

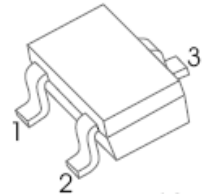
# S9015

TRANSISTOR (PNP)

## FEATURES

- Small Surface Mount Package
- High DC Current Gain

SOT - 323



1. BASE
2. EMITTER
3. COLLECTOR

## MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

| Symbol                            | Parameter  | Value    | Unit |
|-----------------------------------|--|----------|------|
| V <sub>CB0</sub>                  | Collector-Base Voltage                           | -50      | V    |
| V <sub>CEO</sub>                  | Collector-Emitter Voltage                        | -45      | V    |
| V <sub>EBO</sub>                  | Emitter-Base Voltage                             | -5       | V    |
| I <sub>C</sub>                    | Collector Current                                | -100     | mA   |
| P <sub>C</sub>                    | Collector Power Dissipation                      | 200      | mW   |
| R <sub>θJA</sub>                  | Thermal Resistance From Junction To Ambient      | 625      | °C/W |
| T <sub>J</sub> , T <sub>stg</sub> | Operation Junction and Storage Temperature Range | -55~+150 | °C   |

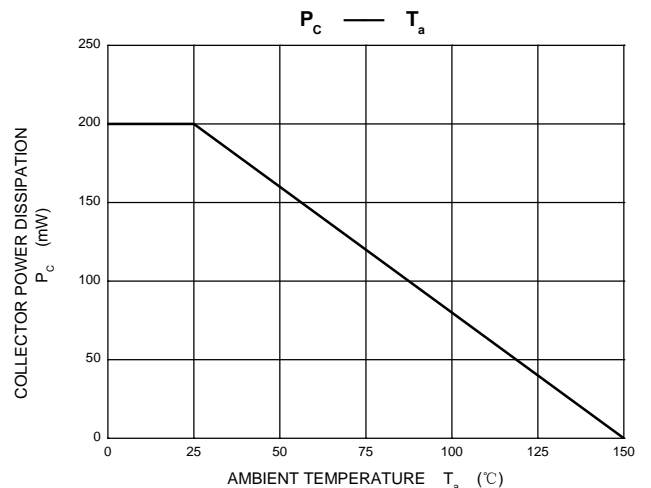
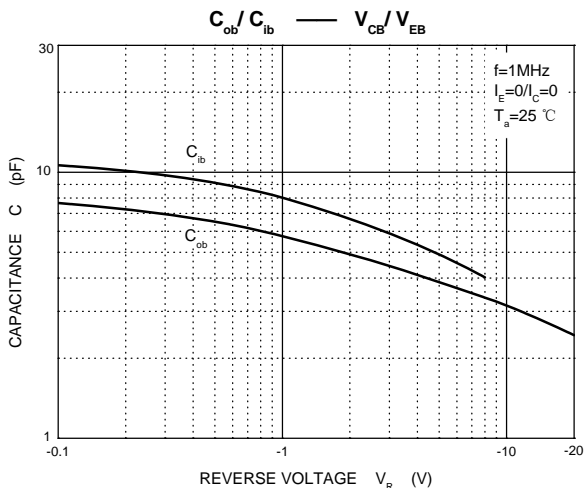
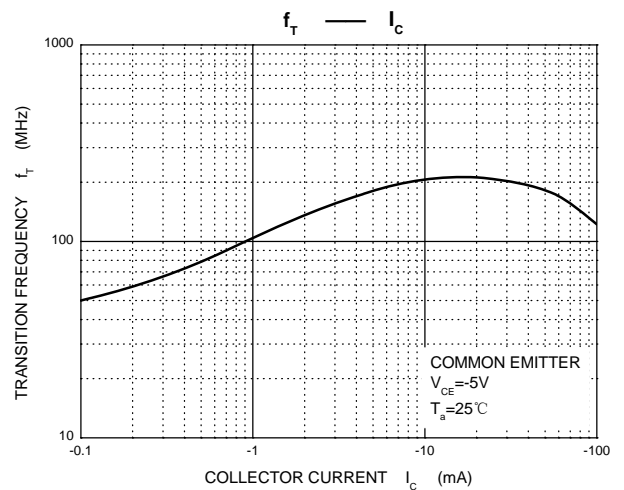
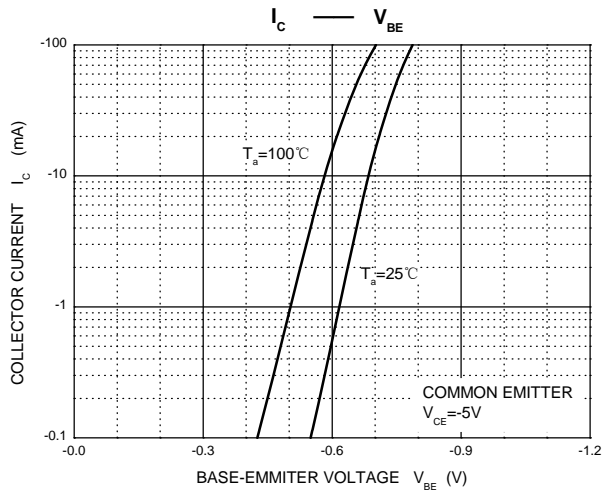
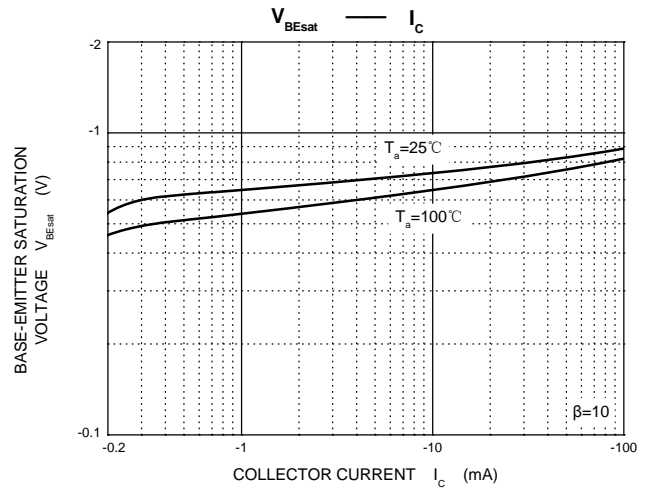
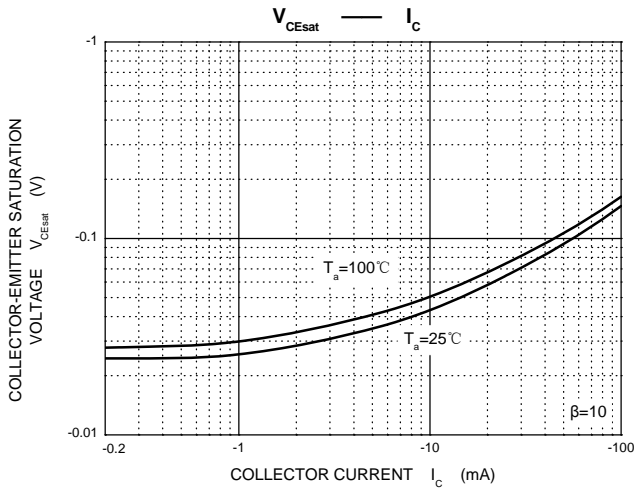
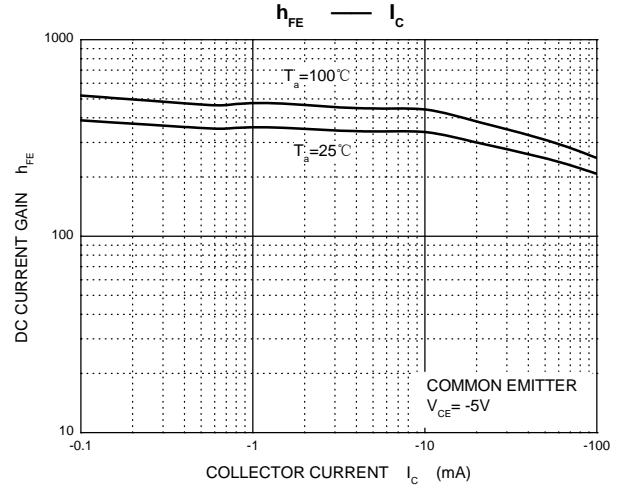
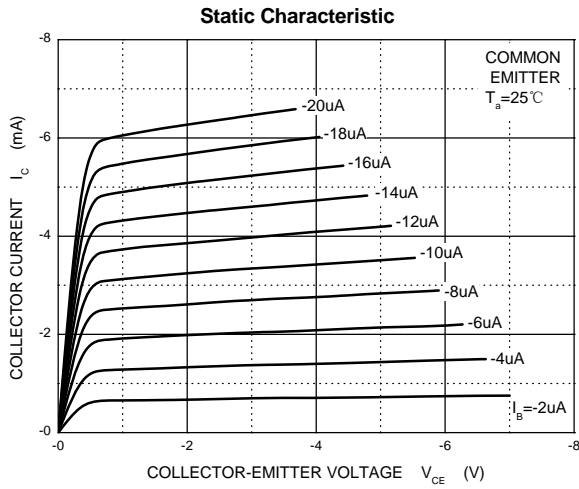
## ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

