

Boca Semiconductor Corp.

MAXIMUM RATINGS

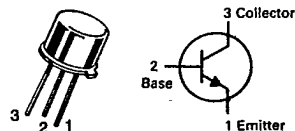
Rating	Symbol	2N5320	2N5321	Unit
Collector-Emitter Voltage	V_{CE0}	75	50	Vdc
Collector-Base Voltage	V_{CBO}	100	75	Vdc
Emitter-Base Voltage	V_{EBO}	7.0	5.0	Vdc
Base Current	I_B	1.0		Adc
Collector Current — Continuous	I_C	2.0		Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	10	0.057	Watts mW/°C
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	$R_{\theta JC}$	17.5	°C/W

2N5320
2N5321

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



SWITCHING TRANSISTORS

NPN SILICON

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage ($I_C = 100 \text{ mA}$, $I_B = 0$)	$V_{(BR)CEO}$	75 50	— —	Vdc
Collector Cutoff Current ($V_{CE} = 100 \text{ Vdc}$, $V_{BE} = 1.5 \text{ Vdc}$, $T_C = 150^\circ\text{C}$) ($V_{CE} = 70 \text{ Vdc}$, $V_{BE} = 1.5 \text{ Vdc}$, $T_C = 150^\circ\text{C}$) ($V_{CE} = 75 \text{ Vdc}$, $V_{BE} = 1.5 \text{ Vdc}$) ($V_{CE} = 45 \text{ Vdc}$, $V_{BE} = 1.5 \text{ Vdc}$, $T_C = 150^\circ\text{C}$)	I_{CEX}	— — — —	0.1 5.0 0.1 5.0	mA
Emitter Cutoff Current ($V_{BE} = 7.0 \text{ Vdc}$, $I_C = 0$) ($V_{BE} = 5.0 \text{ Vdc}$, $I_C = 0$)	I_{EBO}	—	0.1 0.1	mA
ON CHARACTERISTICS(1)				
DC Current Gain ($I_C = 500 \text{ mA}$, $V_{CE} = 4.0 \text{ Vdc}$) ($I_C = 1.0 \text{ A}$, $V_{CE} = 2.0 \text{ Vdc}$)	h_{FE}	30 40 10	130 250 —	—
Collector-Emitter Saturation Voltage ($I_C = 500 \text{ mA}$, $I_B = 50 \text{ mA}$)	$V_{CE(sat)}$	— —	0.5 0.8	Vdc
Base-Emitter On Voltage ($I_C = 500 \text{ mA}$, $V_{CE} = 4.0 \text{ Vdc}$)	$V_{BE(on)}$	—	1.1 1.4	Vdc
SMALL-SIGNAL CHARACTERISTICS				
Small-Signal Current Gain ($I_C = 50 \text{ mA}$, $V_{CE} = 4.0 \text{ Vdc}$, $f = 10 \text{ MHz}$)	h_{fe}	5	—	—
SWITCHING CHARACTERISTICS				
Turn-On Time ($V_{CC} = 30 \text{ Vdc}$, $I_C = 500 \text{ mA}$, $I_{B1} = 50 \text{ mA}$)	t_{on}	—	80	ns
Turn-Off Time ($V_{CC} = 30 \text{ Vdc}$, $I_C = 500 \text{ mA}$, $I_{B1} = I_{B2} = 50 \text{ mA}$)	t_{off}	—	800	ns

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

FIGURE 1 — TYPICAL INPUT CHARACTERISTICS

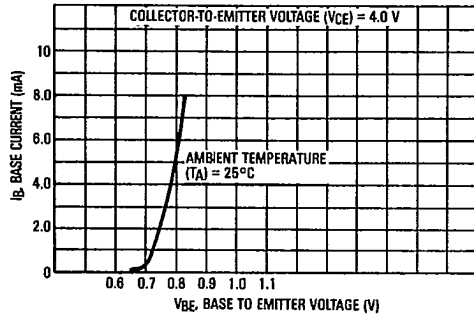


FIGURE 2 — TYPICAL TRANSFER CHARACTERISTICS

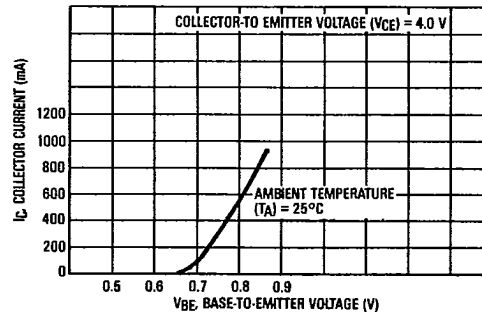


FIGURE 3 — CURRENT GAIN CHARACTERISTICS versus COLLECTOR-EMITTER VOLTAGE

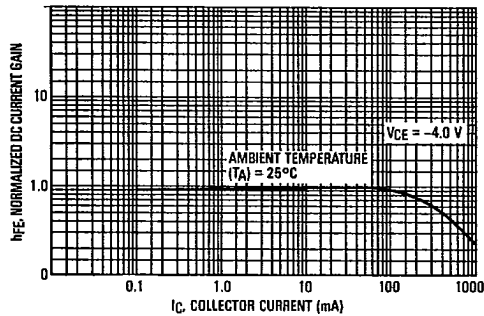


FIGURE 4 — MAXIMUM SAFE OPERATING AREAS (SOA)

