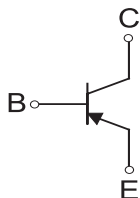
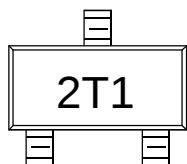


SOT-323 Plastic-Encapsulate Transistors**S9012W**

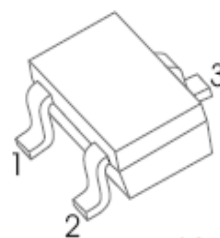
TRANSISTOR (PNP)

**FEATURES**

- Complementary To S9013W(NPN)

**MARKING****Equivalent Circuit**

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

**SOT - 323**

1. BASE
2. EMITTER
3. COLLECTOR

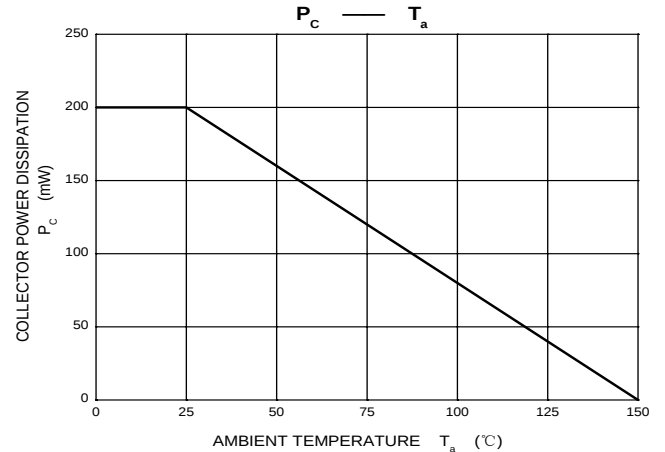
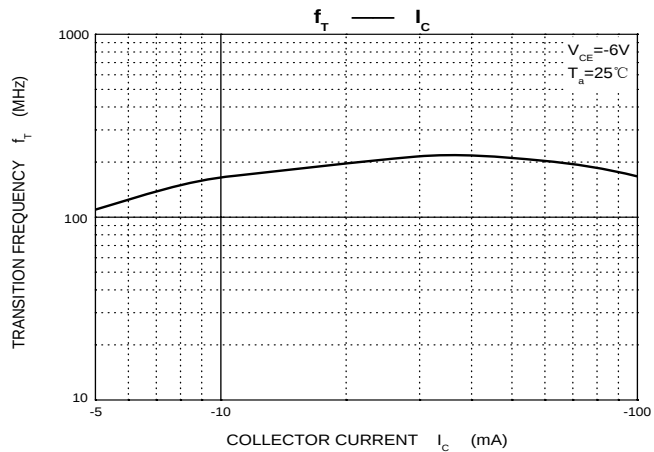
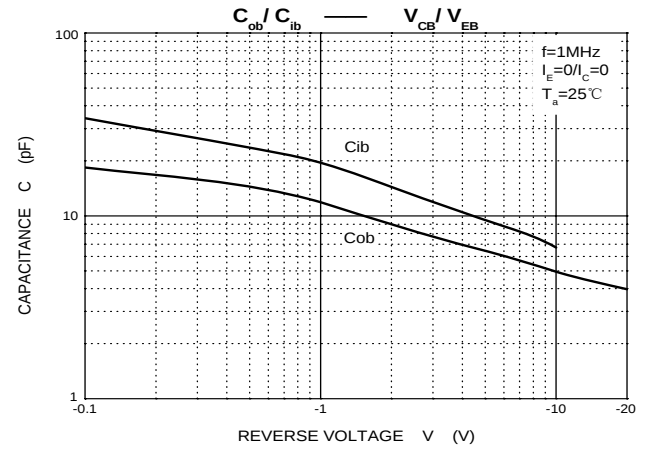
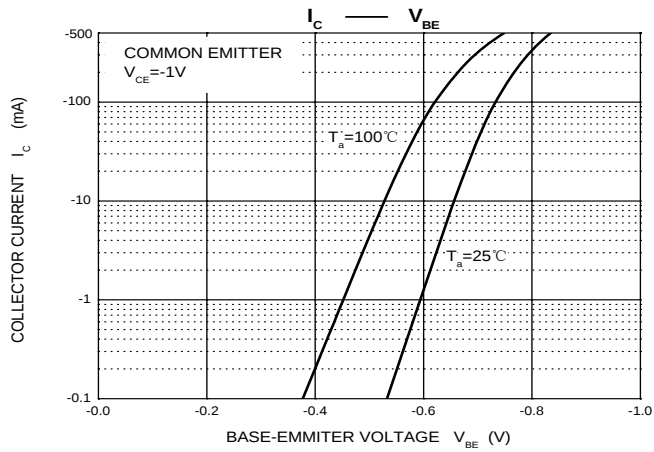
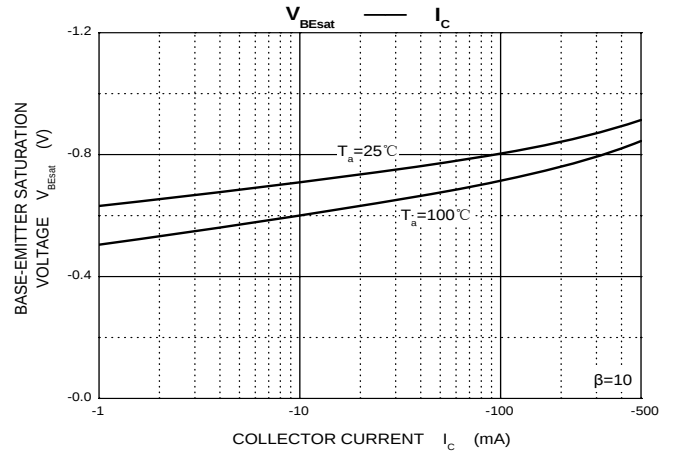
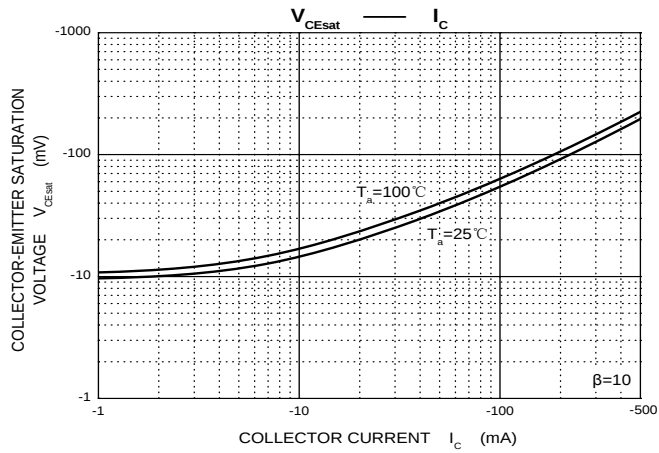
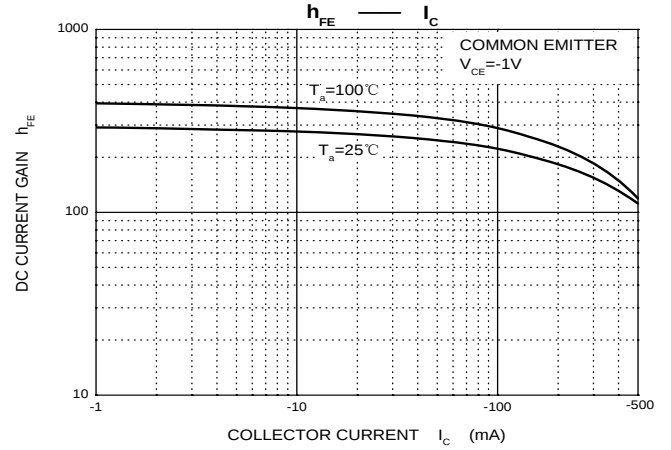
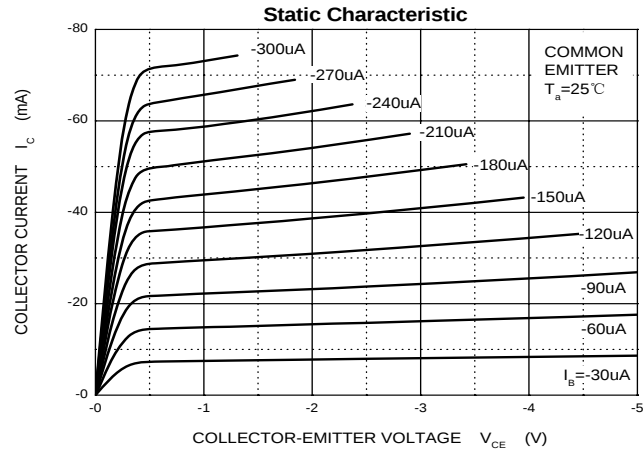
**MAXIMUM RATINGS** ( $T_a=25^{\circ}\text{C}$  unless otherwise noted)

