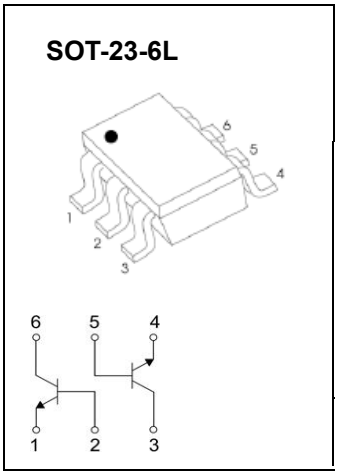
## Plastic-Encapsulate Transistors

DUAL TRANSISTOR (NPN+NPN)




## FEATURES

- Two transistors in one package
- Reduces number of components and board space
- No mutual interference between the transistors

## MARKING: BC846AF 4At

BC846BF 4Bt

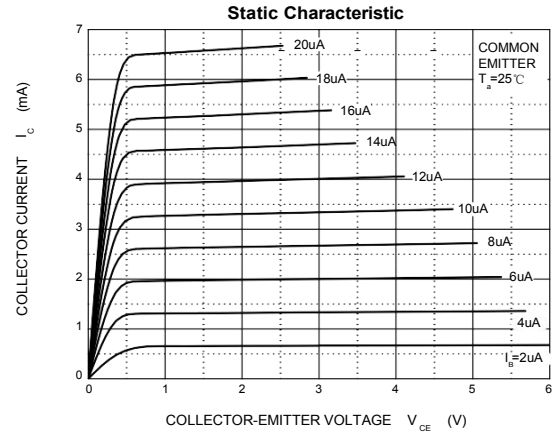
BC846CF 4Gt

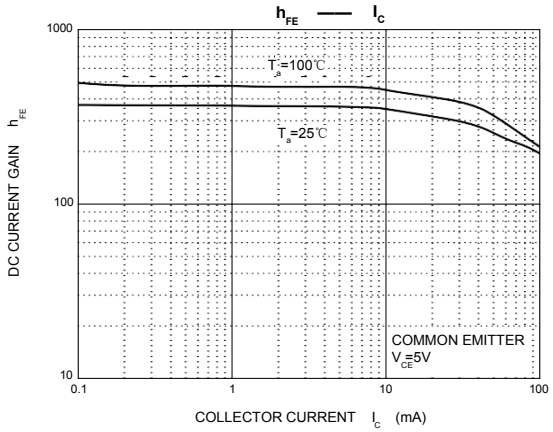
**MAXIMUM RATINGS($T_a$=25℃ unless otherwise noted)**

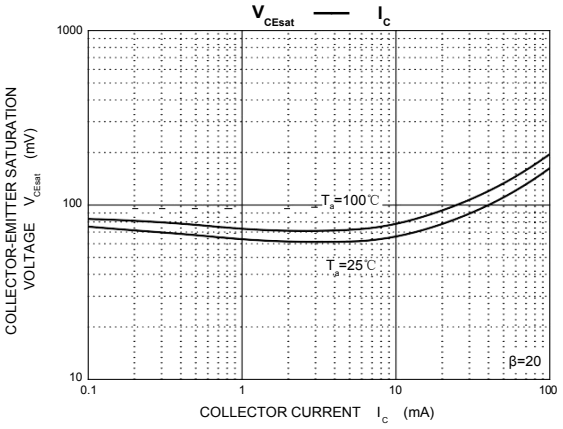
| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 80 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 65 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 6 | V |
| $I_C$ | Collector Current –Continuous | 0.1 | A |
| $P_C$ | Collector Dissipation | 200 | mW |
| $T_J$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | -55-150 | ℃ |

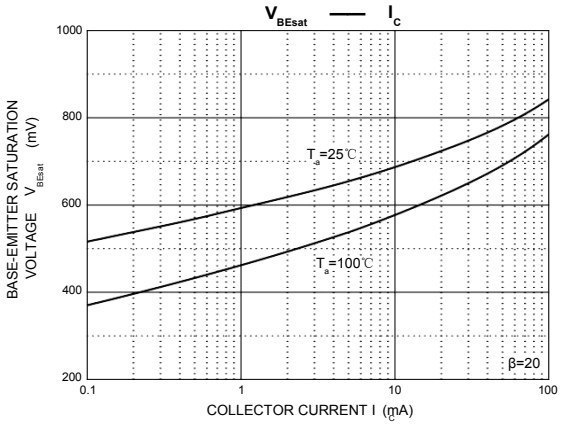
## ELECTRICAL CHARACTERISTICS ( Ta=25℃ unless otherwise specified)

