# BCW66 TRANSISTOR (NPN)

1.BASE
2.COLLECTOR
3.EMITTER

SOT-23-3

## FEATURES

Complementary to BCW68

- BCW66 is subdivided into three groups F,G and H according to DC current gain

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

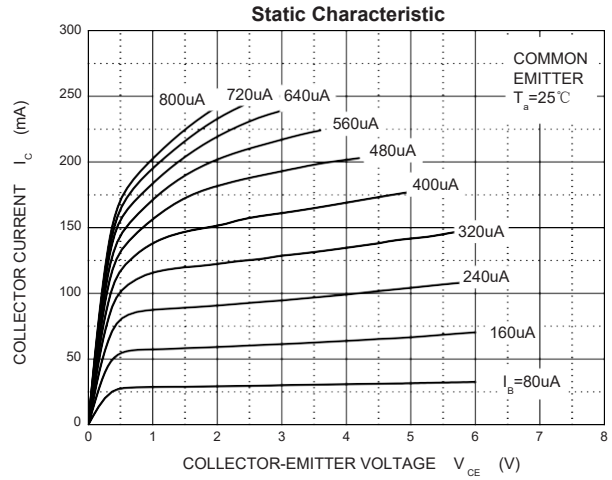
| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 75 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 45 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5 | V |
| $I_C$ | Collector Current | 800 | mA |
| $P_C$ | Collector Power Dissipation | 200 | mW |
| $R_{\Theta JA}$ | Thermal Resistance From Junction To Ambient | 625 | ℃/W |
| $T_J$,$T_{stg}$ | Operation Junction and Storage Temperature Range | -55～+150 | ℃ |

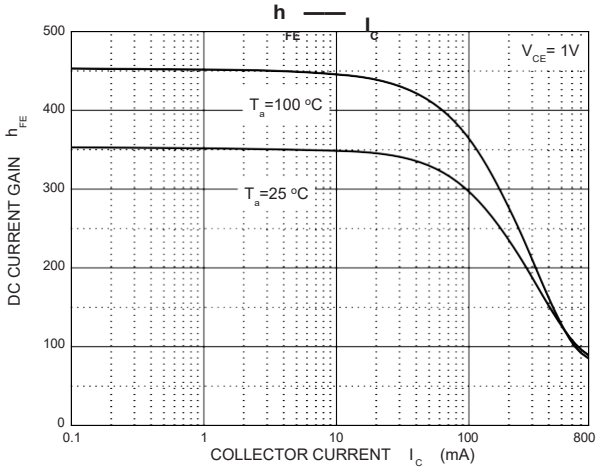
## ELECTRICAL CHARACTERISTICS ($T_a$=25℃ unless otherwise specified)

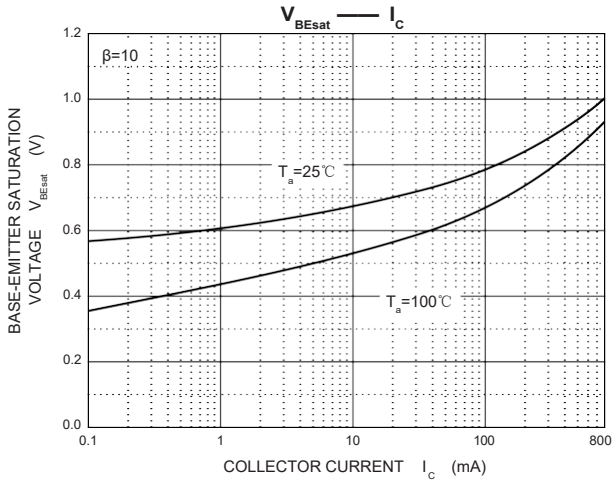
| Parameter | Symbol | Test conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$= 10 μ A, $I_E$=0 | | 75 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$= 10mA, $I_B$=0 | | 45 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$=10 μ A, $I_C$=0 | | 5 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=45 V, $I_E$=0 | | | | 0.02 | μ A |
| Collector cut-off current | $I_{EBO}$ | $V_{EB}$=4 V, $I_C$=0 | | | | 0.02 | μ A |
| DC current gain | $h_{FE1}$ | $V_{CE}$=10V, $I_C$=0. 1mA | F<br>G<br>H | 35<br>50<br>80 | | | |
| | $h_{FE2}$ | $V_{CE}$=1V, $I_C$= 10mA | F<br>G<br>H | 75<br>110<br>180 | | | |
| | $h_{FE3}$ | $V_{CE}$=1V, $I_C$=100mA | F<br>G<br>H | 100<br>160<br>250 | | 250<br>400<br>630 | |
| | $h_{FE4}$ | $V_{CE}$=2V, $I_C$=500mA | F<br>G<br>H | 35<br>60<br>100 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=100mA, $I_B$=10mA | | | | 0.3 | V |
| | | $I_C$=500mA, $I_B$=50mA | | | | 0.7 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=500mA, $I_B$=50mA | | | | 2 | V |
| Transition frequency | $f_T$ | $V_{CE}$=10V,$I_C$=20mA,f=100MHz | | 100 | | | MHz |
| Output capacitance | $C_{ob}$ | $V_{CB}$=10V,$I_E$=0,f=1MHz | | | | 12 | pF |
| Input capacitance | $C_{ib}$ | $V_{EB}$=0.5V,$I_E$=0,f=1MHz | | | | 80 | pF |
| Noise figure | NF | $V_{CE}$=5V,$I_C$=0.2mA,f=1KHz, Rs=1KΩ,BW=200Hz | | | | 10 | dB |

