

NPN POWER TRANSISTOR

These devices are high voltage, high speed transistors for horizontal deflection output stages of TV's and CTV's circuits.

FEATURES:

- * Collector-Emitter Sustaining Voltage -
 $V_{CEV} = 330 \text{ V (Min.) - BU407D}$
 $= 400 \text{ V (Min.) - BU406D, BU408D}$
- * Low Saturation Voltage
 $V_{CE(sat)} = 1.0 \text{ V (Max) @ } I_C = 5.0 \text{ A}$
- * Fast Switching Speed: $t_f = 0.75 \text{ us (Max)}$

Boca Semiconductor Corp.
BSC
<http://www.bocasemi.com>

NPN

BU406D

BU407D

BU408D

7 AMPERE
POWER
TRANSISTORS
150-200 VOLTS
60 WATTS

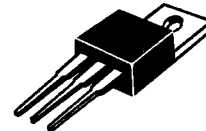
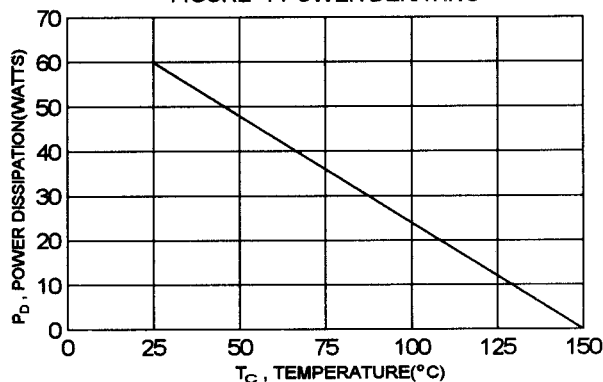
MAXIMUM RATINGS

Characteristic	Symbol	BU406D BU408D	BU407D	Unit
Collector-Emitter Voltage	V_{CEO}	200	150	V
Collector-Emitter Voltage	V_{CEV}	400	330	V
Collector-Base Voltage	V_{CBO}	400	330	V
Emitter-Base Voltage	V_{EBO}	6.0		V
Collector Current - Continuous - Peak	I_C	7.0 10		A
Base Current - Continuous	I_B	4.0		A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	60 0.48		W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	- 65 to +150		$^\circ\text{C}$

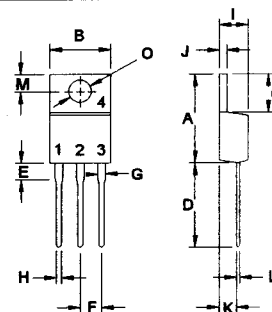
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	2.08	$^\circ\text{C/W}$

FIGURE -1 POWER DERATING



TO-220



PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

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 (1) ($I_C = 100\text{ mA}$, $I_B = 0$)	BU406D, BU408D BU407D	$V_{CE(sus)}$	200 150	V
Collector Cutoff Current ($V_{CE} = 400\text{ V}$, $V_{BE} = -1.5\text{ V}$) ($V_{CE} = 330\text{ V}$, $V_{BE} = -1.5\text{ V}$)	BU406D, BU408D BU407D	I_{CEV}	15 15	mA
Emitter Cutoff Current ($V_{EB} = 6.0\text{ V}$, $I_C = 0$)		I_{EBO}	400	mA

ON CHARACTERISTICS (1)

DC Current Gain ($I_C = 2.0\text{ A}$, $V_{CE} = 5.0\text{ V}$)		h_{FE}	15(typ)	
Collector - Emitter Saturation Voltage ($I_C = 5.0\text{ A}$, $I_B = 0.65\text{ A}$) ($I_C = 6.0\text{ A}$, $I_B = 1.2\text{ A}$)	BU406D, BU407D BU408D	$V_{CE(sat)}$	1.0 1.0	V
Base - Emitter Saturation Voltage ($I_C = 5.0\text{ A}$, $I_B = 0.65\text{ A}$) ($I_C = 6.0\text{ A}$, $I_B = 1.2\text{ A}$)	BU406D, BU407D BU408D	$V_{BE(sat)}$	1.3 1.5	V
Diode Forward Voltage ($I_F = 5.0\text{ A}$,)		V_F	1.5	V

