# KTC3875 TRANSISTOR (NPN)

1.BASE
2.COLLECTOR
3.EMITTER

SOT-23-3

## FEATURES

- High hFE
- Low noise
- Complementary to KTA1504

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

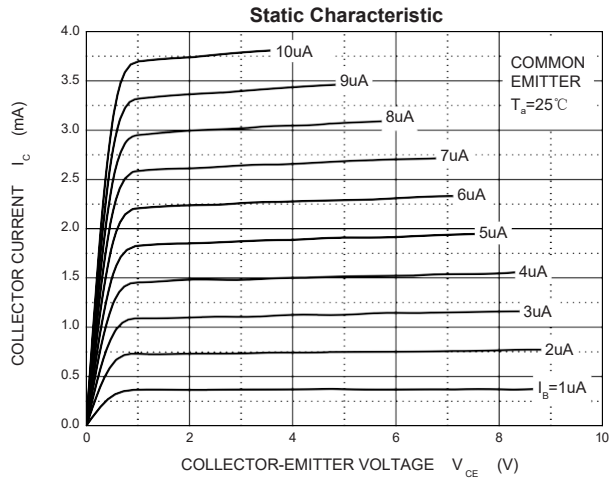
| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 60 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | 50 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5 | V |
| $I_C$ | Collector Current | 150 | mA |
| $P_C$ | Collector Power Dissipation | 150 | mW |
| $R_{\Theta JA}$ | Thermal Resistance From Junction To Ambient | 833 | ℃/W |
| $T_J$,$T_{stg}$ | Operation Junction and Storage Temperature Range | -55～+150 | ℃ |

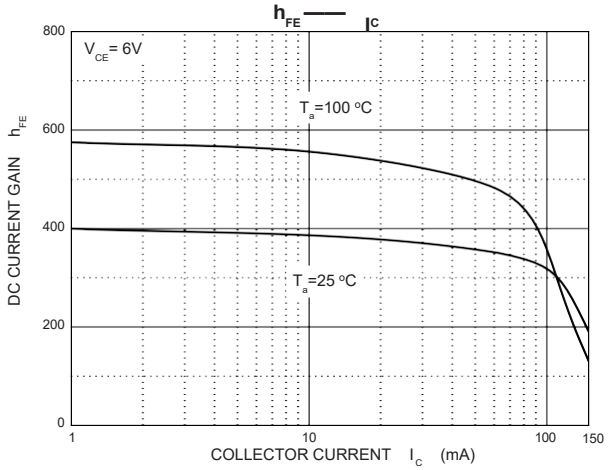
## ELECTRICAL CHARACTERISTICS ($T_a$=25℃ unless otherwise specified)

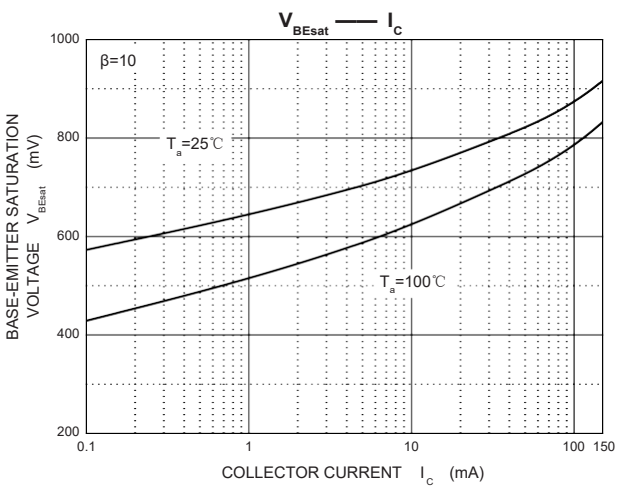
| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$=100μA,$I_E$=0 | 60 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$= 1mA, $I_B$=0 | 50 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$= 100μA, $I_C$=0 | 5 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$= 60V, $I_E$=0 | | | 0.1 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$= 5V, $I_C$=0 | | | 0.1 | μA |
| DC current gain | $h_{FE}$ | $V_{CE}$= 6V, $I_C$= 2mA | 70 | | 700 | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$=100mA, $I_B$= 10mA | | 0.1 | 0.25 | V |
| base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C$=100mA, $I_B$= 10mA | | | 1 | V |
| Transition frequency | $f_T$ | $V_{CE}$=10V, $I_C$= 1mA | 80 | | | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$=10V,$I_E$=0,f=1MH$_Z$ | | 2.0 | 3.5 | pF |
| Noise figure | NF | $V_{CE}$=6V,$I_C$=0.1mA,Rg=10kΩ,f=1KH$_Z$ | | 1.0 | 10 | dB |

