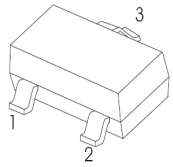
# TRANSISTOR (NPN)

SOT－23




1. BASE
2. EMITTER
3. COLLECTOR

## FEATURES

- Low Collector To Emitter Saturation Voltage
- Mini Type Package

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

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | 30 | 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 | 200 | mW |
| $R_{\Theta JA}$ | Thermal Resistance From Junction To Ambient | 625 | ℃/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 | $V_{(BR)CBO}$ | $I_C$=10μA, $I_E$=0 | 30 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$=10mA, $I_B$=0 | 25 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$=10μA, $I_C$=0 | 5 | | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=20V, $I_E$=0 | | | 0.1 | μA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=5V, $I_C$=0 | | | 0.1 | μA |
| DC current gain | $h_{FE(1)}$ * | $V_{CE}$=10V, $I_C$=0.15A | 85 | | 340 | |
| | $h_{FE(2)}$ * | $V_{CE}$=10V, $I_C$=0.5A | 40 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$* | $I_C$=0.3A, $I_B$=0.03A | | | 0.6 | V |
| Transition frequency | $f_T$ | $V_{CE}$=10V,$I_C$=0.05A, f=200MHz | | 200 | | MHz |
| Collector output capacitance | $C_{ob}$ | $V_{CB}$=10V, $I_E$=0, f=1MHz | | | 15 | pF |

*Pulse test: pulse width ≤350μs, duty cycle≤ 2.0%.

## CLASSIFICATION OF $h_{FE(1)}$

| RANK | Q | R | S |
|---|---|---|---|
| RANGE | 85－170 | 120－240 | 170－340 |
| MARKING | WQ1 | WR1 | WS1 |