

BU406



7A Power Transistor, 200V

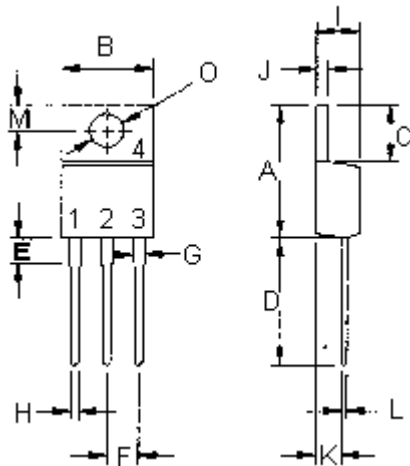
High Voltage Switching



Features:

- High voltage, high speed transistor for horizontal deflection output stages of TV and CTV circuits
- Collector-Emitter Sustaining Voltage - $V_{CEV} = 400\text{ V}$ (Minimum)
- Low Saturation Voltage - $V_{CE(sat)} = 1\text{ V}$ (Maximum) at $I_C = 5\text{ A}$
- Fast Switching Speed: $t_f = 0.75\text{ }\mu\text{s}$ (Maximum)

TO-220



- 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	2.2	2.97
L	0.33	0.55
M	2.48	2.98
O	3.7	3.9

Dimensions : Millimetres

NPN
BU406

7 Amperes
Power
Transistors
200 Volts
60 Watts

Maximum Ratings

Characteristic	Symbol	TIP47	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	
Collector current - continuous - peak	I _C	7 10	A
Base current	I _B	4	
Total power dissipation at T _C = 25°C derate above 25°C	P _D	60 0.48	W W/°C
Operating and storage junction temperature range	T _J , T _{STG}	-65 to +150	°C

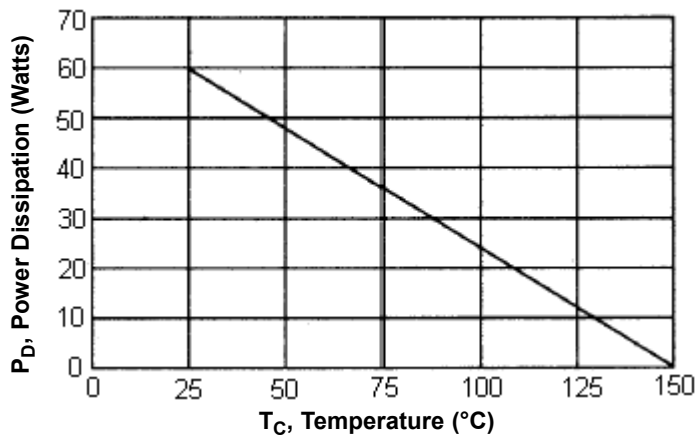


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Thermal Characteristics

Parameters	Symbol	Maximum	Unit
Thermal resistance junction to case	$R_{\theta jc}$	2.08	$^{\circ}\text{C/W}$

