WANSEMI
万代半导体

*S8050-L*

# SOT23 TRANSISTOR(NPN)

**SOT23/TRANS(NPN)/500mA/200-350**

**Rev1.0**

# SOT23 TRANSISTOR(NPN)

## 1.Features

- Complementary to S8550
- Power Dissipation of 300mW
- High Stability and High Reliability

## 2. Mechanical Data

- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

## 3.Package Marking and Ordering Information

| Part no. | Marking | Package | PCS/Reel | PCS/CTN. |
|---|---|---|---|---|
| S8050-L | .J3Y | SOT-23 | 3,000 | 120,000 |

## 4. Maximum Ratings & Thermal Characteristics at Ta=25℃

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 70 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 30 | V |
| Emitter -Base Voltage | $V_{EBO}$ | 6 | V |
| Collector Current-Continuous | $I_C$ | 500 | mA |
| Collector Power Dissipation | $P_C$ | 625 | mW |
| Junction Temperature | $T_j$ | 150 | ℃ |
| Storage Temperature | $T_{stg}$ | -55 ~ +150 | ℃ |

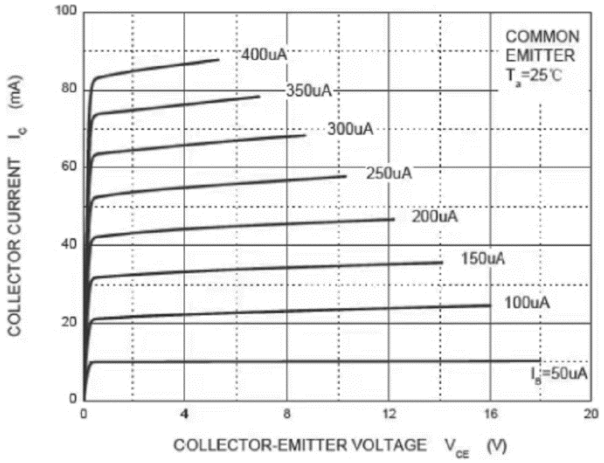
## 5.Electrical Characteristics at Ta=25℃

| Parameter | Symbol | Test Conditions | Min. | Max. | Unit |
|---|---|---|---|---|---|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$=50uA, $I_E$=0 | 75 | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$=1mA, $I_B$=0 | 33 | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$=50uA, $I_C$=0 | 7 | | V |
| Collector cut-off current | $I_{CEO}$ | $V_{CE}$=20V, $I_B$=0 | | 100 | nA |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=40V, $I_E$=0 | | 100 | nA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=5V, $I_C$=0 | | 100 | nA |
| DC current gain | $h_{FE(1)}$ | $V_{CE}$=1V, $I_C$=50mA | 85 | 400 | |
| | $h_{FE(2)}$ | $V_{CE}$=1V, $I_C$=5mA | 50 | | |
| 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 |

