

## 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 -  
 $V_{CEV} = 330 \text{ V (Min.) - BU407H}$
- \* Low Saturation Voltage  
 $V_{CE(sat)} = 1.0 \text{ V (Max) @ } I_C = 5.0 \text{ A}$
- \* Fast Switching Speed:  $t_f = 0.75 \text{ us (Max)}$

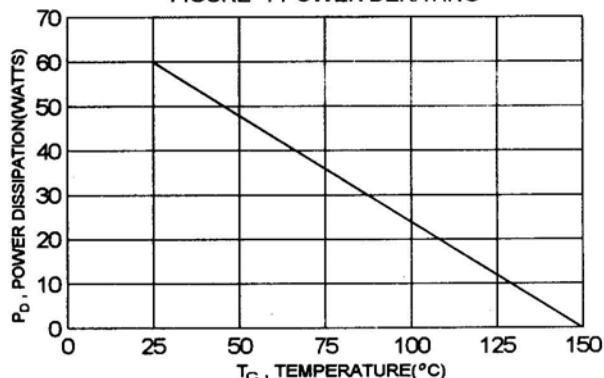
### MAXIMUM RATINGS

Characteristic	Symbol	BU407	Unit
Collector-Emitter Voltage	$V_{CEO}$	150	V
Collector-Emitter Voltage	$V_{CEV}$	330	V
Collector-Base Voltage	$V_{CBO}$	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 0.45	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	- 65 to +150	$^\circ\text{C}$

### THERMAL CHARACTERISTICS

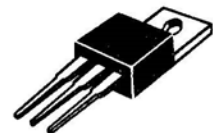
Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	2.08	$^\circ\text{C/W}$

FIGURE -1 POWER DERATING

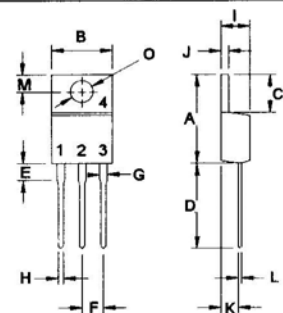


**NPN  
BU407H**

**7 AMPERE  
POWER  
TRANSISTORS  
150-200 VOLTS  
60 WATTS**



TO-220



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

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	16.00
B	9.78	10.42
C	5.02	6.60
D	13.00	14.62
E	3.10	4.19
F	2.41	2.67
G	1.10	1.67
H	0.69	1.01
I	3.21	4.98
J	1.14	1.40
K	2.20	3.30
L	0.28	0.61
M	2.48	3.00
O	3.50	4.00

**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) ( $I_C = 100\text{ mA}$ , $I_B = 0$ )	$V_{CEO(sus)}$	150		V
Collector Cutoff Current ( $V_{CE} = 330\text{ V}$ , $V_{BE} = 0$ ) ( $V_{CE} = 200\text{ V}$ , $V_{BE} = 0$ )	$I_{CES}$		5.0 100	mA $\mu\text{A}$
Emitter Cutoff Current ( $V_{EB} = 6.0\text{ V}$ , $I_C = 0$ )	$I_{EBO}$		1.0	mA

**ON CHARACTERISTICS (1)**

DC Current Gain ( $I_C = 2.0\text{ A}$ , $V_{CE} = 5.0\text{ V}$ )	$h_{FE}$	25(typ)		
Collector - Emitter Saturation Voltage ( $I_C = 5.0\text{ A}$ , $I_B = 0.8\text{ A}$ )	$V_{CE(sat)}$		1.0	V
Base - Emitter Saturation Voltage ( $I_C = 5.0\text{ A}$ , $I_B = 0.8\text{ A}$ )	$V_{BE(sat)}$		1.2	V

