

HIGH VOLTAGE POWER TRANSISTOR

The BU126 Type is a fast switching high voltage transistor, more specially intended for operating in color TV receivers chopper supplies.

FEATURES:

- * Continuous Collector Current- $I_C = 3.0A$
- * Power Dissipation- $P_D = 30W @ T_C = 25^\circ C$
- * DC Current Gain $hFE = 15(\text{Min}) @ I_C = 1.0A$

Boca Semiconductor Corp.

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NPN
BU126

3 AMPERE
POWER
TRANSISTORS
300 VOLTS
30 WATTS

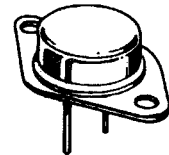
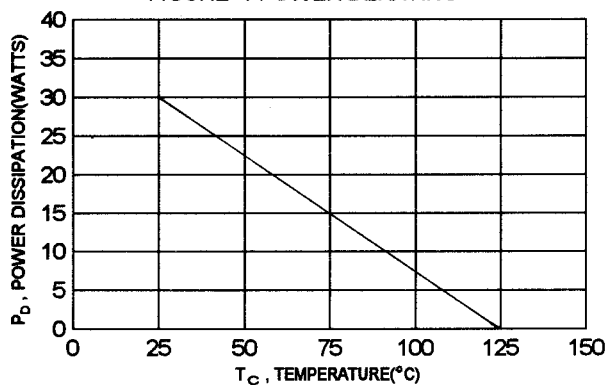
MAXIMUM RATINGS

Characteristic	Symbol	BU126	Unit
Collector-Base Voltage	V_{CBO}	750	V
Collector-Emitter Voltage	V_{CEO}	300	V
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current - Continuous -Peak	I_C	3.0 5.0	A
Base Current-Continuous	I_B	2.0	A
Total Power Dissipation @ $T_C = 25^\circ C$ Derate above $25^\circ C$	P_D	30 0.3	W W/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +125	$^\circ C$

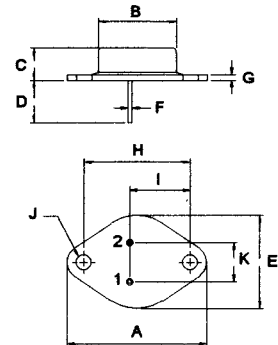
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta JC}$	3.33	$^\circ C/W$

FIGURE -1 POWER DERATING



TO-3



PIN 1. BASE
2. EMITTER
COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18

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

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Sustaining Voltage ($I_C = 0.1\text{A}$, $I_B = 0$, $L = 25\text{ mH}$)	$V_{CEO(sus)}$	300		V
Collector Cutoff Current ($V_{CE} = 750\text{ V}$, $V_{BE} = 0$)	I_{CES}		500	μA
Emitter Cutoff Current ($V_{BE} = 6.0\text{ V}$, $I_C = 0$)	I_{EBO}		5.0	mA

ON CHARACTERISTICS (1)

DC Current Gain ($I_C = 1.0\text{ A}$, $V_{CE} = 5.0\text{ V}$)	h_{FE}	15	60	
Collector-Emitter Saturation Voltage ($I_C = 2.5\text{ A}$, $I_B = 0.25\text{ A}$) ($I_C = 4.0\text{ A}$, $I_B = 1.0\text{ A}$)	$V_{CE(sat)}$		10 5.0	V
Base-Emitter Saturation Voltage ($I_C = 4.0\text{ A}$, $I_B = 1.0\text{ A}$)	$V_{BE(sat)}$		1.5	V

DYNAMIC CHARACTERISTICS

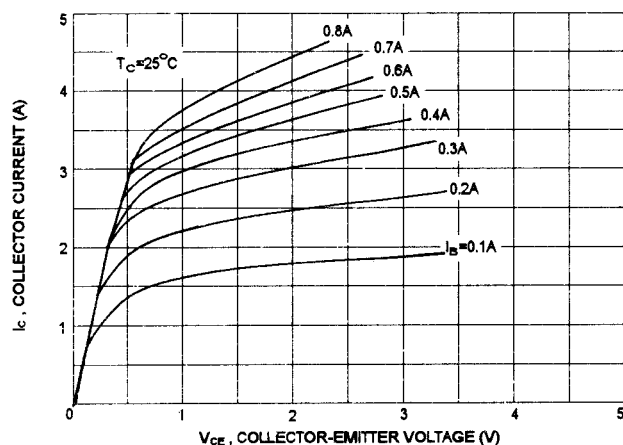
Current Gain-Bandwidth Product ($I_C = 200\text{ mA}$, $V_{CE} = 10\text{ V}$, $f = 1\text{ MHz}$)	f_T	4.0(typ)		MHz
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SWITCHING CHARACTERISTICS

