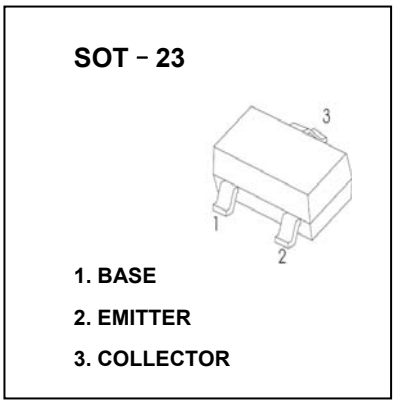
# SOT-23 Plastic-Encapsulate Transistors

## FEATURES

- High Collector Current
- Complementary To TKS9013
- Excellent $h_{FE}$ Linearity

**MARKING: 2T1**




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

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | -40 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | -25 | V |
| $V_{EBO}$ | Emitter-Base Voltage | -5 | V |
| $I_C$ | Collector Current | -500 | mA |
| $P_C$ | Collector Power Dissipation | 300 | mW |
| $R_{\Theta JA}$ | Thermal Resistance From Junction To Ambient | 416 | ℃/W |
| $T_j$ | Junction Temperature | 150 | ℃ |
| $T_{stg}$ | Storage Temperature | -55~+150 | ℃ |

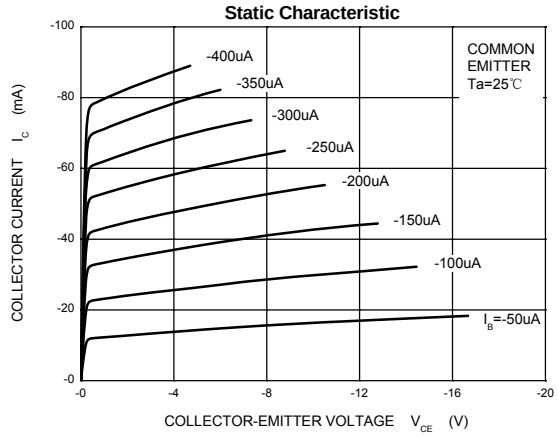
## ELECTRICAL CHARACTERISTICS ($T_a$=25℃ unless otherwise specified)

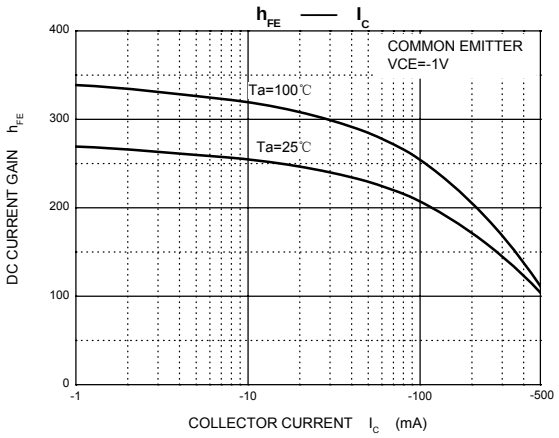
| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **Collector-base breakdown voltage** | $V_{(BR)CBO}$ | $I_C$=-0.1mA, $I_E$=0 | -40 | | | V |
| **Collector-emitter breakdown voltage** | $V_{(BR)CEO}$ | $I_C$=-1mA, $I_B$=0 | -25 | | | V |
| **Emitter-base breakdown voltage** | $V_{(BR)EBO}$ | $I_E$=-0.1mA, $I_C$=0 | -5 | | | V |
| **Collector cut-off current** | $I_{CBO}$ | $V_{CB}$=-40V, $I_E$=0 | | | -0.1 | uA |
| **Collector cut-off current** | $I_{CEO}$ | $V_{CE}$=-20V, $I_B$=0 | | | -0.1 | uA |
| **Emitter cut-off current** | $I_{EBO}$ | $V_{EB}$=-5V, $I_C$=0 | | | -0.1 | uA |
| **DC current gain** | $h_{FE}$ | $V_{CE}$=-1V, $I_C$=-50mA | 200 | | 350 | |
| **Collector-emitter saturation voltage** | $V_{CE(sat)}$ | $I_C$=-500mA, $I_B$=-50mA | | | -0.6 | V |
| **Base-emitter saturation voltage** | $V_{BE(sat)}$ | $I_C$=-500mA, $I_B$=-50mA | | | -1.2 | V |
| **Transition frequency** | $f_T$ | $V_{CE}$=-6V,$I_C$=-20mA, f=30MHz | 150 | | | MHz |
| **Collector output capacitance** | $C_{ob}$ | $V_{CB}$=-10V, $I_E$=0, f=1MHz | | | 5 | pF |