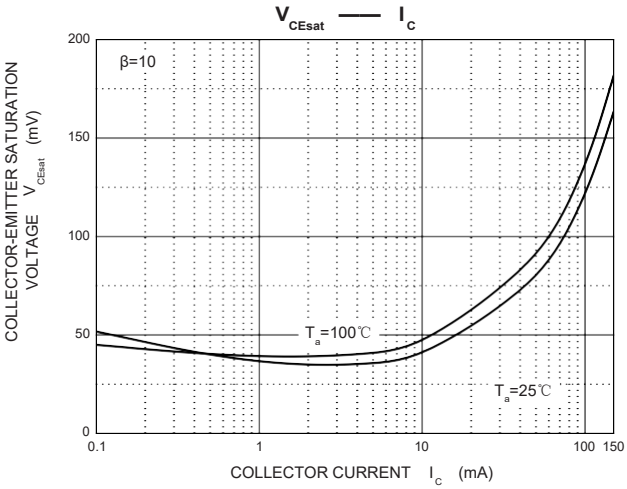
## CLASSIFICATION OF $h_{FE}$

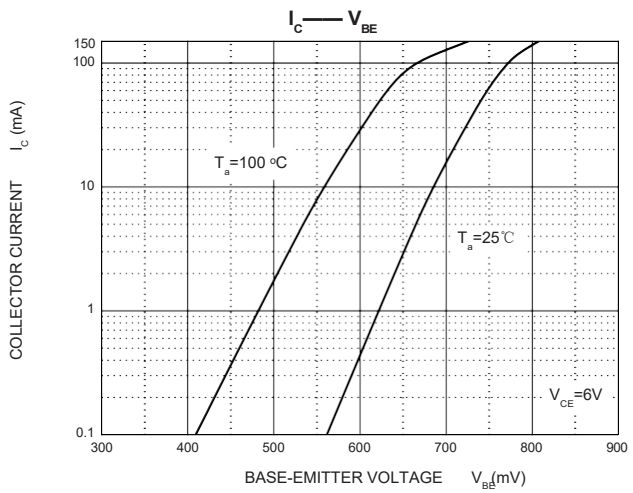
| Rank | O | Y | GR | BL |
|---|---|---|---|---|
| Range | 70-140 | 120-240 | 200-400 | 350-700 |
| Marking | ALO | ALY | ALG | ALL |

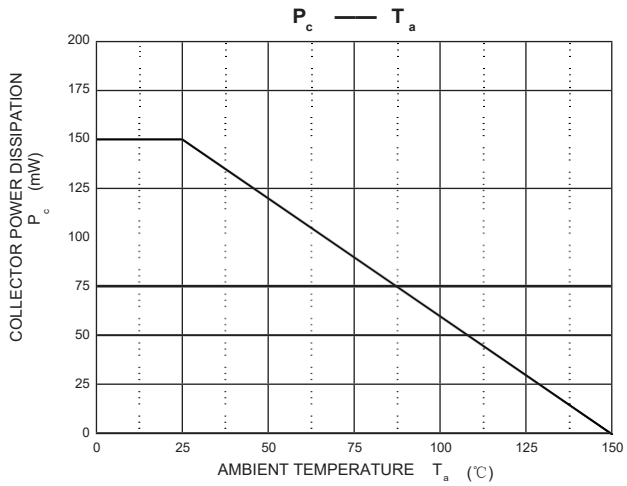

Static Characteristic
COLLECTOR CURRENT $I_C$ (mA)
COLLECTOR-EMITTER VOLTAGE $V_{CE}$ (V)
COMMON EMITTER
$T_a$=25℃
10uA
9uA
8uA
7uA
6uA
5uA
4uA
3uA
2uA
$I_B$=1uA


$h_{FE}$ —— $I_C$
$V_{CE}$= 6V
$T_a$=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 $V_{BEsat}$ (mV)
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)


$I_C$—— $V_{BE}$
$T_a$=100 °C
$T_a$=25℃
$V_{CE}$=6V
COLLECTOR CURRENT $I_C$ (mA)
BASE-EMITTER VOLTAGE $V_{BE}$(mV)


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