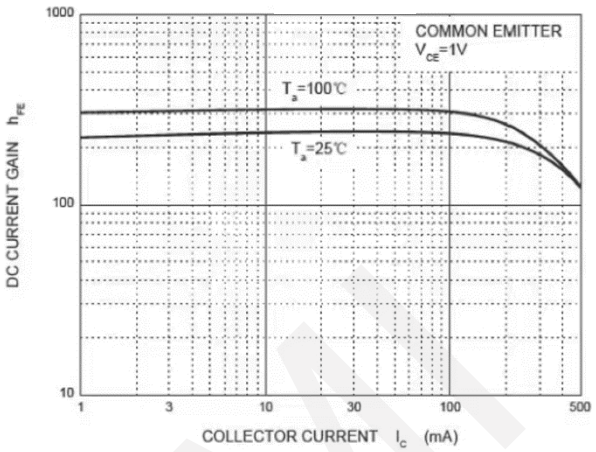
CLASSIFICATION OF $h_{FE(1)}$

| RANK | L | H | J |
|---|---|---|---|
| RANGE | 120-200 | 200-350 | 300-400 |

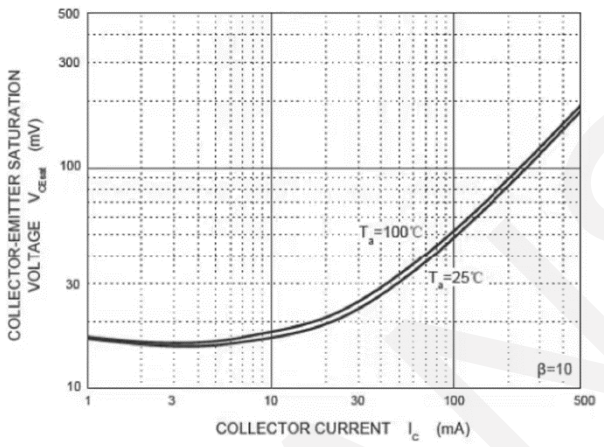
## 6.Typical Characteristics



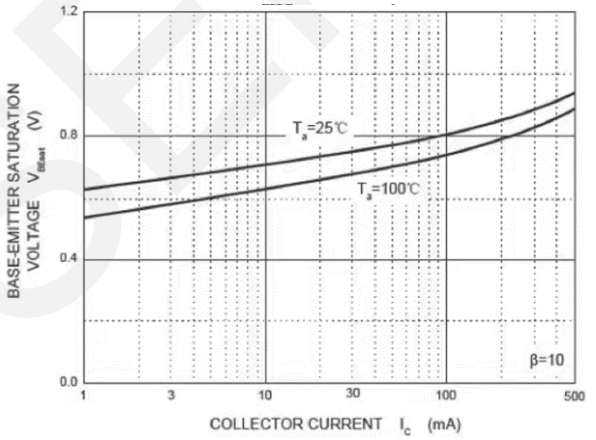

Static Characteristic



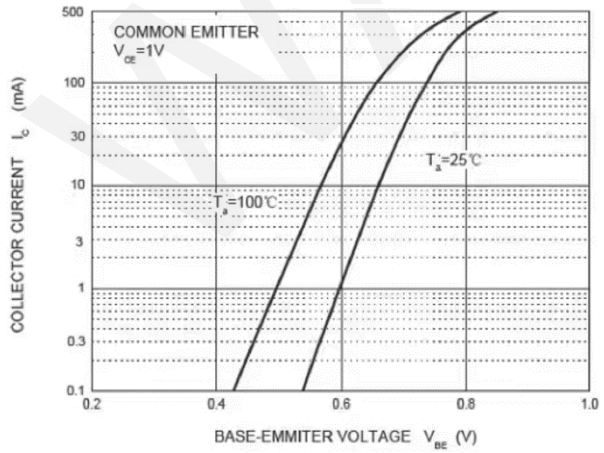

$h_{FE}$ -- $I_C$



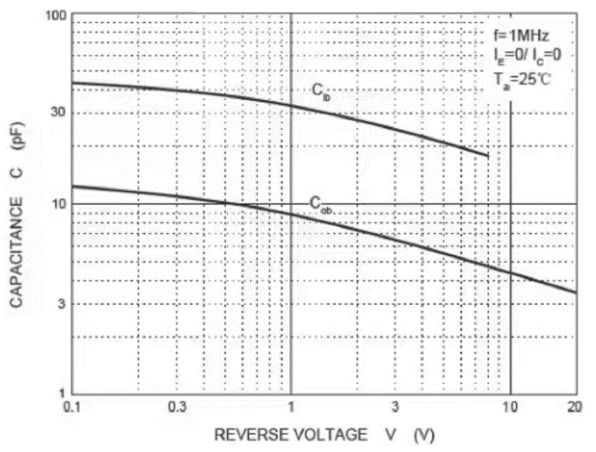

$V_{CEsat}$ -- $I_C$



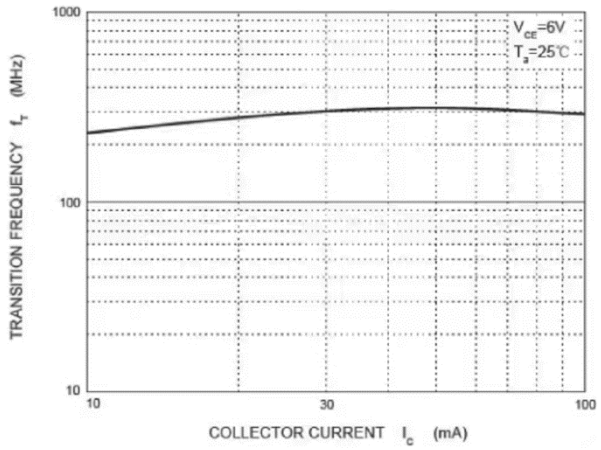

$V_{EBsat}$ -- $I_C$



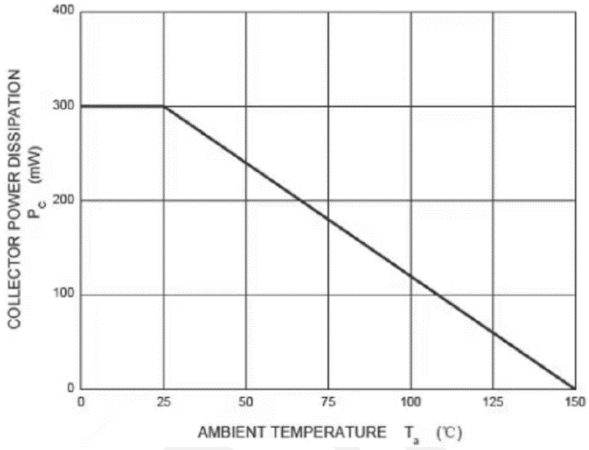

$V_{BE}$ -- $I_C$




