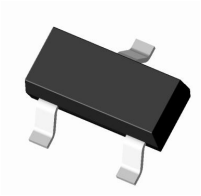
# SOT-23 Plastic-Encapsulate Transistors

## Features

- 300mW; Power Dissipation of 300mW
- High Stability and High Reliability

RoHS
COMPLIANT



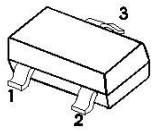
**Marking:** 2T

**SOT-23**

## Mechanical Data

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

**Pin definition**




1. BASE
2. EMITTER
3. COLLECTOR

**Maximum Ratings & Electrical Characteristics** ($T_A$=25℃ unless otherwise noted)

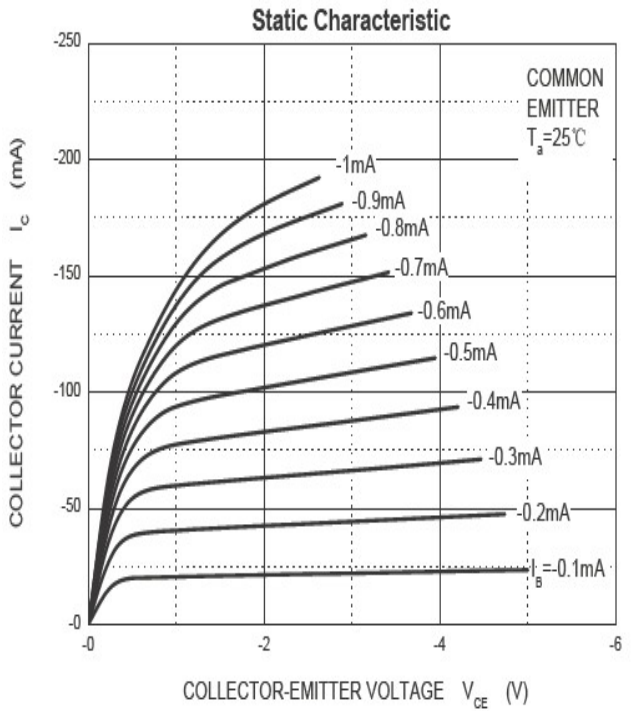
| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | -40 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | -40 | V |
| Emitter -Base Voltage | $V_{EBO}$ | -5 | V |
| Collector Current-Continuous | $I_C$ | -600 | mA |
| Collector Power Dissipation | $P_C$ | 300 | mW |
| Junction Temperature | $T_j$ | 150 | ℃ |
| Storage Temperature | Tstg | -55-+150 | ℃ |
| Thermal resistance From junction to ambient | $R_{\theta JA}$ | 417 | ℃/W |

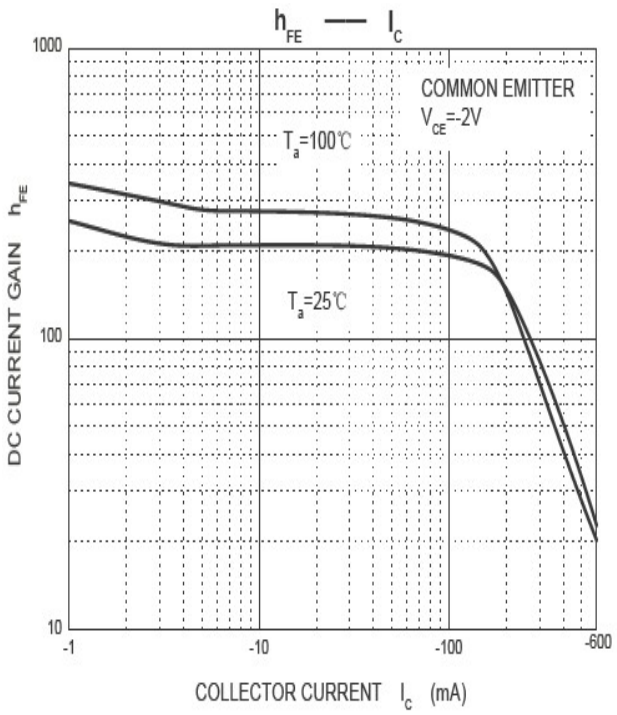
## Electrical Specifications ($T_A$=25℃ unless otherwise noted)

