

## 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

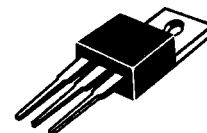
<http://www.bocasemi.com>

NPN  
BU406D  
BU407D  
BU408D

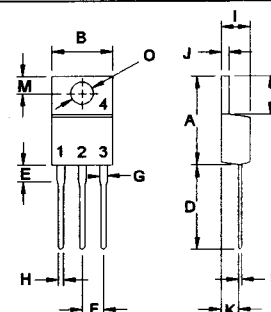
7 AMPERE  
POWER  
TRANSISTORS  
150-200 VOLTS  
60 WATTS

### 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 $25^\circ\text{C}$	$P_D$	60 0.48		W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	- 65 to +150		$^\circ\text{C}$



TO-220



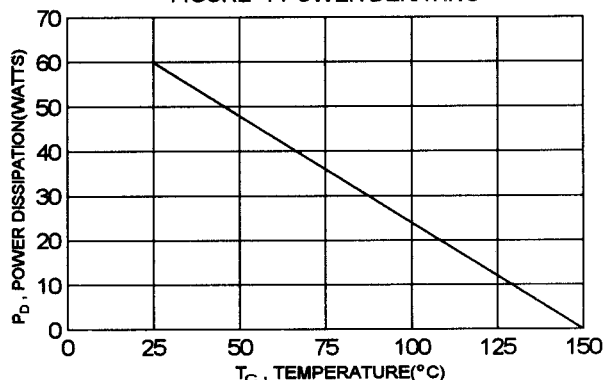
PIN 1.BASE  
2.COLLECTOR  
3.EMITTER  
4.COLLECTOR(CASE)

### THERMAL CHARACTERISTICS

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

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

FIGURE -1 POWER DERATING



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 ( $I_c = 2.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ )		hFE	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

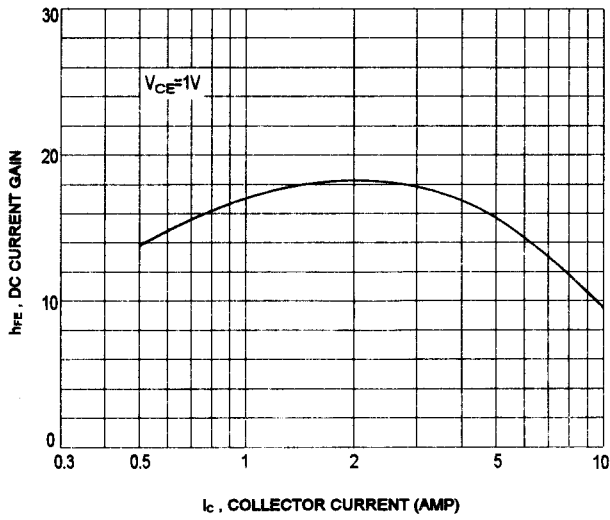
Current Gain - Bandwidth Product ( $I_c = 0.5\text{ A}$ , $V_{CE} = 10\text{ V}$ , $f = 1.0\text{ MHz}$ )		$f_T$	10	MHz
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## SWITCHING CHARACTERISTICS

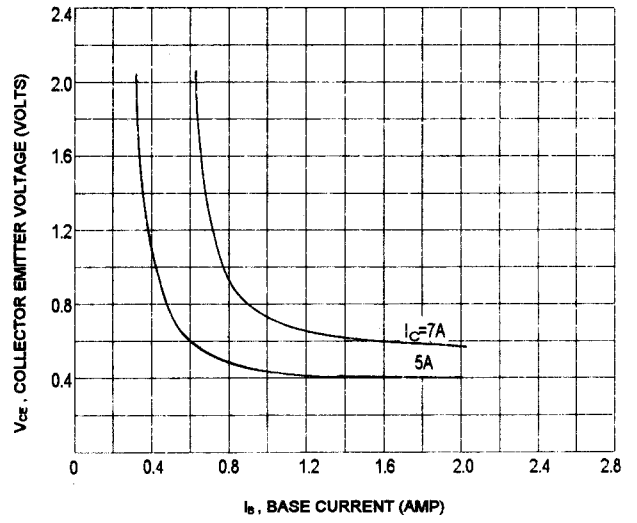
Fall Time ( $V_{CC} = 40\text{ V}$ , $I_c = 5.0\text{ A}$ , $I_{B\text{end}} = 0.65\text{ A}$ , ) ( $V_{CC} = 40\text{ V}$ , $I_c = 6.0\text{ A}$ , $I_{B\text{end}} = 1.2\text{ A}$ , )	BU406D, BU407D BU408D	$t_f$	0.75 0.5	us
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(1) Pulse Test: Pulse width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

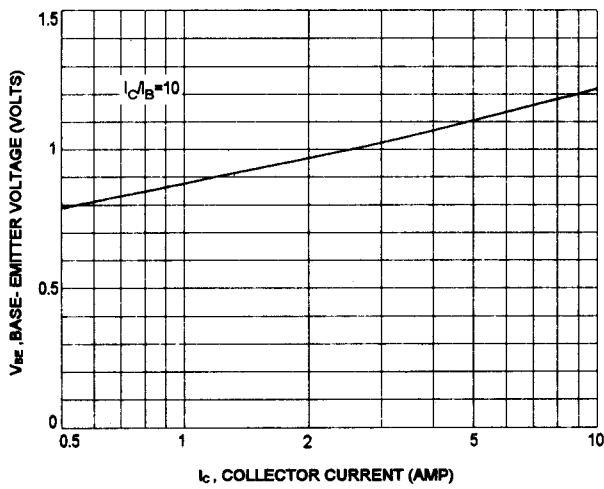
DC CURRENT GAIN



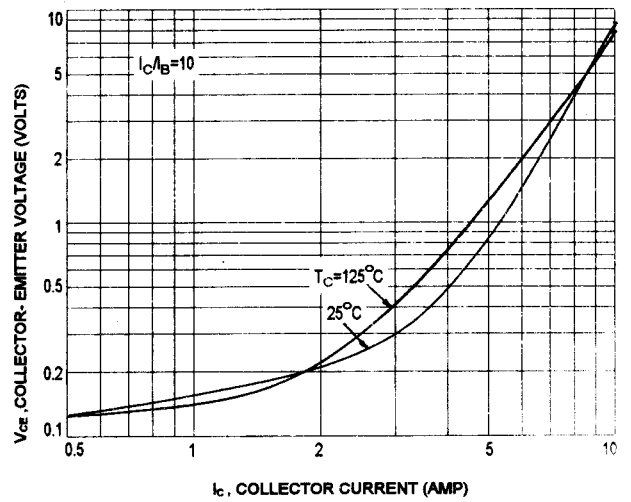
COLLECTOR SATURATION REGION



BASE-EMITTER SATURATION VOLTAGE



COLLECTOR-EMITTER SATURATION VOLTAGE





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