| Parameter                            | Symbol               | Test conditions                                      | Min  | Typ | Max   | Unit |
|--------------------------------------|----------------------|--|------|-----|-------|------|
| Collector-base breakdown voltage     | V <sub>(BR)CBO</sub> | I <sub>C</sub> =-100μA, I <sub>E</sub> =0            | -50  |     |       | V    |
| Collector-emitter breakdown voltage  | V <sub>(BR)CEO</sub> | I <sub>C</sub> =-100μA, I <sub>B</sub> =0            | -45  |     |       | V    |
| Emitter-base breakdown voltage       | V <sub>(BR)EBO</sub> | I <sub>E</sub> =-100μA, I <sub>C</sub> =0            | -5   |     |       | V    |
| Collector cut-off current            | I <sub>CBO</sub>     | V <sub>CB</sub> =-50V, I <sub>E</sub> =0             |      |     | -100  | nA   |
| Emitter cut-off current              | I <sub>EBO</sub>     | V <sub>EB</sub> =-5V, I <sub>C</sub> =0              |      |     | -100  | nA   |
| DC current gain                      | h <sub>FE</sub>      | V <sub>CE</sub> =-5V, I <sub>C</sub> =-1mA           | 200  |     | 1000  |      |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =-100mA, I <sub>B</sub> =-10mA        |      |     | -0.3  | V    |
| Base-emitter saturation voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> =-100mA, I <sub>B</sub> =-10mA        |      |     | -1    | V    |
| Base-emitter voltage                 | V <sub>BE</sub>      | V <sub>CE</sub> =-5V, I <sub>C</sub> =-1mA           | -0.6 |     | -0.75 | V    |
| Transition frequency                 | f <sub>T</sub>       | V <sub>CE</sub> =-5V, I <sub>C</sub> =-10mA, f=30MHz | 150  |     |       | MHz  |
| Collector output capacitance         | C <sub>ob</sub>      | V <sub>CB</sub> =-10V, I <sub>E</sub> =0, f=1MHz     |      |     | 7     | pF   |

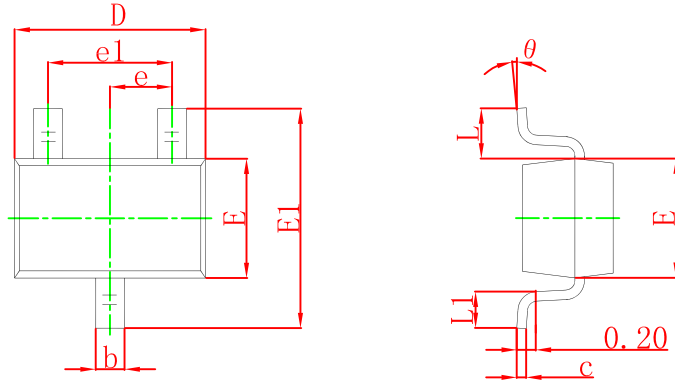
## CLASSIFICATION OF h<sub>FE</sub>

| RANK    | L         | H          |
|---------|-----------|------------|
| RANGE   | 200 - 450 | 400 - 1000 |
| MARKING | M6        |            |

# Typical Characteristics

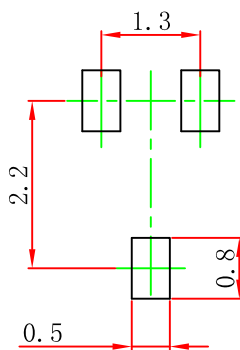


## SOT-323 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.000 | 0.035                | 0.039 |
| b      | 0.200                     | 0.400 | 0.008                | 0.016 |
| c      | 0.080                     | 0.150 | 0.003                | 0.006 |
| D      | 2.000                     | 2.200 | 0.079                | 0.087 |
| E      | 1.150                     | 1.350 | 0.045                | 0.053 |
| E1     | 2.150                     | 2.450 | 0.085                | 0.096 |
| e      | 0.650 TYP                 |       | 0.026 TYP            |       |
| e1     | 1.200                     | 1.400 | 0.047                | 0.055 |
| L      | 0.525 REF                 |       | 0.021 REF            |       |
| L1     | 0.260                     | 0.460 | 0.010                | 0.018 |
| theta  | 0°                        |       | 8°                   |       |

## SOT-323 Suggested Pad Layout



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