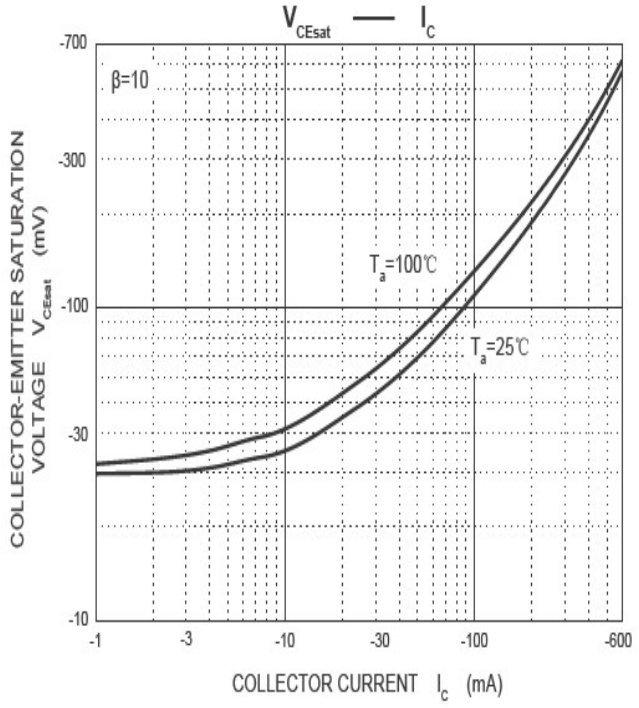
| Parameter | Symbol | Test Conditions | Limits | | Unit |
|---|---|---|---|---|---|
| | | | Min | Max | |
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$=-100uA, $I_E$=0 | -40 | | V |
| Collector-emitterbreakdown voltage | $V_{(BR)CEO}$ | $I_C$=-1mA, $I_B$=0 | -40 | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$=-100uA, $I_C$=0 | -5 | | V |
| Collector cut-off current | $I_{CBO}$ | $V_{CB}$=-35V, $I_E$=0 | | -100 | nA |
| | $I_{CEX}$ | $V_{CE}$=-35V, $V_{EB(off)}$=-0.4V | | -100 | nA |
| Emitter cut-off current | $I_{EBO}$ | $V_{EB}$=-4V, $I_C$=0 | | -100 | nA |
| DC current gain | $h_{FE(1)}$ | $V_{CE}$=-1V, $I_C$=-0.1mA | 30 | | |
| | $h_{FE(2)}$ | $V_{CE}$=-1V, $I_C$=-1mA | 60 | | |
| | $h_{FE(3)}$ | $V_{CE}$=-1V, $I_C$=-10mA | 100 | | |
| | $h_{FE(4)}$ | $V_{CE}$=-2V, $I_C$=-150mA | 100 | 300 | |
| | $h_{FE(5)}$ | $V_{CE}$=-2V, $I_C$=-500mA | 20 | | |
| Collector-emittersaturation voltage | $V_{CE(sat)1}$* | $I_C$=-150mA, $I_B$=-15mA | | -0.40 | V |
| | $V_{CE(sat)2}$* | $I_C$=-500mA, $I_B$=-50mA | | -0.75 | V |
| Base -emitter saturation voltage | $V_{BE(sat)1}$* | $I_C$=-150mA, $I_B$=-15mA | | -0.95 | V |
| | $V_{BE(sat)2}$* | $I_C$=-500mA, $I_B$=-50mA | | -1.30 | V |
| Transition frequency | fT | $V_{CE}$=-10V, $I_C$=-20mA,f=100MHz | 200 | | MHz |
| Delay time | td | VCC=-30V, VBE(off)=-0.5V, IC=-150mA, IB1=-15mA | | 15 | nS |
| Rise time | tr | | | 20 | nS |
| Storage time | ts | $V_{CC}$=-30V, $I_C$=-150mA, $I_{B1}$=$I_{B2}$=-15mA | | 225 | nS |
| Fall time | tf | | | 60 | nS |