**DYNAMIC CHARACTERISTICS**

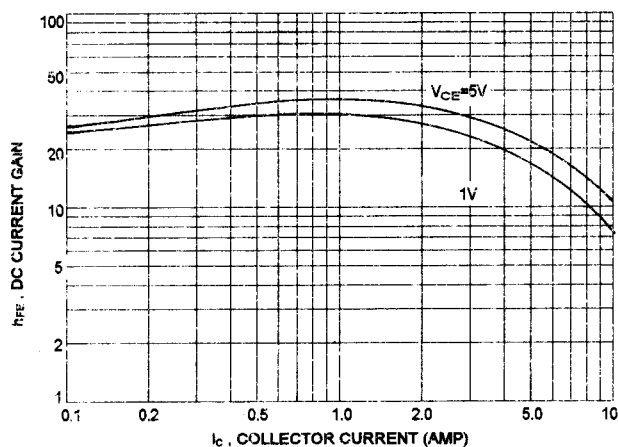
Current Gain - Bandwidth Product ( $I_C = 0.5\text{ A}$ , $V_{CE} = 10\text{ V}$ , $f = 1.0\text{ MHz}$ )	$f_T$	10		MHz
Output Capacitance ( $V_{CE} = 10\text{ V}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$ )	$C_{ob}$	80(typ)		pF

**SWITCHING CHARACTERISTICS**

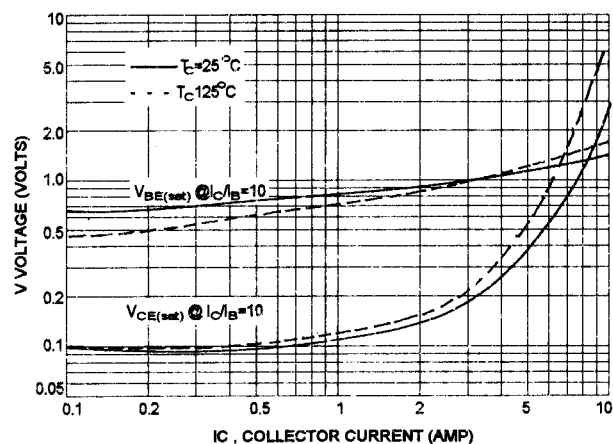
Fall Time ( $V_{CC} = 40\text{ V}$ , $I_C = 5.0\text{ A}$ , $I_{Bend} = 0.8\text{ A}$ , )	$t_f$		0.75	$\mu\text{s}$
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(1) Pulse Test: Pulse width  $\leq 300\text{ }\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

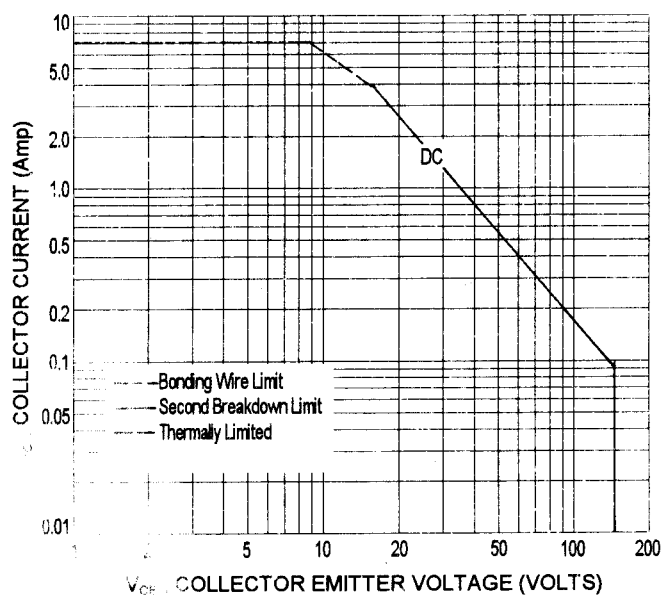
DC CURRENT GAIN



"ON" VOLTAGES



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  $T_{J(PK)} = 150^\circ C$ ;  $T_C$  is variable depending on conditions. second breakdown pulse limits are valid for duty cycles to 10% provided  $T_{J(PK)} \leq 150^\circ C$ . 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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