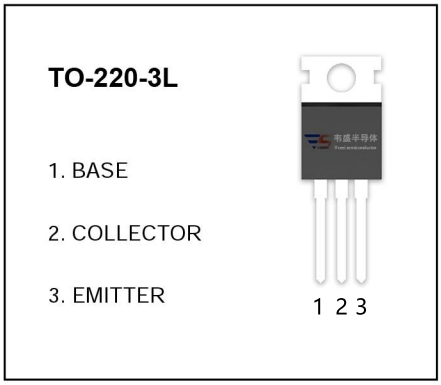
BU406 TRANSISTOR (NPN)



FEATURES

- High Voltage
- Fast Switching Speed: t_f = 750 ns (max)
- Low Saturation Voltage: $V_{CE(sat)}$ = 1 V (max) @ 5 A
- Pb−Free Packages are Available*

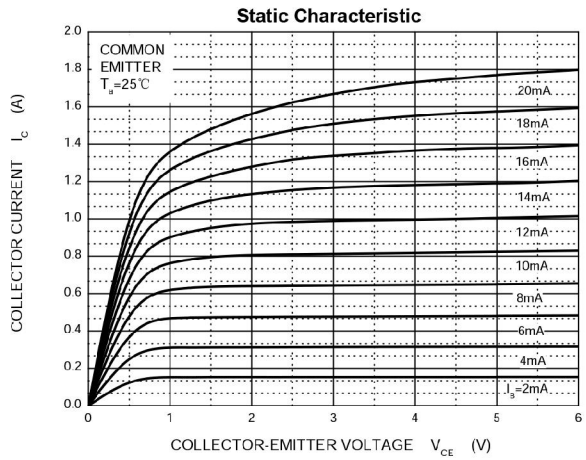
MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

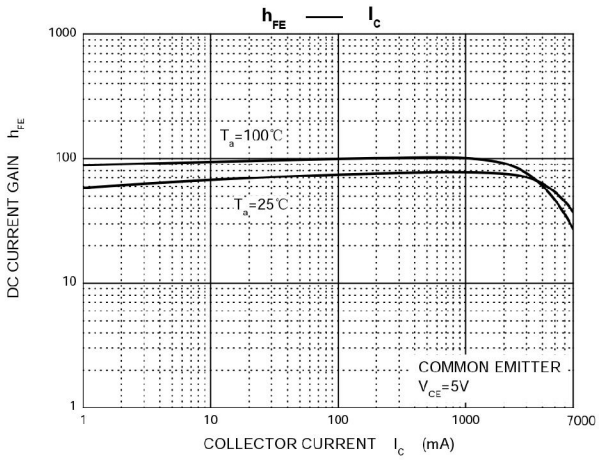
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	400	V
V_{CEO}	Collector-Emitter Voltage	200	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	7	A
P_C	Collector Power Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	62.5	℃/W
T_J,T_{stg}	Operation Junction and Storage Temperature Range	-55~+150	℃

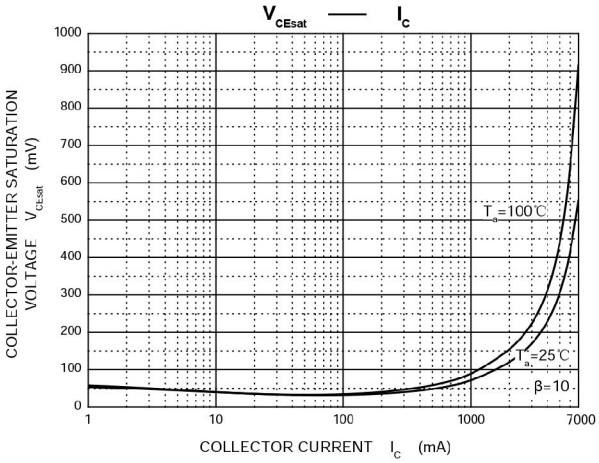
ELECTRICAL CHARACTERISTICS (T_a=25℃ unless otherwise specified)

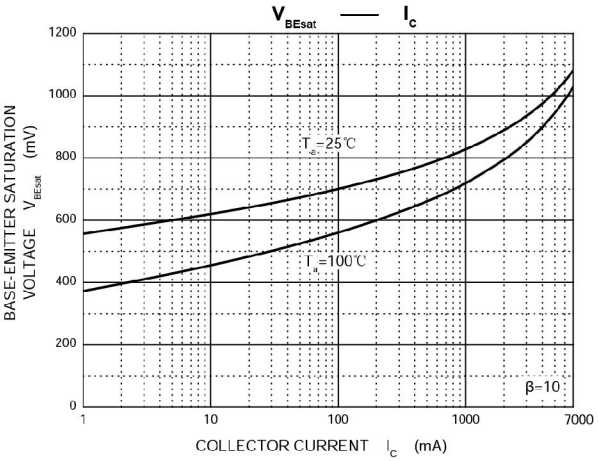
Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltag	$V_{(BR)CBO}$	I_C=100uA, I_E=0	400			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}^*$	I_C=100mA,I_B=0	200			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=100uA,I_C=0	6			V
Collector cut-off current	I_{CES}	V_{CB}=400V,I_E=0			5	mA
Collector cut-off current	I_{CES}	V_{CB}=250V,I_E=0			1	mA
Collector cut-off current	I_{CBO}	V_{CB}=300V,I_E=0			5	μA
Emitter cut-off current	I_{EBO}	V_{EB}=6V,I_C=0			1	mA
DC current gain	h_{FE}	V_{CE}=5V, I_C=1A	50		100	
Collector-emitter saturation voltage	$V_{CE(sat)}^*$	I_C=5A,I_B=500mA			1	V
Base-emitter saturation voltage	$V_{BE(sat)}^*$	I_C=5A,I_B=500mA			1.2	V
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0, f=1MHz		80		pF
Transition frequency	f_T	V_{CE}=5V,I_C=0.2A,f=10MHz	10			MHz