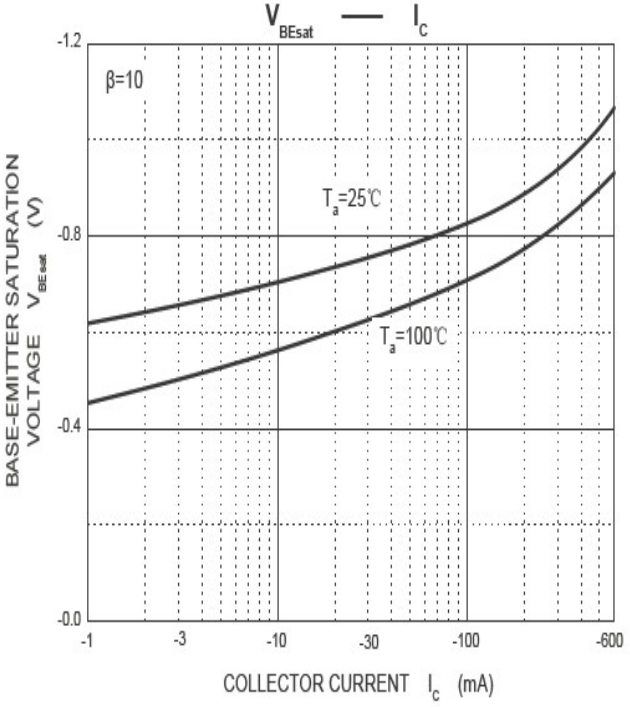
## Ratings and Characteristics Curves

(TA = 25℃ unless otherwise noted)



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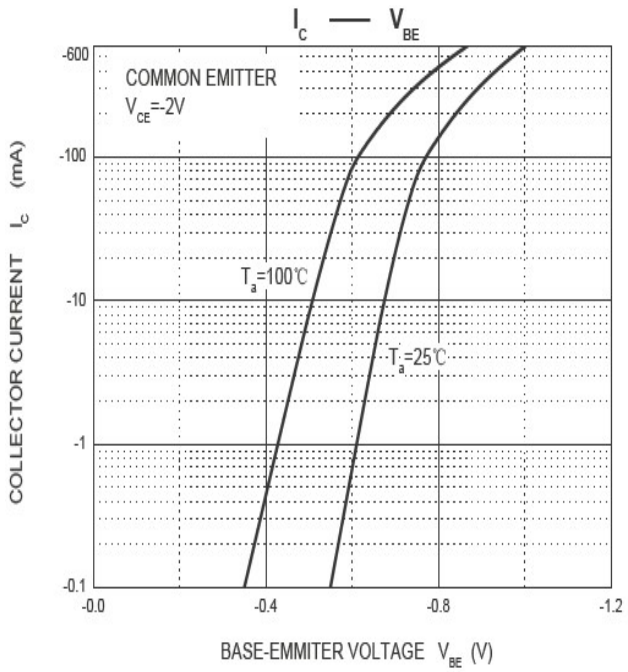
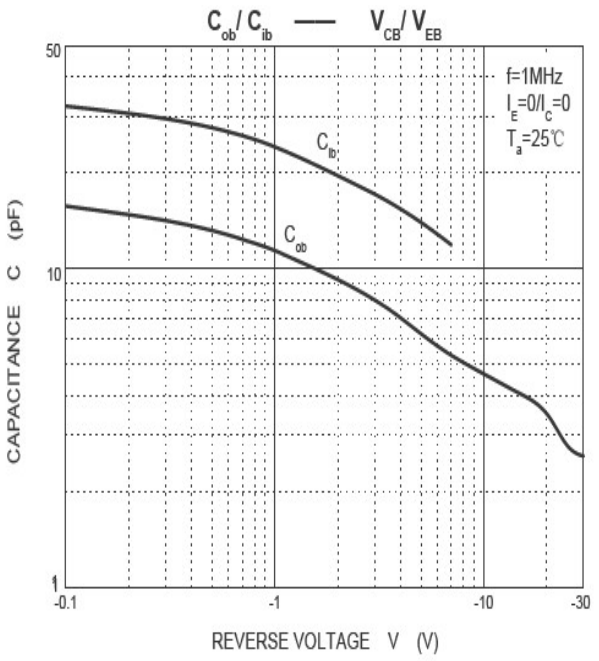
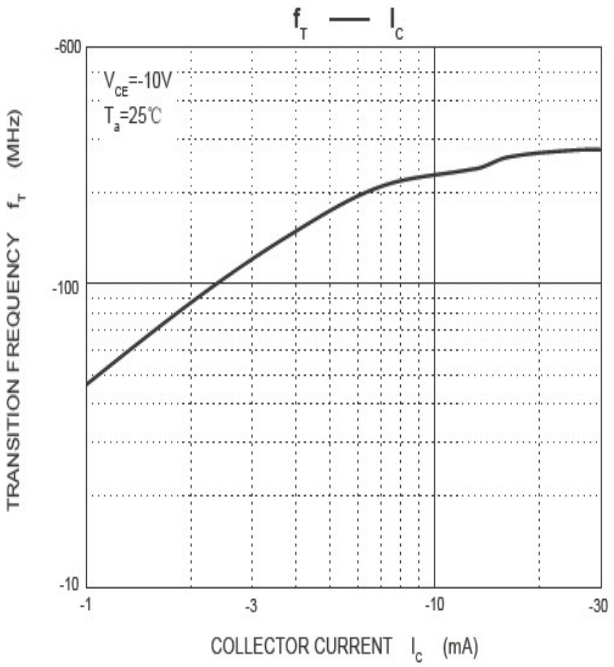
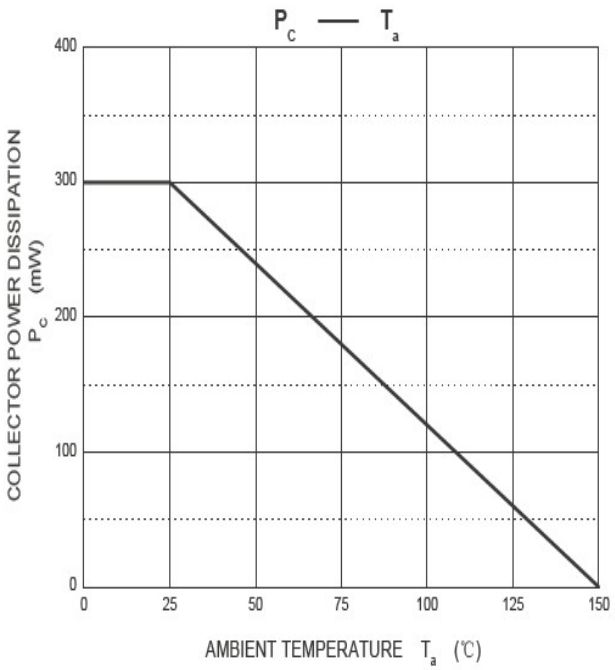