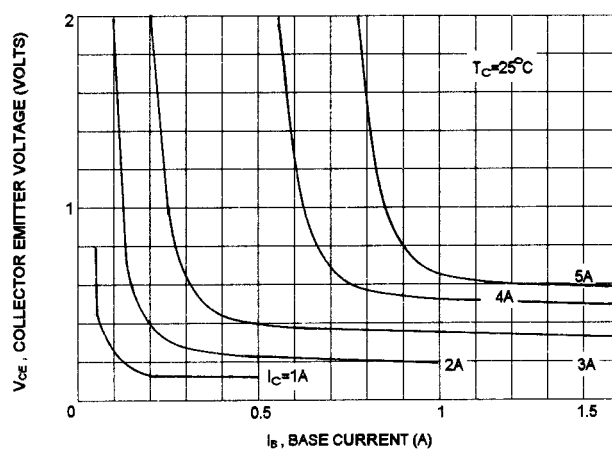
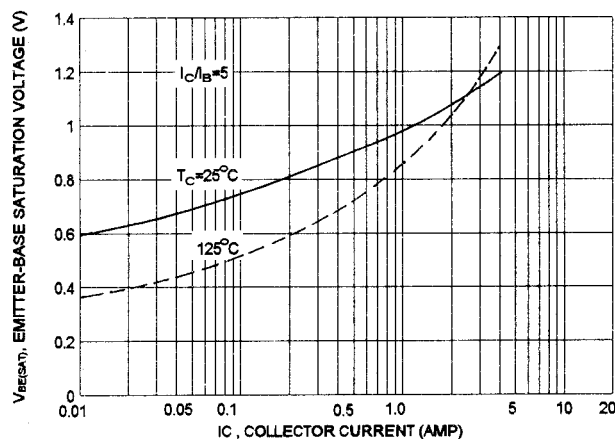
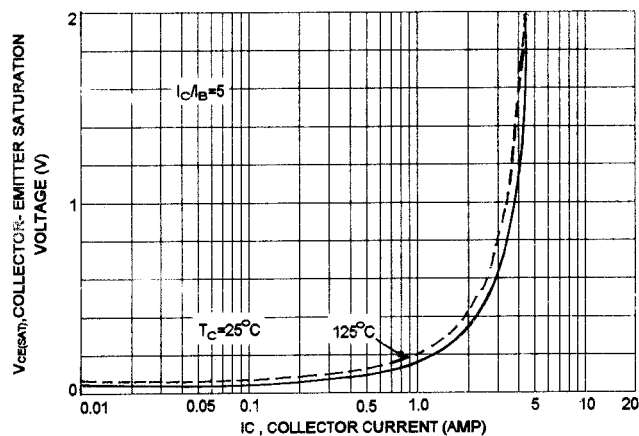
Storage Time	$I_C = 2.5\text{ A}$, $V_{CC} = 50\text{ V}$ $I_{B1} = -I_{B2} = 0.25\text{ A}$	t_s		3.0	μs
Fall Time		t_f		0.9	μs

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

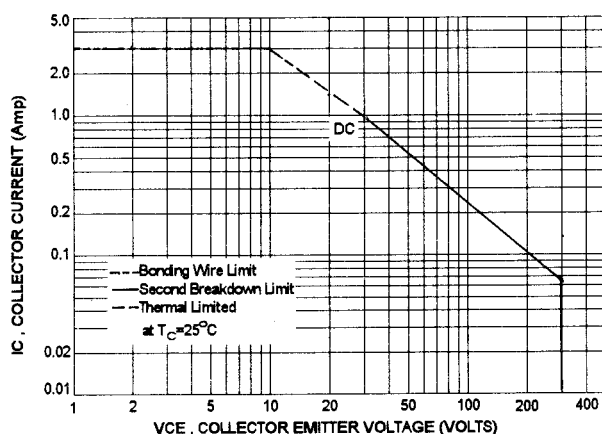
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$I_C - V_{CE}$ 

COLLECTOR SATURATION REGION

 $V_{BE(sat)} - I_C$  $V_{CE(sat)} - I_C$ 

ACTIVE-REGION SAFE OPERATING AREA (SOA)



There are two limitation on the power handling ability of a transistor: average junction temperature and second breakdown safe operating area curves indicate $I_C - V_{CE}$ limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation than curves indicate.

The data of SOA curve is based on $T_{J(PK)} = 150^\circ\text{C}$; T_C is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(PK)} \leq 150^\circ\text{C}$. At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

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