Figure - 1 Power Derating

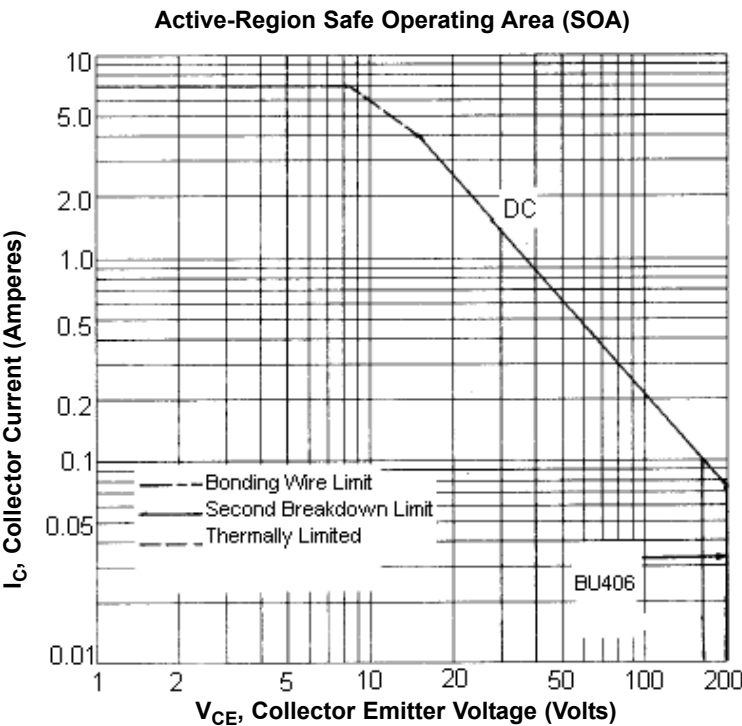
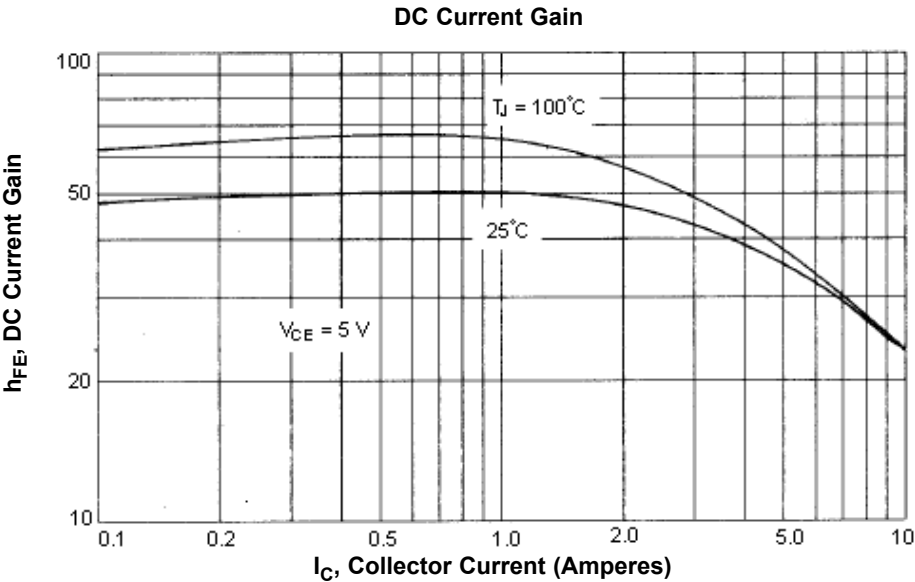


Electrical Characteristics ($T_C = 25^{\circ}\text{C}$ Unless Otherwise Noted)

Parameters	Symbol	Minimum	Maximum	Unit
OFF Characteristics				
Collector - emitter sustaining voltage (1) (I _C = 100 mA, I _B = 0)	V _{CEO (SUS)}	200	-	V
Collector cut off current (V _{CE} = 400 V, V _{BE} = 0)	I _{CES}	-	5	mA
Emitter cut off current (V _{EB} = 6 V, I _C = 0)	I _{EBO}	-	1	
ON Characteristics (1)				
DC current gain (I _C = 2 A, V _{CE} = 5 V)	h _{FE}	30 (Typical)	-	-
Collector - emitter saturation voltage (I _C = 5 A, I _B = 0.5 A)	V _{CE (sat)}	-	1	V
Base - emitter saturation voltage (I _C = 1 A, V _{CE} = 10 V)	V _{BE (sat)}	-	1.2	
Dynamic Characteristics				
Current gain - bandwidth product (2) (I _C = 0.5 A, V _{CE} = 10 V, f = 1 MHz)	f _T	10	-	MHz
Output capacitance (V _{CE} = 10 V, I _E = 0, f = 1 MHz)	C _{ob}	80 (Typical)	-	pF
Switching Characteristics				
Fall Time (V _{CC} = 40 V, I _C = 5 A, I _{B1} = -I _{B2} = 0.6 A, L = 150 μH)	t _f	-	0.75	μs

(1) Pulse Test : Pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$

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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 $T_{J(PK)} = 150^{\circ}\text{C}$. At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

Specification Table

Description	I_C (av) Maximum (A)	V_{CEO} Maximum (V)	V_{CES} Maximum (V)	$h_{CE(sat)}$ (V) at $I_C = 5\text{ A}$	P_{tot} at 25°C (W)	Package	Type	Part Number
7 A Power Transistor, 200 V	7	200	400	1	60	TO-220	NPN	BU406

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