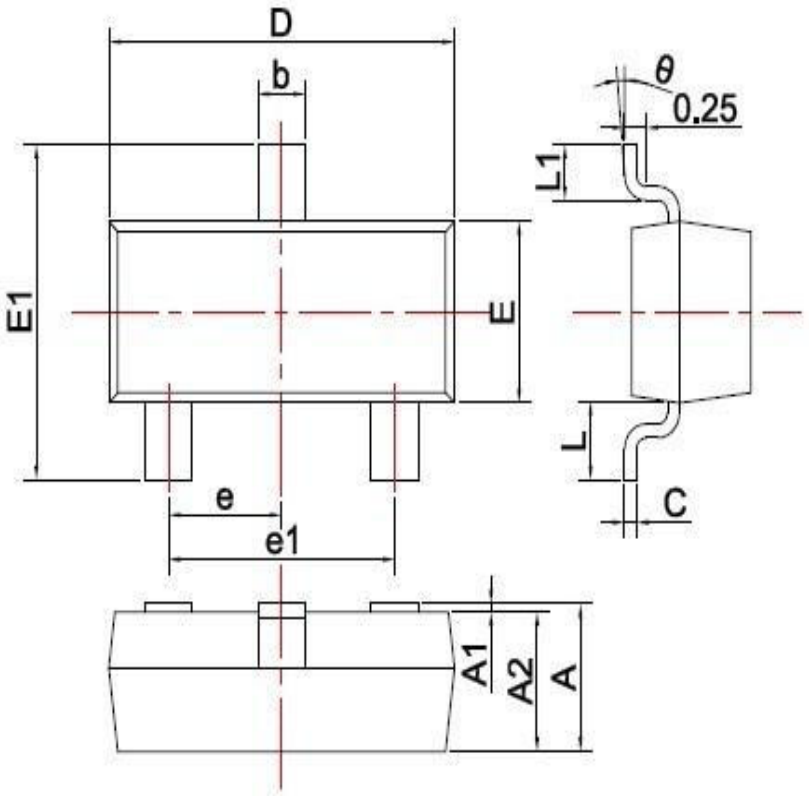



## Package Outline Dimensions

millimeters




| SYMBOL | DIMENSIONS | |
|---|---|---|
| | MIN. | 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 | 0.950TYP | |
| e1 | 1.800 | 2.000 |
| L | 0.550REF | |
| L1 | 0.300 | 0.500 |
| θ | 0° | 8° |

## Revision History

| Document Version | Date of release | Description of changes |
|---|---|---|
| Rev.A | 2017.02.16 | First issue |
| | | |
| | | |

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