DYNAMIC CHARACTERISTICS

Current Gain - Bandwidth Product ($I_C = 0.5\text{ A}$, $V_{CE} = 10\text{ V}$, $f = 1.0\text{ MHz}$)		f_T	10	MHz
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SWITCHING CHARACTERISTICS

Fall Time ($V_{CC} = 40\text{ V}$, $I_C = 5.0\text{ A}$, $I_{B\text{end}} = 0.65\text{ A}$,) ($V_{CC} = 40\text{ V}$, $I_C = 6.0\text{ A}$, $I_{B\text{end}} = 1.2\text{ A}$,)	BU406D, BU407D BU408D	t_f	0.75 0.5	us
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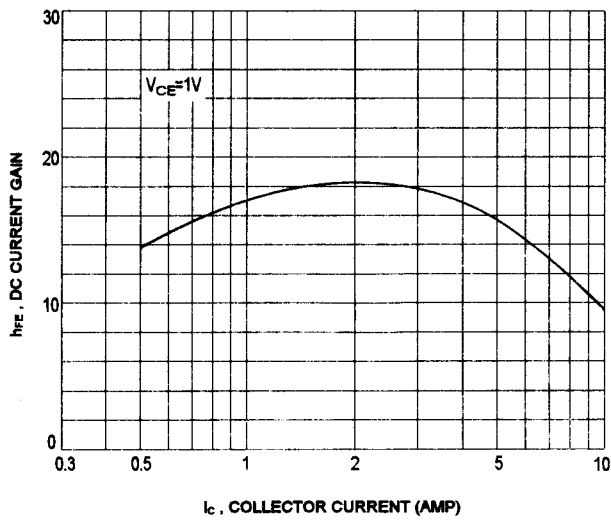
(1) Pulse Test: Pulse width $\leq 300\text{ us}$, Duty Cycle $\leq 2.0\%$

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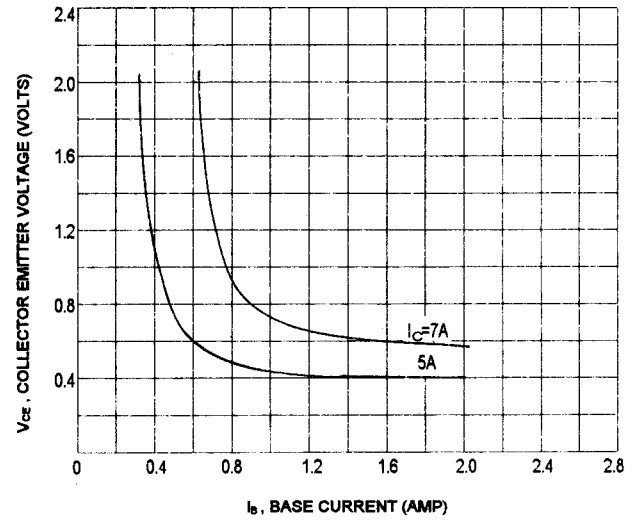
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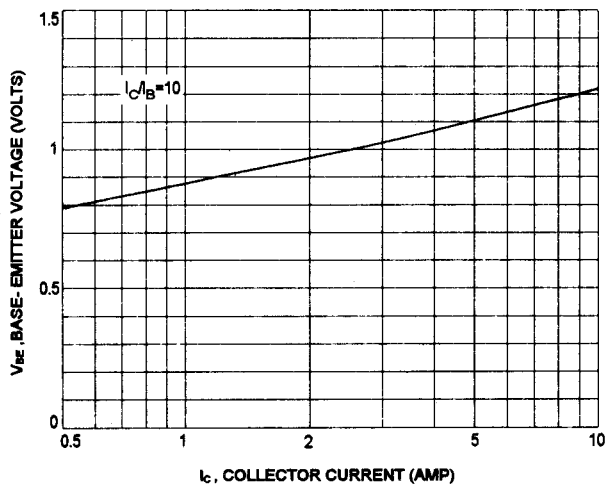
DC CURRENT GAIN



COLLECTOR SATURATION REGION



BASE-EMITTER SATURATION VOLTAGE



COLLECTOR-EMITTER SATURATION VOLTAGE

