

# HORIZONTAL DEFLECTION TRANSISTOR

...specifically designed for use in large screen color deflection circuits.

## FEATURES:

- \* Collector-Emitter Sustaining Voltage -  $V_{CEX} = 1300 \text{ V (Min.) - BU204}$   
 $= 1500 \text{ V (Min.) - BU205}$
- \* Glassivated Base-Collector Junction

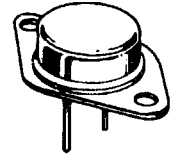
**Boca Semiconductor Corp.**  
**BSC**  
<http://www.bocasemi.com>

**NPN**  
**BU204**  
**BU205**

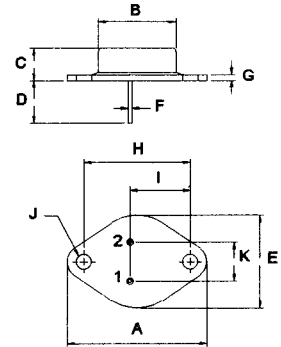
**2.5 AMPERE**  
**POWER**  
**TRANSISTORS**  
**1300-1500 VOLTS**  
**36 WATTS**

## MAXIMUM RATINGS

Characteristic	Symbol	BU204	BU205	Unit
Collector-Emitter Voltage	$V_{CEO}$	600	700	V
Collector-Emitter Voltage	$V_{CEX}$	1300	1500	V
Emitter-Base Voltage	$V_{EBO}$	5.0		V
Collector Current - Continuous - Peak	$I_C$	2.5 3.0		A
Base Current - Continuous	$I_B$	1.0		A
Total Power Dissipation @ $T_C=25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	36 0.4		W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	- 65 to +115		$^\circ\text{C}$



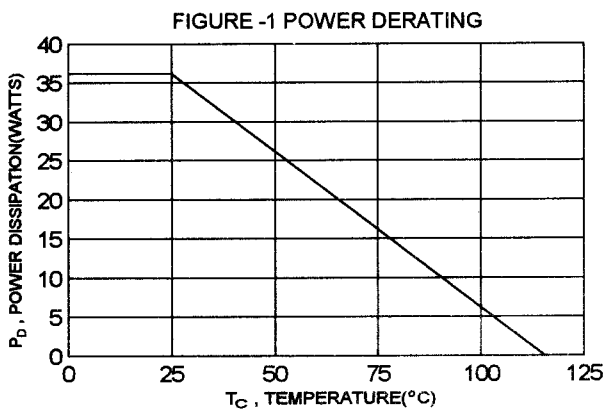
**TO-3**



PIN 1.BASE  
 2.EMITTER  
 COLLECTOR(CASE)

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	2.5	$^\circ\text{C/W}$



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 (1) ( $I_C = 100\text{ mA}$ , $I_B = 0$ )	BU204 BU205	$V_{CE(sus)}$	600 700	V
Collector Cutoff Current ( $V_{CE} = 1300\text{ V}$ , $V_{BE} = 0$ ) ( $V_{CE} = 1500\text{ V}$ , $V_{BE} = 0$ )	BU204 BU205	$I_{CES}$	1.0 1.0	mA
Emitter Cutoff Current ( $V_{EB} = 5.0\text{ V}$ , $I_C = 0$ )		$I_{EBO}$	10	mA

**ON CHARACTERISTICS (1)**

DC Current Gain ( $I_C = 2.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ )		$h_{FE}$	2.0	
Collector - Emitter Saturation Voltage ( $I_C = 2.0\text{ A}$ , $I_B = 1.0\text{ A}$ )		$V_{CE(sat)}$	5.0	V
Base - Emitter Saturation Voltage ( $I_C = 2.0\text{ A}$ , $I_B = 1.0\text{ A}$ )		$V_{BE(sat)}$	1.5	V

**DYNAMIC CHARACTERISTICS**

Current Gain - Bandwidth Product ( $I_C = 0.1\text{ A}$ , $V_{CE} = 5.0\text{ V}$ , $f = 1.0\text{ MHz}$ )		$f_T$	4.0(typ)	MHz
Output Capacitance ( $V_{CE} = 10\text{ V}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$ )		$C_{ob}$	50(typ)	pF

