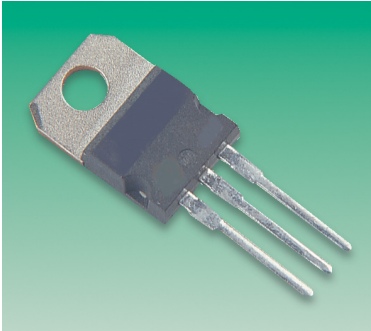


BU406

7A Power Transistor, 200V



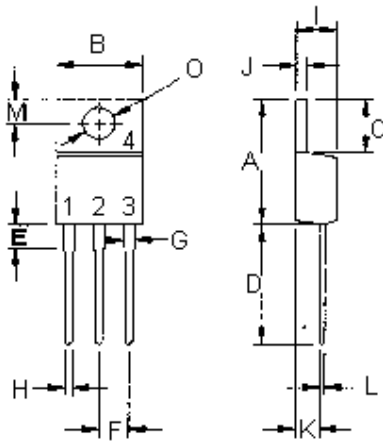
High Voltage Switching



Features:

High voltage, high speed transistor for horizontal deflection output stages of TV and CTV circuits.

- Collector-Emitter Sustaining Voltage -
 $V_{CEV} = 400V$ (Minimum).
- Low Saturation Voltage -
 $V_{CE(sat)} = 1.0V$ (Maximum) at $I_C = 5.0A$.
- Fast Switching Speed: $t_f = 0.75\mu s$ (Maximum).



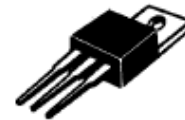
- Pin 1. Base
2. Collector
3. Emitter
4. Collector(Case).

Dimensions	Minimum	Maximum
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

Dimensions : Millimetres

NPN
BU406

7 Ampere
Power
Transistors
200 Volts
60 Watts



TO-220



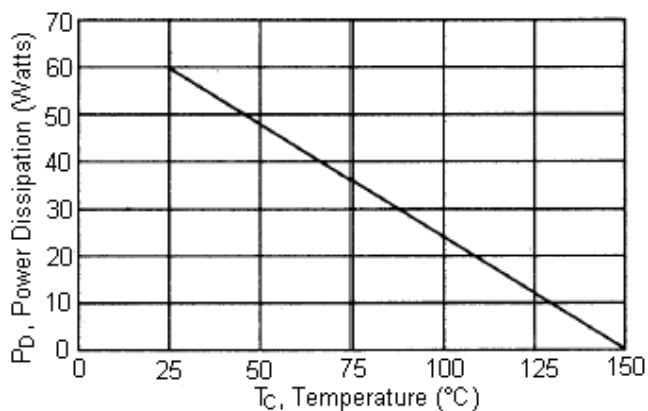
Maximum Ratings

Parameters	Symbol	BU406	Unit
Collector-Emitter Voltage	V_{CEO}	200	V
Collector-Emitter Voltage	V_{CEV}	400	
Collector-Base Voltage	V_{CBO}		
Emitter-Base Voltage	V_{EBO}	6.0	
Collector Current-Continuous -Peak	I_C	7.0 10	A
Base Current-Continuous	I_B	4.0	
Total Power Dissipation at $T_C = 25^\circ\text{C}$ 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

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

Figure - 1 Power Derating

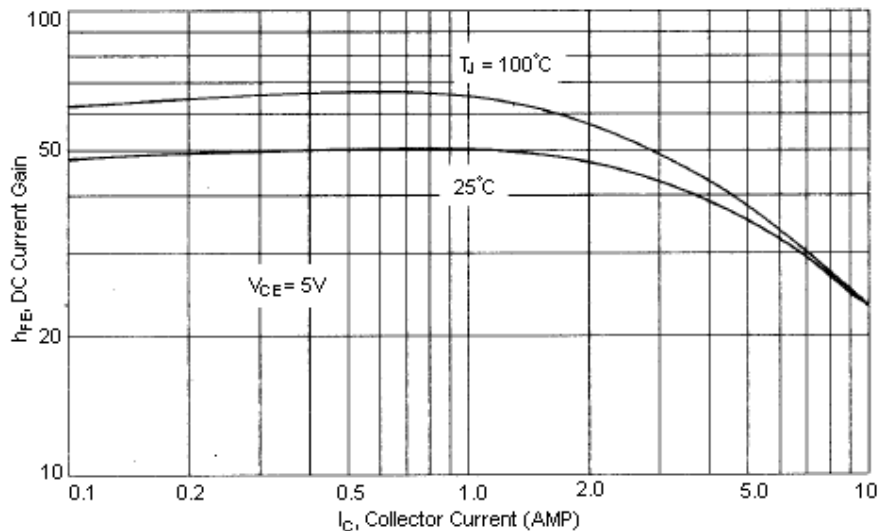


Electrical Characteristics ($T_C = 25^\circ\text{C}$ unless otherwise noted)