| Symbol          | Parameter                                        | Value      | Unit                 |
|-----------------|--------------------------------------------------|------------|----------------------|
| $V_{CBO}$       | Collector-Base Voltage                           | -40        | 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        | $^{\circ}\text{C/W}$ |
| $T_J, T_{stg}$  | Operation Junction and Storage Temperature Range | -55 ~ +150 | $^{\circ}\text{C}$   |

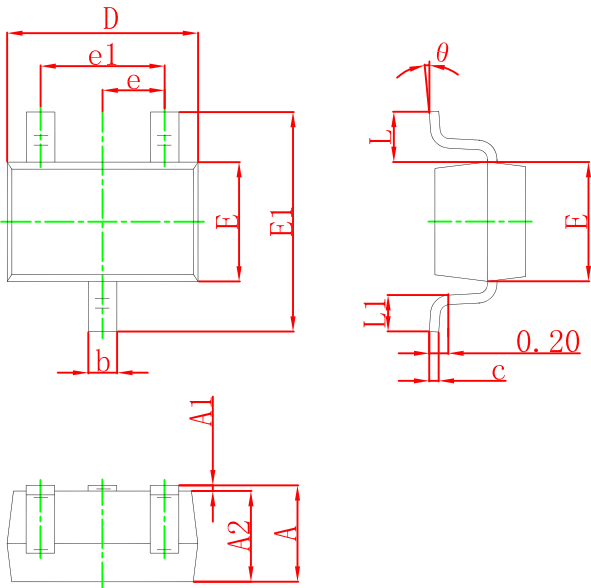
**ELECTRICAL CHARACTERISTICS** ( $T_a=25^{\circ}\text{C}$  unless otherwise specified)

| Parameter                            | Symbol        | Test conditions                                             | Min | Typ | Max  | Unit          |
|--------------------------------------|---------------|-------------------------------------------------------------|-----|-----|------|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C = -100\mu\text{A}, I_E = 0$                            | -40 |     |      | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C = -1\text{mA}, I_B = 0$                                | -25 |     |      | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E = -100\mu\text{A}, I_C = 0$                            | -5  |     |      | V             |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB} = -40\text{V}, I_E = 0$                             |     |     | -0.1 | $\mu\text{A}$ |
| Collector cut-off current            | $I_{CEO}$     | $V_{CE} = -20\text{V}, I_B = 0$                             |     |     | -0.1 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = -5\text{V}, I_C = 0$                              |     |     | -0.1 | $\mu\text{A}$ |
| DC current gain                      | $h_{FE}$      | $V_{CE} = -1\text{V}, I_C = -50\text{mA}$                   | 120 |     | 400  |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -500\text{mA}, I_B = -50\text{mA}$                   |     |     | -0.6 | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = -500\text{mA}, I_B = -50\text{mA}$                   |     |     | -1.2 | V             |
| Transition frequency                 | $f_T$         | $V_{CE} = -6\text{V}, I_C = -20\text{mA}, f = 30\text{MHz}$ | 150 |     |      | MHz           |
| Collector output capacitance         | $C_{ob}$      | $V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$            |     |     | 5    | pF            |

## Typical Characteristics

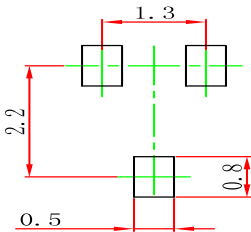


Package Outline Dimensions (SOT-323)



| 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 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

Suggested Pad Layout (SOT-323)



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