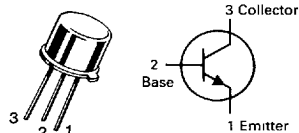
Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	80	Vdc
Collector-Emitter Voltage	V_{CER}	100	Vdc
Collector-Base Voltage	V_{CBO}	120	Vdc
Emitter-Base Voltage	V_{EBO}	7.0	Vdc
Collector Current — Continuous	I_C	0.5	Adc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	0.8 4.57	Watt mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	3.0 17.2	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	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	219	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	58	$^\circ\text{C/W}$

2N1893

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



**GENERAL PURPOSE
TRANSISTOR
NPN SILICON**

Refer to 2N3019 for graphs.

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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 100 \text{ mAdc}, R_{BE} = 10 \text{ ohms}(1)$)	$V_{CER(sus)}$	100	—	Vdc
Collector-Emitter Sustaining Voltage(1) ($I_C = 30 \text{ mAdc}, I_B = 0(1)$)	$V_{CEO(sus)}$	80	—	Vdc
Collector-Base Breakdown Voltage ($I_C = 100 \text{ } \mu\text{Adc}, I_E = 0$)	$V_{(BR)CBO}$	120	—	Vdc
Emitter-Base Breakdown Voltage ($I_E = 100 \text{ } \mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	7.0	—	Vdc
Collector Cutoff Current ($V_{CB} = 90 \text{ Vdc}, I_E = 0$) ($V_{CB} = 90 \text{ Vdc}, I_E = 0, T_A = 150^\circ\text{C}$)	I_{CBO}	—	0.01 15	μAdc
Emitter Cutoff Current ($V_{EB} = 5.0 \text{ Vdc}, I_C = 0$)	I_{EBO}	—	0.01	μAdc

ON CHARACTERISTICS

DC Current Gain ($I_C = 0.1 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$) ($I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}(1)$) ($I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, T_A = -55^\circ\text{C}(1)$) ($I_C = 150 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}(1)$)	h_{FE}	20 35 20 40	— — — 120	—
Collector-Emitter Saturation Voltage(1) ($I_C = 50 \text{ mAdc}, I_B = 5.0 \text{ mAdc}$) ($I_C = 150 \text{ mAdc}, I_B = 15 \text{ mAdc}$)	$V_{CE(sat)}$	—	1.2 0.5	Vdc
Base-Emitter Saturation Voltage(1) ($I_C = 50 \text{ mAdc}, I_B = 5.0 \text{ mAdc}$) ($I_C = 150 \text{ mAdc}, I_B = 15 \text{ mAdc}$)	$V_{BE(sat)}$	—	0.9 1.3	Vdc

SMALL-SIGNAL CHARACTERISTICS

Current-Gain — Bandwidth Product ($I_C = 50 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 20 \text{ MHz}$)	f_T	50	—	MHz
Output Capacitance ($V_{CB} = 10 \text{ Vdc}, I_E = 0, f = 1.0 \text{ MHz}$)	C_{obo}	—	15	pF
Input Capacitance ($V_{EB} = 0.5 \text{ Vdc}, I_C = 0, f = 1.0 \text{ MHz}$)	C_{ibo}	—	85	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}	20 4.0	30 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}	—	1.25 1.5	$\times 10^{-4}$
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 45	100 —	—
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}	—	0.5 0.5	μmho

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

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