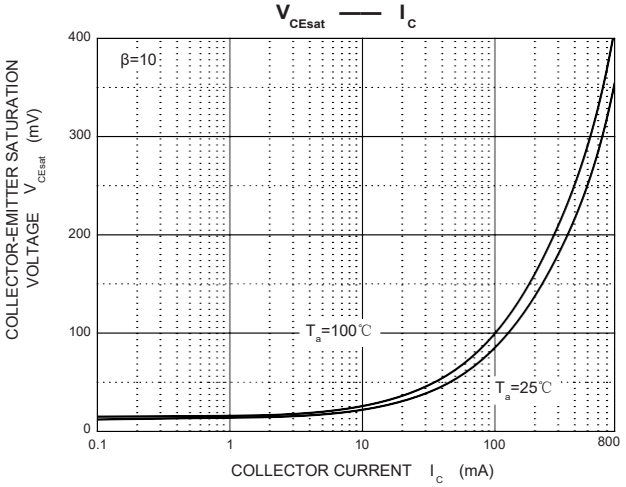
## MARKING

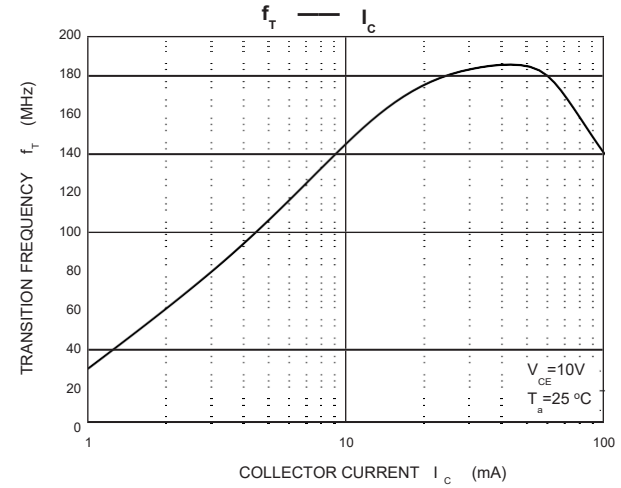
| Rank | F | G | H |
|---|---|---|---|
| Range | 100-250 | 160-400 | 250-630 |
| Marking | EF | EG | EH |

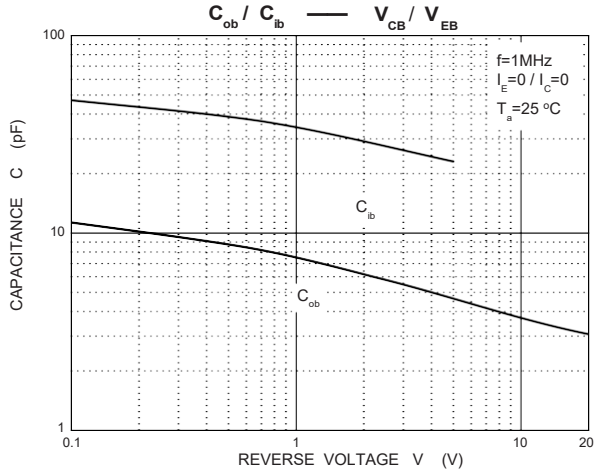

Static Characteristic
COMMON EMITTER
$T_a$=25℃
800uA
720uA
640uA
560uA
480uA
400uA
320uA
240uA
160uA
$I_B$=80uA
COLLECTOR CURRENT $I_C$ (mA)
COLLECTOR-EMITTER VOLTAGE $V_{CE}$ (V)

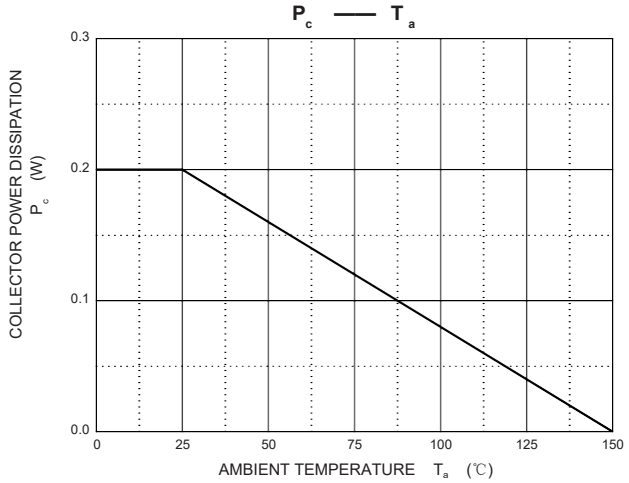

$h_{FE}$ — $I_C$
$V_{CE}$= 1V
$T_a$=100 °C
$T_a$=25 °C
DC CURRENT GAIN $h_{FE}$
COLLECTOR CURRENT $I_C$ (mA)


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


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


$f_T$ — $I_C$
$V_{CE}$ =10V
$T_a$=25 °C
TRANSITION FREQUENCY $f_T$ (MHz)
COLLECTOR CURRENT $I_C$ (mA)


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


$P_c$ — $T_a$
COLLECTOR POWER DISSIPATION $P_c$ (W)
AMBIENT TEMPERATURE $T_a$ (℃)