$C_{ob}/C_{ib}$ – $V_{CB}/V_{EB}$

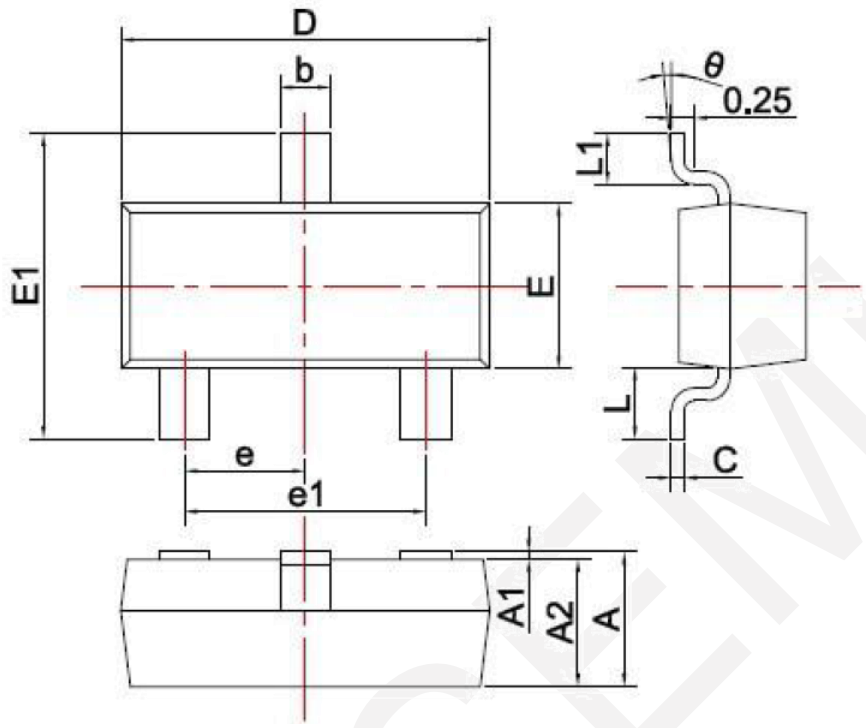



$f_T$ -- $I_C$




$P_C$ -- $T_a$

## 7.Package Dimensions




| Symbol | Dimensions in Millimeters | | |
|---|---|---|---|
| | MIN. | TYP. | MAX. |
| A | 0.900 | | 1.150 |
| A1 | 0.000 | | 0.100 |
| A2 | 0.900 | | 1.050 |
| b | 0.300 | | 0.500 |
| c | 0.080 | | 0.150 |
| D | 2.800 | | 3.000 |
| E | 1.200 | | 1.400 |
| E1 | 2.250 | | 2.550 |
| e | | 0.950 | |
| e1 | 1.800 | | 2.000 |
| L | | 0.550 | |
| L1 | 0.300 | | 0.500 |
| θ | 0° | | 8° |

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