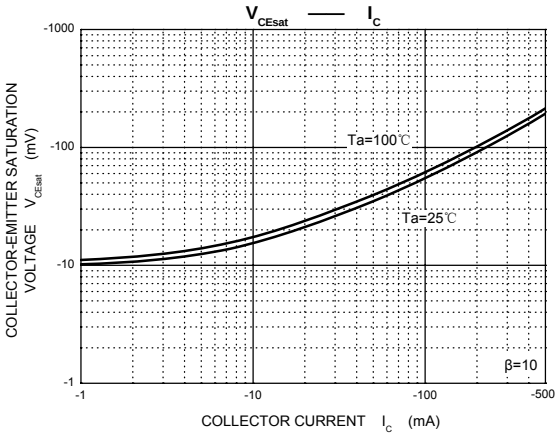
## CLASSIFICATION OF $h_{FE}$

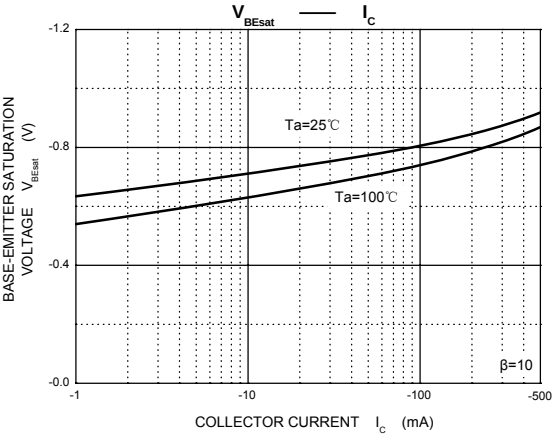
| | |
|---|---|
| **RANGE** | 200-350 |

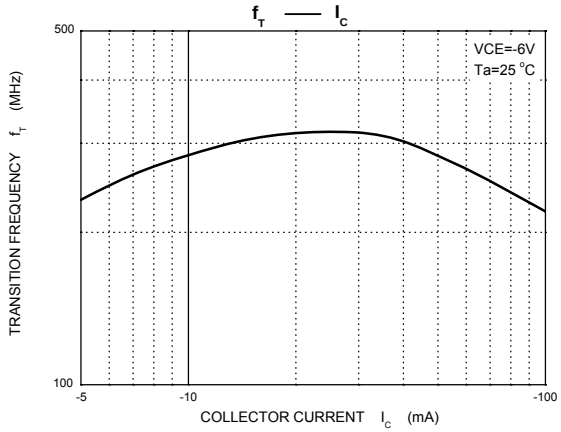
## Typical Characteristics

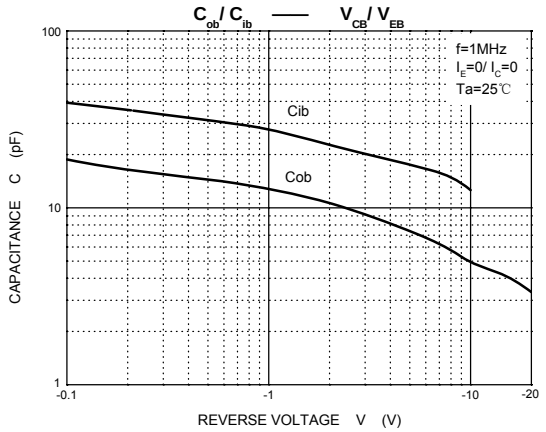


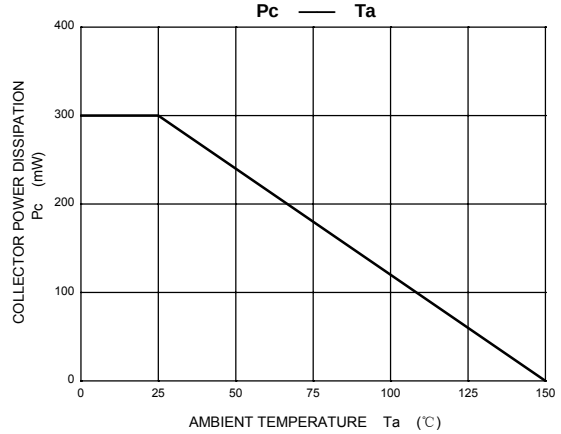



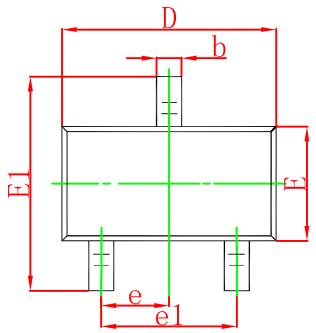



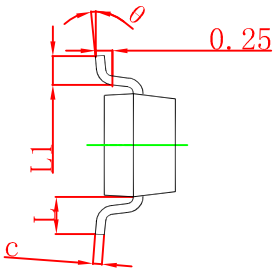



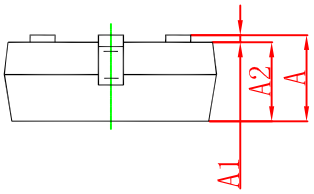



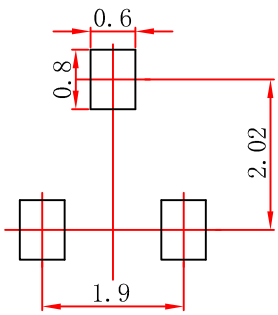



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP | | 0.037 TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF | | 0.022 REF | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |

## SOT-23 Suggested Pad Layout




Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.