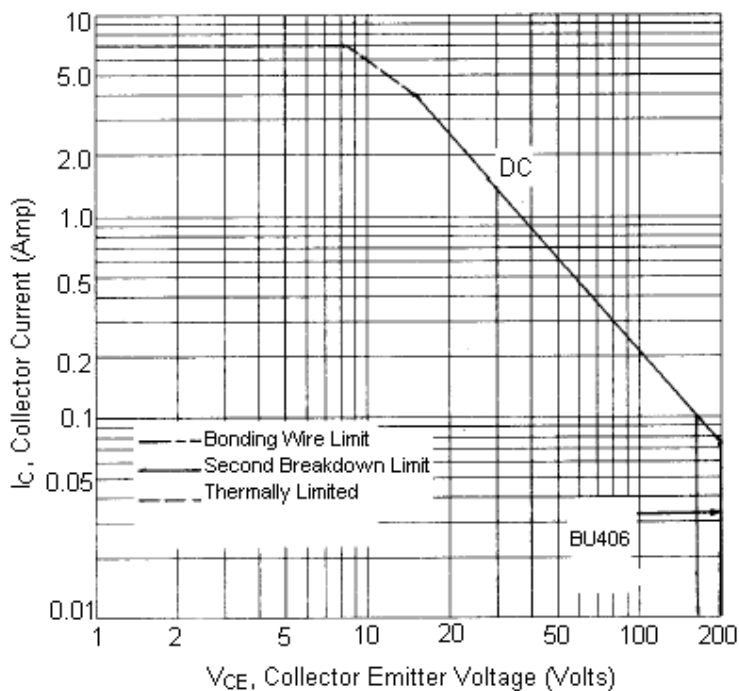
Parameters	Symbol	Minimum	Maximum	Unit
OFF Characteristics				
Collector-Emitter Sustaining Voltage (1) ($I_C = 100\text{mA}$, $I_B = 0$)	$V_{CEO(sus)}$	200	-	V
Collector Cut off Current ($V_{CE} = 400\text{V}$, $V_{BE} = 0$)	I_{CES}	-	5.0	mA
Emitter Cut off Current ($V_{EB} = 6.0\text{V}$, $I_C = 0$)	I_{EBO}	-	1.0	
ON Characteristics (1)				
DC Current Gain ($I_C = 2.0\text{A}$, $V_{CE} = 5.0\text{V}$)	h_{FE}	30 (Typical)	-	-
Collector-Emitter Saturation Voltage ($I_C = 5.0\text{A}$, $I_B = 0.5\text{A}$)	$V_{CE(sat)}$	-	1.0	V
Base-Emitter Saturation Voltage ($I_C = 5.0\text{A}$, $I_B = 0.5\text{A}$)	$V_{BE(sat)}$	-	1.2	
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 (Typical)	-	pF
Switching Characteristics				
Fall Time ($V_{CC} = 40\text{V}$, $I_C = 5.0\text{A}$, $I_{B1} = -I_{B2} = 0.6\text{A}$, $L = 150\mu\text{H}$)	t_f	-	0.75	μs

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

DC Current Gain



Active-Region Safe Operating Area (SOA)



There are two limitations 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 the curves indicate.

The data of SOA curve is based on $T_{J(PK)} = 150^\circ\text{C}$; T_C is variable depending on power level. 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.

Specifications

$I_{C(av)}$ maximum (A)	V_{CEO} maximum (V)	V_{CES} maximum (V)	$V_{CE(Sat)}$ (V) at $I_C = 5A$	P_{tot} at 25°C (W)	Package	Type	Part Number
7	200	400	1	60	TO-220	NPN	BU406

BU406

7A Power Transistor, 200V

Notes:

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