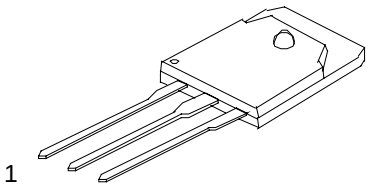
# NPN EPITAXIAL SILICON TRANSISTOR

## HIGH POWER AMPLIFIER APPLICATION

### FEATURES

*Recommended for 45~ 50W Audio Frequency Amplifier Output Stage.

*Complementary to 2SB688.




TO- 3P

1: BASE 2:COLLECTOR 3: EMITTER

### ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

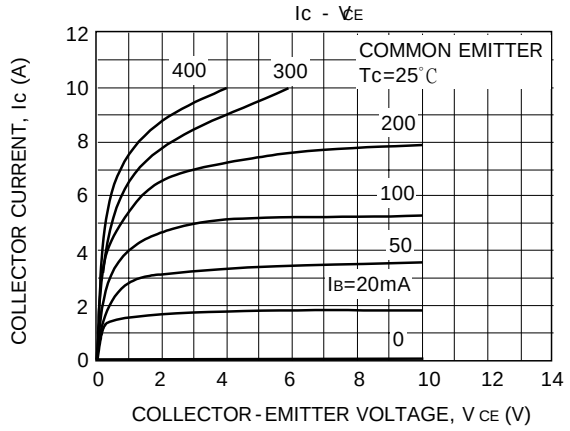
| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 120 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 120 | V |
| Emitter-Base Voltage | $V_{EBO}$ | 5 | V |
| Collector Current | Ic | 10 | A |
| Base Current | $I_B$ | 1 | A |
| Collector Power Dissipation (Tc=25℃ ) | Pc | 80 | W |
| Junction Temperature | Tj | 150 | ℃ |
| Storage Temperature Range | Tstg | - 55 ~ 150 | ℃ |

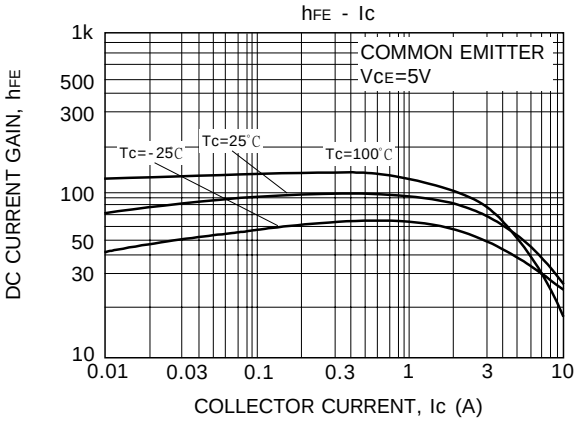
### ELECTRICAL CHARACTERISTICS (Ta=25℃,unless otherwise specified))

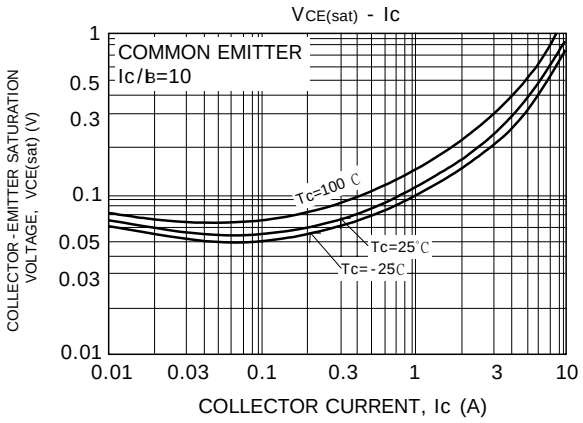
| PARAMETER | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|
| Collector- Emitter Breakdown Voltage | $V_{(BR)CEO}$ | Ic=50mA, $I_B$=0 | 120 | | | V |
| Collector Cut- off Current | $I_{CBO}$ | $V_{CB}$=120V, $I_E$=0 | | | 10 | μA |
| Emitter Cut- off CurrentI | $I_{EBO}$ | $V_{EB}$=5V,Ic=0 | | | 10 | μA |
| DC Current Gain | $H_{FE}$ | $V_{CE}$=5V,Ic=1A | 55 | | 160 | |
| Collector- Emitter Saturation Voltage | $V_{CE(sat)}$ | Ic=6A, $I_B$=0.6A | | | 2.0 | V |
| Base- Emitter Voltage | $V_{BE}$ | CE=5V,Ic=5A | | | 1.5 | V |
| Transition Frequency | $T_f$ | $V_{CE}$=5V,Ic=1A | | 12 | | MHz |
| Collector Output Capacitance | Cob | $V_{CB}$=10V, $I_E$=0, f=1MHz | | 170 | | pF |