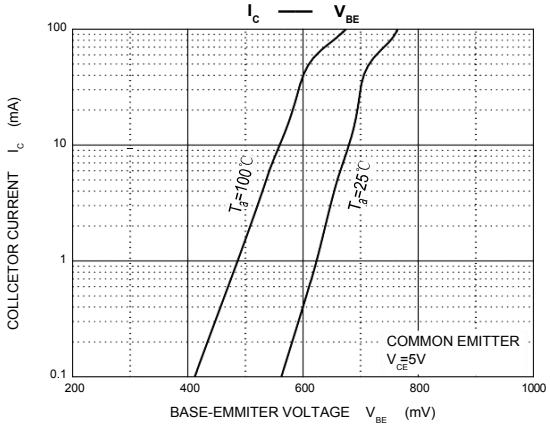
| Parameter | Symbol | Test conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| **Collector-base breakdown voltage** | $V_{(BR)CBO}$ | $I_C$=10μA,$I_E$=0 | | 80 | | | V |
| **Collector-emitter breakdown voltage** | $V_{(BR)CEO}$ | $I_C$=10mA,$I_B$=0 | | 65 | | | V |
| **Emitter-base breakdown voltage** | $V_{(BR)EBO}$ | $I_E$=10μA,$I_C$=0 | | 6 | | | V |
| **Collector cut-off current** | $I_{CBO}$ | $V_{CB}$=70V,$I_E$=0 | | | | 100 | nA |
| **Emitter cut-off current** | $I_{EBO}$ | $I_C$=0, $V_{EB}$=5V | | | | 100 | nA |
| **DC current gain** | $h_{FE}$ | $V_{CE}$=5V,$I_C$=2mA | A | 110 | | 220 | |
| | | | B | 200 | | 450 | |
| | | | C | 420 | | 800 | |
| **Collector-emitter saturation voltage** | $V_{CE(sat)(1)}$ | $I_C$=10mA,$I_B$=0.5mA | | | | 0.25 | V |
| | $V_{CE(sat)(2)}$ | $I_C$=100mA,$I_B$=5mA | | | | 0.5 | V |
| **Base-emitter saturation voltage** | $V_{BE(sat)}$ | $I_C$=100mA,$I_B$=5mA | | | | 1.1 | V |
| **Transition frequency** | $f_T$ | $V_{CB}$=5V,$I_E$=10mA,f=100MHz | | 100 | | | MHz |
| **Collector output capacitance** | $C_{ob}$ | $V_{CB}$=10V,$I_E$=0,f=1MHz | | | | 1.5 | pF |

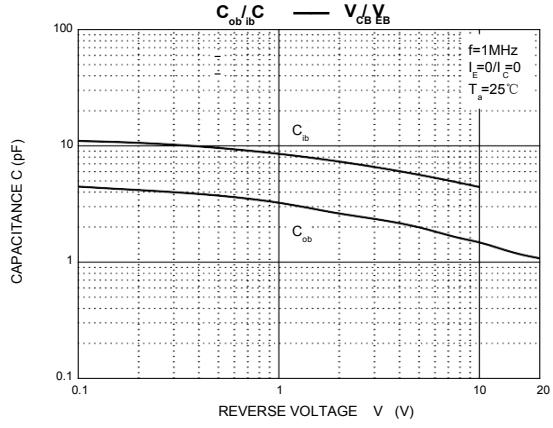

Static Characteristic
COLLECTOR CURRENT I_C (mA)
COLLECTOR-EMITTER VOLTAGE V_CE (V)
20uA
18uA
16uA
14uA
12uA
10uA
8uA
6uA
4uA
I_B=2uA
COMMON EMITTER
T_a=25℃

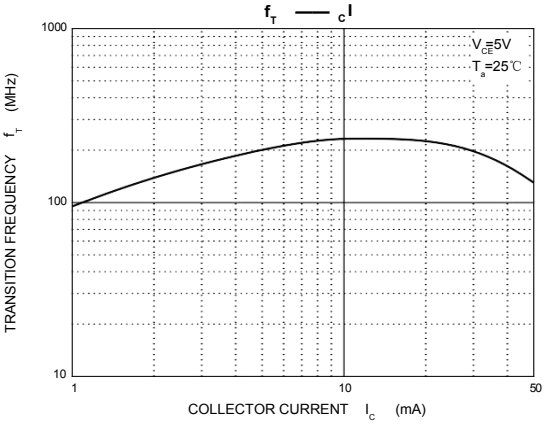

h_FE — I_C
DC CURRENT GAIN h_FE
COLLECTOR CURRENT I_C (mA)
T_a=100℃
T_a=25℃
COMMON EMITTER
V_CE=5V

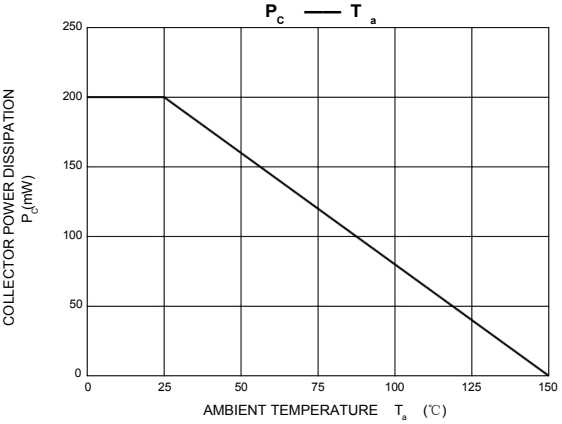

V_CEsat — I_C
COLLECTOR-EMITTER SATURATION VOLTAGE V_CEsat (mV)
COLLECTOR CURRENT I_C (mA)
T_a=100℃
T_a=25℃
β=20


V_BEsat — I_C
BASE-EMITTER SATURATION VOLTAGE V_BEsat (mV)
COLLECTOR CURRENT I_C (mA)
T_a=25℃
T_a=100℃
β=20


I_C — V_BE
COLLCETOR CURRENT I_C (mA)
BASE-EMMITER VOLTAGE V_BE (mV)
T_a=100℃
T_a=25℃
COMMON EMITTER
V_CE=5V


C_ob/C_ib — V_CB/V_EB
CAPACITANCE C (pF)
REVERSE VOLTAGE V (V)
f=1MHz
I_E=0/I_C=0
T_a=25℃
C_ib
C_ob


f_T — I_C
TRANSITION FREQUENCY f_T (MHz)
COLLECTOR CURRENT I_C (mA)
V_CE=5V
T_a=25℃


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