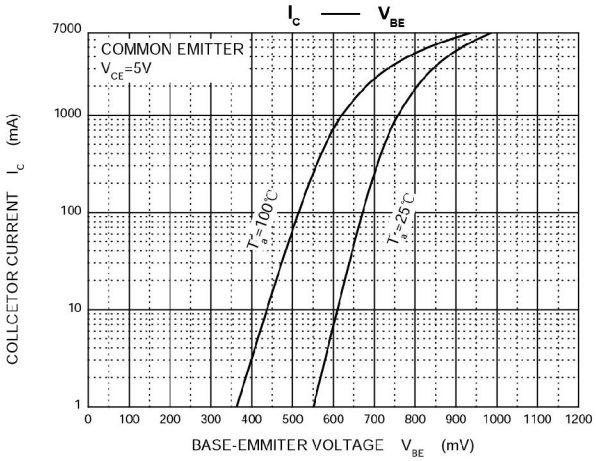
*Pulse test: pulse width ≤300μs, duty cycle≤ 2.0%.

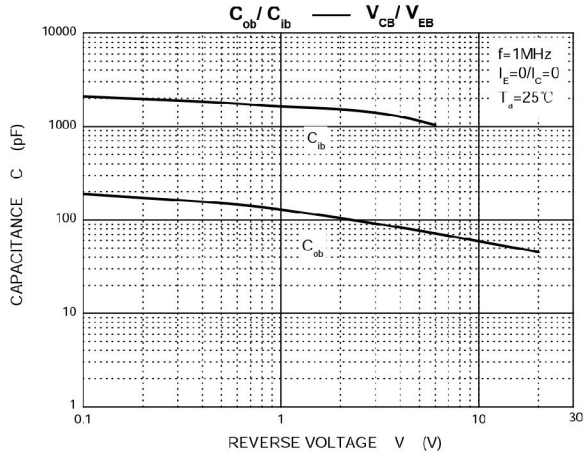

Static Characteristic
COMMON EMITTER
T_a=25℃
20mA
18mA
16mA
14mA
12mA
10mA
8mA
6mA
4mA
I_B=2mA
COLLECTOR CURRENT I_C (A)
COLLECTOR-EMITTER VOLTAGE V_{CE} (V)

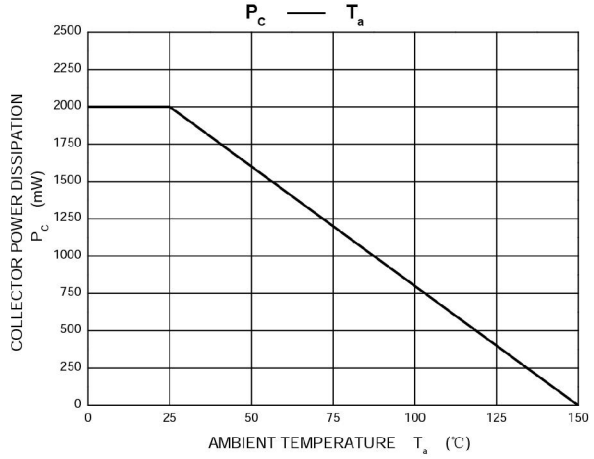

h_{FE} — I_C
T_a=100℃
T_a=25℃
COMMON EMITTER
V_{CE}=5V
DC CURRENT GAIN h_{FE}
COLLECTOR CURRENT I_C (mA)


V_{CEsat} — I_C
T_a=100℃
T_a=25℃
β=10
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (mV)
COLLECTOR CURRENT I_C (mA)


V_{BEsat} — I_C
T_a=25℃
T_a=100℃
β=10
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (mV)
COLLECTOR CURRENT I_C (mA)


I_C — V_{BE}
COMMON EMITTER
V_{CE}=5V
T_a=100℃
T_a=25℃
COLLCETOR CURRENT I_C (mA)
BASE-EMMITER VOLTAGE V_{BE} (mV)


C_{ob} / C_{ib} — V_{CB} / V_{EB}
f=1MHz
I_E=0/I_C=0
T_a=25℃
C_{ib}
C_{ob}
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)


P_C — T_a
COLLECTOR POWER DISSIPATION P_C (mW)
AMBIENT TEMPERATURE T_a (℃)