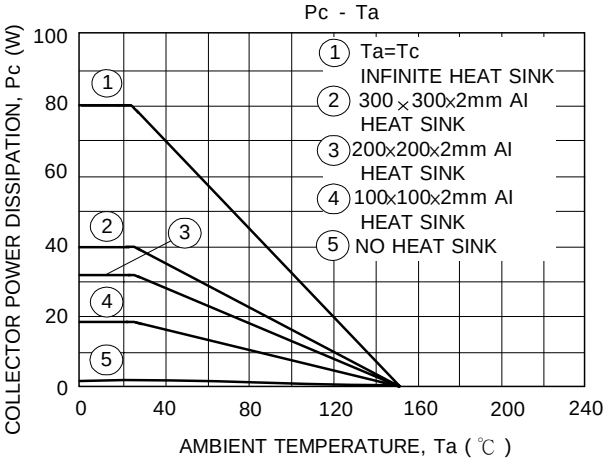
### CLASSIFICATION OF hFE

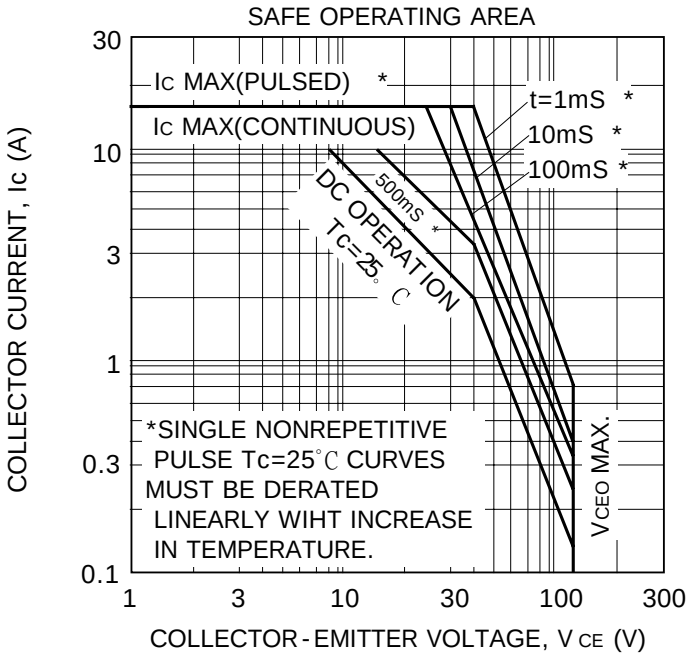
| RANK | R | O |
|---|---|---|
| RANGE | 55-110 | 80-160 |


Ic - VCE
COMMON EMITTER
Tc=25℃
400
300
200
100
50
IB=20mA
0
COLLECTOR CURRENT, Ic (A)
COLLECTOR-EMITTER VOLTAGE, VCE (V)


hFE - Ic
COMMON EMITTER
VCE=5V
Tc=-25℃
Tc=25℃
Tc=100℃
DC CURRENT GAIN, hFE
COLLECTOR CURRENT, Ic (A)


VCE(sat) - Ic
COMMON EMITTER
Ic/IB=10
Tc=100℃
Tc=25℃
Tc=-25℃
COLLECTOR-EMITTER SATURATION VOLTAGE, VCE(sat) (V)
COLLECTOR CURRENT, Ic (A)


Pc - Ta
1 Ta=Tc
INFINITE HEAT SINK
2 300×300×2mm Al
HEAT SINK
3 200×200×2mm Al
HEAT SINK
4 100×100×2mm Al
HEAT SINK
5 NO HEAT SINK
COLLECTOR POWER DISSIPATION, Pc (W)
AMBIENT TEMPERATURE, Ta (℃)


SAFE OPERATING AREA
IC MAX(PULSED) *
IC MAX(CONTINUOUS)
t=1mS *
10mS *
100mS *
500mS *
DC OPERATION
Tc=25℃
*SINGLE NONREPETITIVE
PULSE Tc=25℃ CURVES
MUST BE DERATED
LINEARLY WIHT INCREASE
IN TEMPERATURE.
VCEO MAX.
COLLECTOR CURRENT, Ic (A)
COLLECTOR-EMITTER VOLTAGE, VCE (V)