

## 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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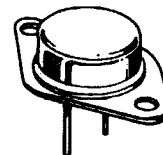
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NPN  
BU126

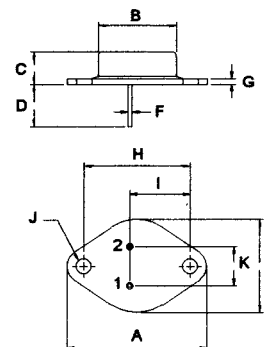
3 AMPERE  
POWER  
TRANSISTORS  
300 VOLTS  
30 WATTS

### 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	$^\circ C$



TO-3

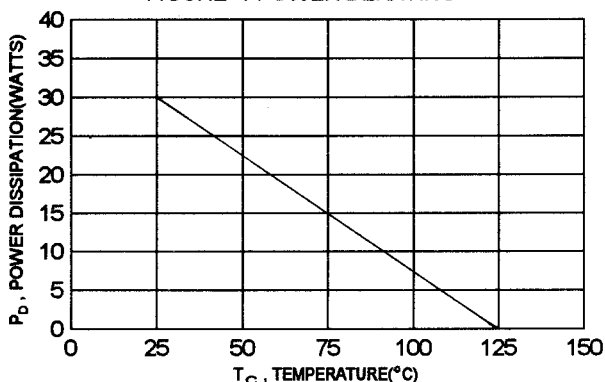


PIN 1. BASE  
2. EMITTER  
COLLECTOR(CASE)

### THERMAL CHARACTERISTICS

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

FIGURE -1 POWER DERATING



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	$\mu\text{A}$
Emitter Cutoff Current ( $V_{BE} = 6.0\text{ V}$ , $I_C = 0$ )	$I_{EBO}$		5.0	mA

**ON CHARACTERISTICS (1)**

DC Current Gain ( $I_C = 1.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ )	hFE	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**

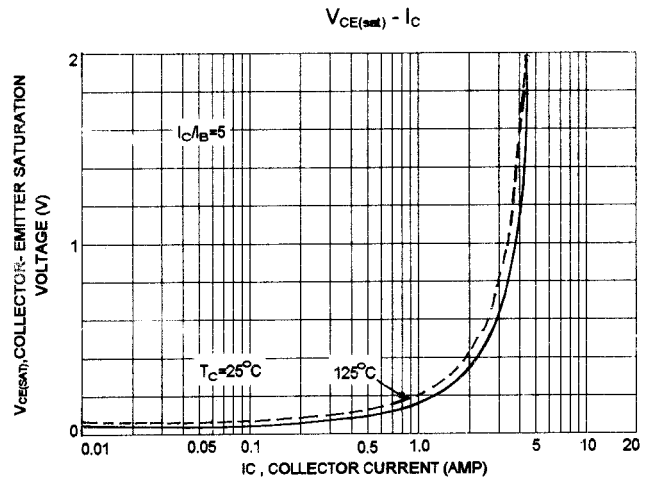
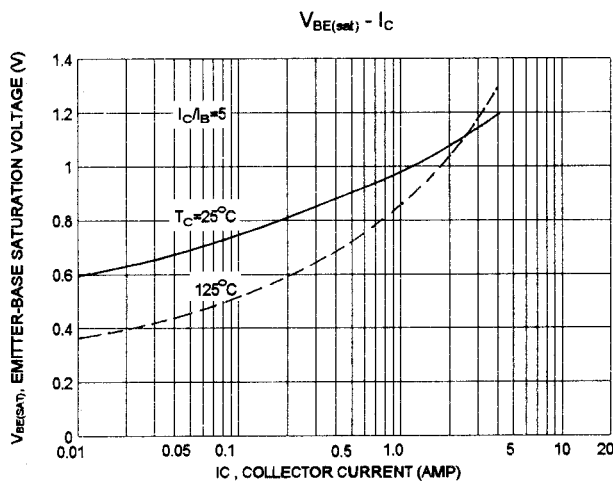
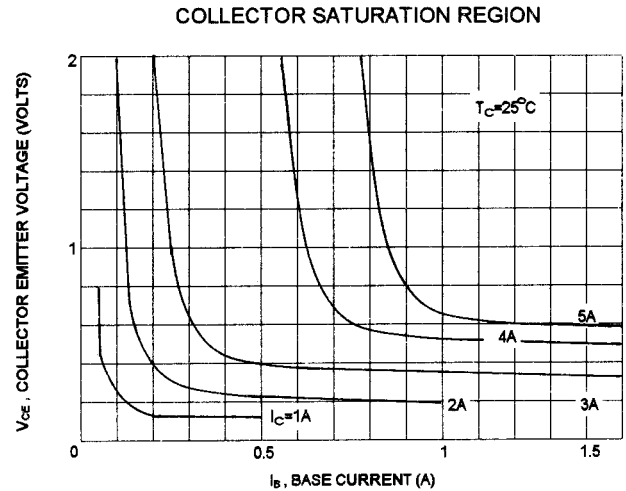
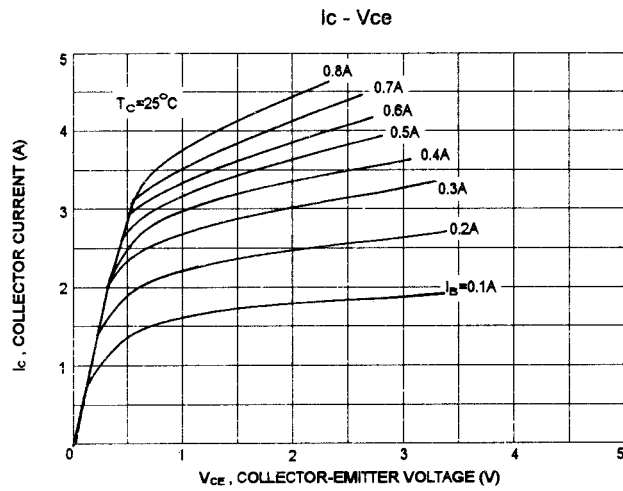
Current Gain-Bandwidth Product ( $I_C = 200\text{ mA}$ , $V_{CE} = 10\text{ V}$ , $f = 1\text{ MHz}$ )	$f_T$	4.0(typ)		MHz
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**SWITCHING CHARACTERISTICS**

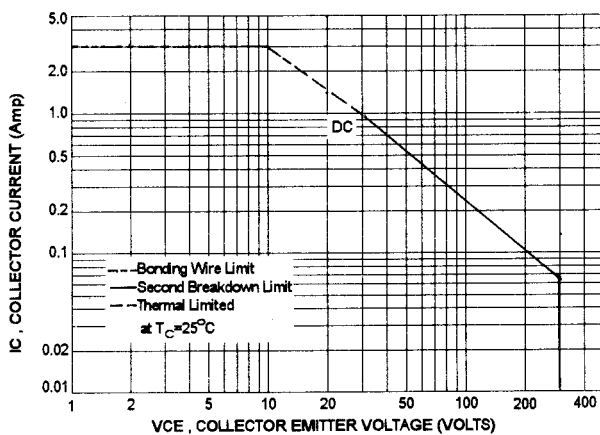
Storage Time	$I_C = 2.5\text{ A}$ , $V_{CC} = 50\text{ V}$ $I_{B1} = -I_{B2} = 0.25\text{ A}$	$t_s$	3.0	$\mu\text{s}$
Fall Time		$t_f$	0.9	$\mu\text{s}$

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

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**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 base 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.