

## SOT-323 Plastic-Encapsulate Transistors

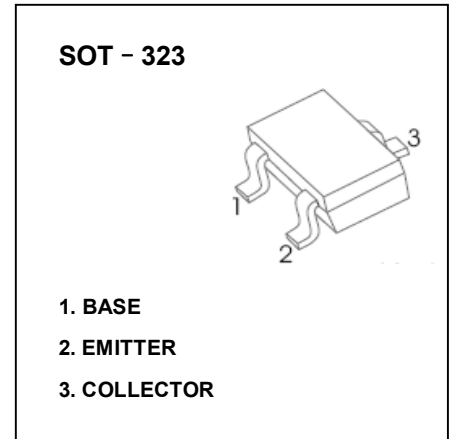
TRANSISTOR (NPN)

### FEATURES

- Complementary to S9015W
- Small Surface Mount Package

### MAXIMUM RATINGS ( $T_a=25^\circ\text{C}$ unless otherwise noted)

| Symbol          | Parameter                                   | Value    | Unit               |
|-----------------|---|----------|--------------------|
| $V_{CB0}$       | Collector-Base Voltage                      | 50       | V                  |
| $V_{CE0}$       | Collector-Emitter Voltage                   | 45       | V                  |
| $V_{EB0}$       | Emitter-Base Voltage                        | 5        | V                  |
| $I_C$           | Collector Current                           | 100      | mA                 |
| $P_C$           | Collector Power Dissipation                 | 200      | mW                 |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient | 625      | $^\circ\text{C/W}$ |
| $T_j$           | Junction Temperature                        | 150      | $^\circ\text{C}$   |
| $T_{stg}$       | Storage Temperature                         | -55~+150 | $^\circ\text{C}$   |



### ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ\text{C}$ unless otherwise specified)

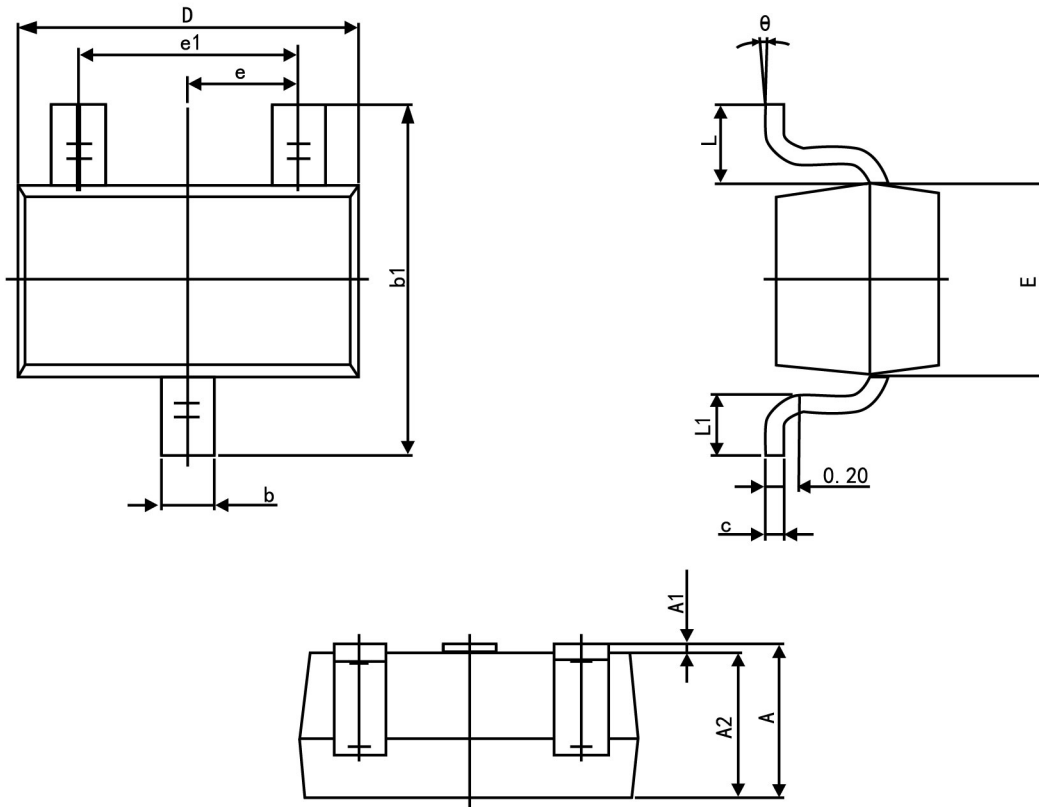
| Parameter                            | Symbol        | Test conditions                                     | Min  | Typ | Max  | Unit |
|--------------------------------------|---------------|---|------|-----|------|------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C=100\mu\text{A}, I_E=0$                         | 50   |     |      | V    |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=100\mu\text{A}, I_B=0$                         | 45   |     |      | V    |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=100\mu\text{A}, I_C=0$                         | 5    |     |      | V    |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=50\text{V}, I_E=0$                          |      |     | 100  | nA   |
| Collector cut-off current            | $I_{CEO}$     | $V_{CE}=35\text{V}, I_B=0$                          |      |     | 100  | nA   |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=4\text{V}, I_C=0$                           |      |     | 100  | nA   |
| DC current gain                      | $h_{FE}$      | $V_{CE}=5\text{V}, I_C=1\text{mA}$                  | 200  |     | 1000 |      |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=100\text{mA}, I_B=5\text{mA}$                  |      |     | 0.3  | V    |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C=100\text{mA}, I_B=5\text{mA}$                  |      |     | 1    | V    |
| Base-emitter voltage                 | $V_{BE}$      | $V_{CE}=5\text{V}, I_C=2\text{mA}$                  | 0.58 |     | 0.7  | V    |
| Transition frequency                 | $f_T$         | $V_{CE}=5\text{V}, I_C=10\text{mA}, f=30\text{MHz}$ | 150  |     |      | MHz  |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$           |      |     | 3.5  | pF   |

### CLASSIFICATION OF $h_{FE}$

| RANK    | L         | H          |
|---------|-----------|------------|
| RANGE   | 200 - 450 | 450 - 1000 |
| MARKING | <b>J6</b> |            |



## SOT-323 PACKAGE OUTLINE DIMENSIONS



| Symbol | Dimension in Millimeters |       |
|--------|--------------------------|-------|
|        | Min                      | Max   |
| A      | 0.900                    | 1.100 |
| A1     | 0.000                    | 0.100 |
| A2     | 0.900                    | 1.000 |
| b      | 0.200                    | 0.400 |
| c      | 0.080                    | 0.150 |
| D      | 2.000                    | 2.200 |
| E      | 1.150                    | 1.350 |
| E1     | 2.150                    | 2.450 |
| e      | 0.650 TYP.               |       |
| e1     | 1.200                    | 1.400 |
| L      | 0.525 REF.               |       |
| L1     | 0.260                    | 0.460 |
| theta  | 0°                       | 8°    |