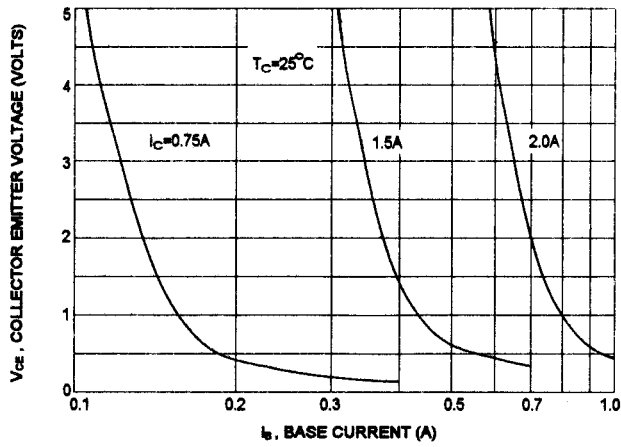
**SWITCHING CHARACTERISTICS**

Fall Time ( $I_C = 2.0\text{ A}$ , $I_{B1} = 1.0\text{ A}$ , $L_B = 25\text{ uH}$ )		$t_f$	0.65(typ)	us
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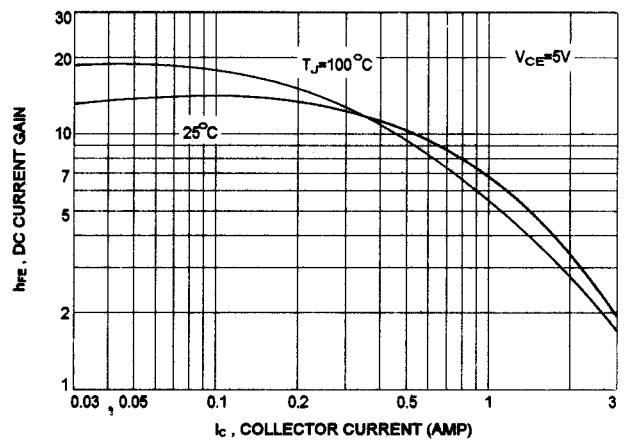
(1) Pulse Test: Pulse width  $\leq 300\text{ us}$ , Duty Cycle  $\leq 2.0\%$ 

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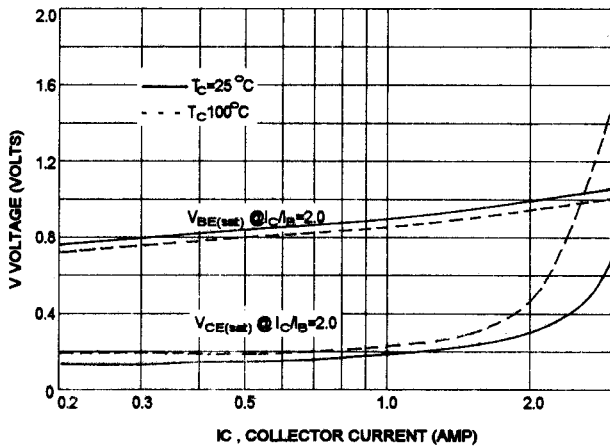
COLLECTOR SATURATION REGION



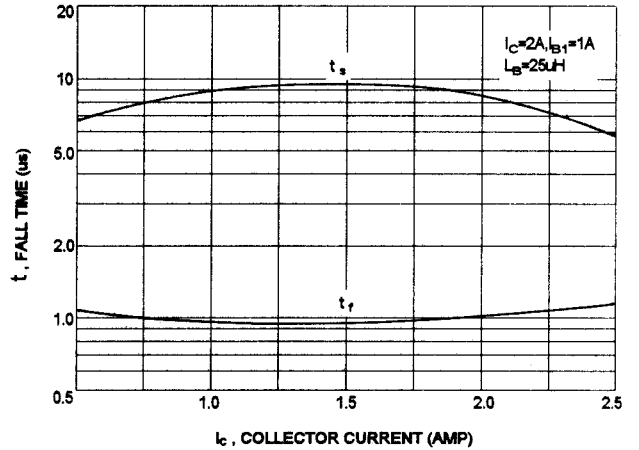
DC CURRENT GAIN



"ON" VOLTAGES



SWITCHING BEHAVIOR VERSUS  $I_{CM}$



FORWARD BIAS SAFE OPERATING AREA

