

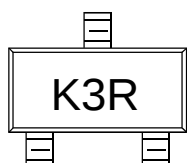
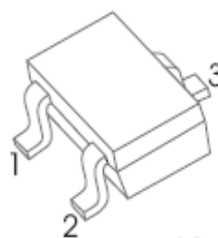
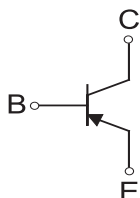
SOT-323 Plastic-Encapsulate Transistors**MMSTA92**

TRANSISTOR (PNP)

SOT - 323

**FEATURES**

- Complementary To MMSTA42(NPN)

**MARKING****Equivalent Circuit**

1. BASE
2. EMITTER
3. COLLECTOR

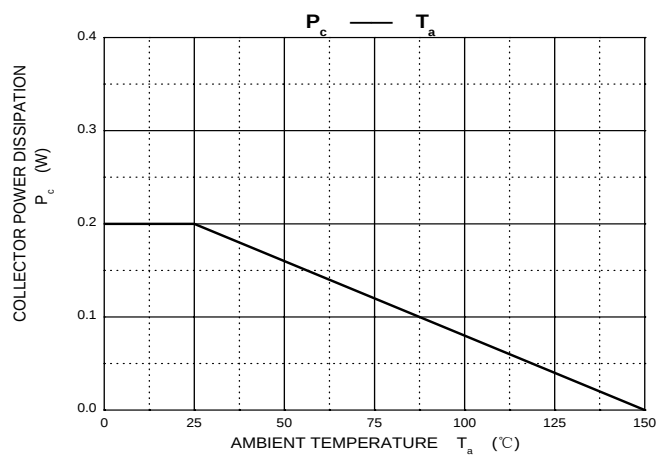
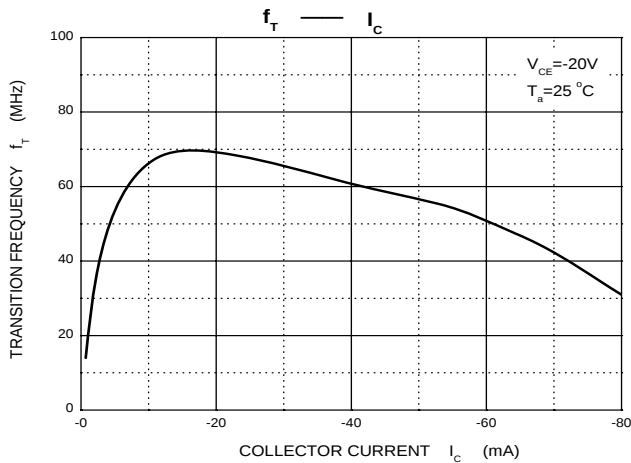
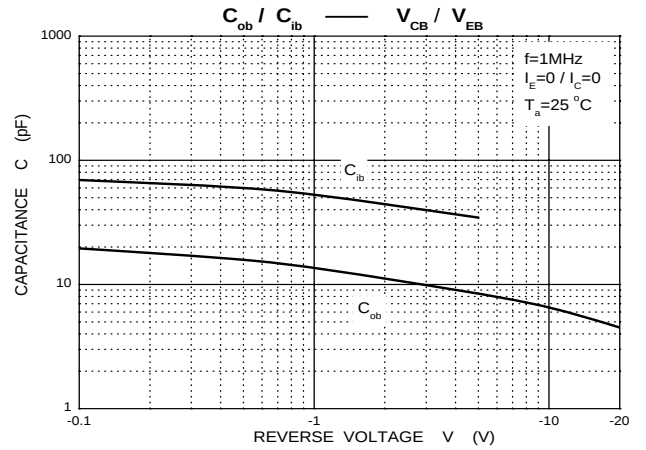
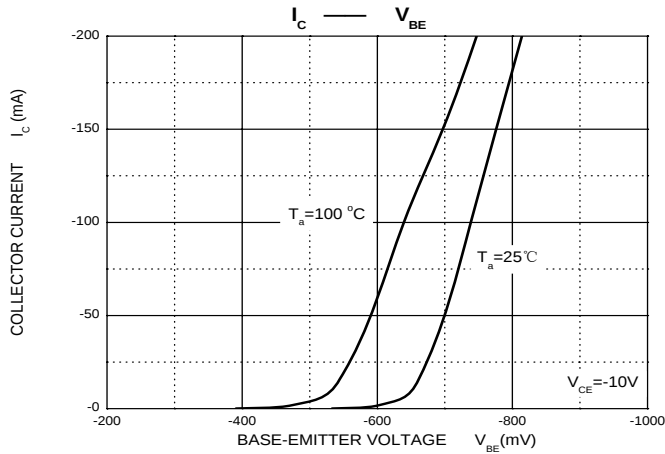
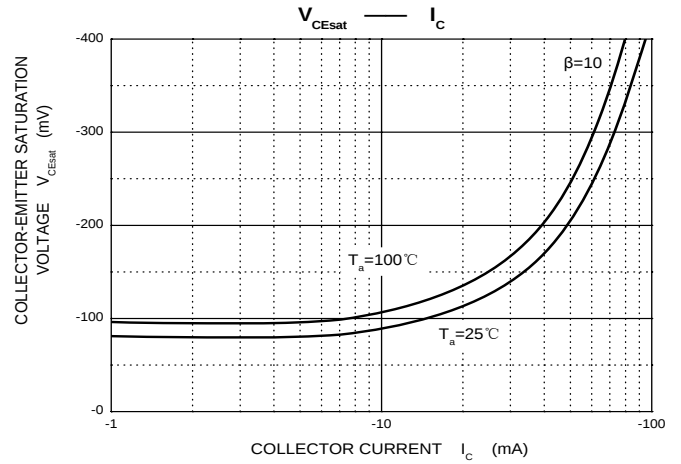
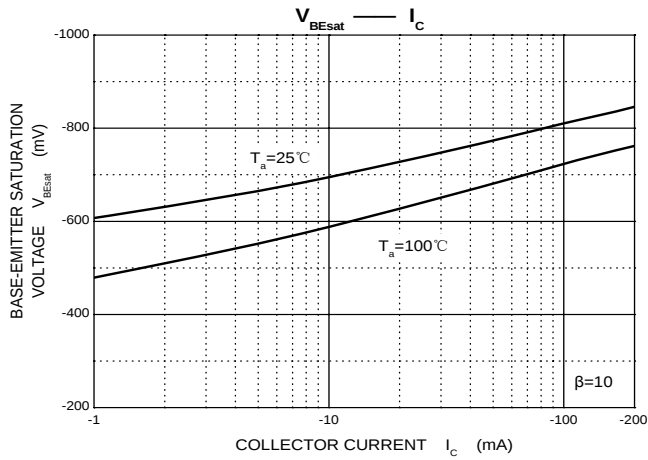
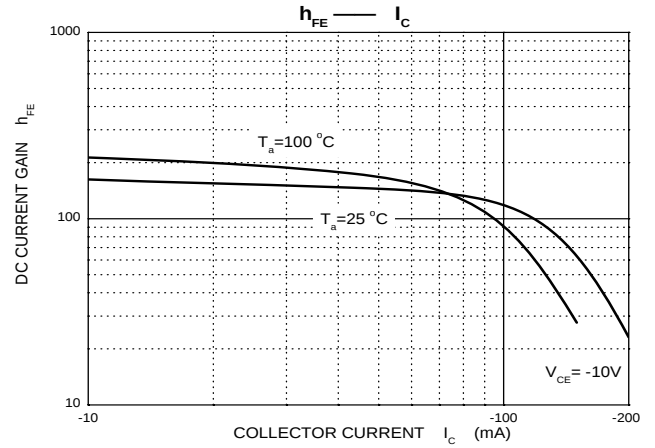
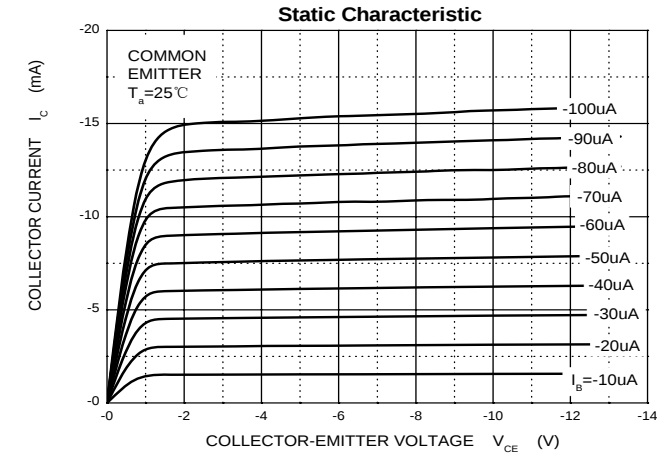
**MAXIMUM RATINGS** ( $T_a=25^{\circ}\text{C}$  unless otherwise noted)

| Symbol          | Parameter                                        | Value    | Unit                 |
|-----------------|--------------------------------------------------|----------|----------------------|
| $V_{CBO}$       | Collector-Base Voltage                           | -310     | V                    |
| $V_{CEO}$       | Collector-Emitter Voltage                        | -305     | V                    |
| $V_{EBO}$       | Emitter-Base Voltage                             | -5       | V                    |
| $I_C$           | Collector Current-Continuous                     | -200     | mA                   |
| $I_{CM}$        | Collector Current -Pulsed                        | -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 | $^{\circ}\text{C}$   |

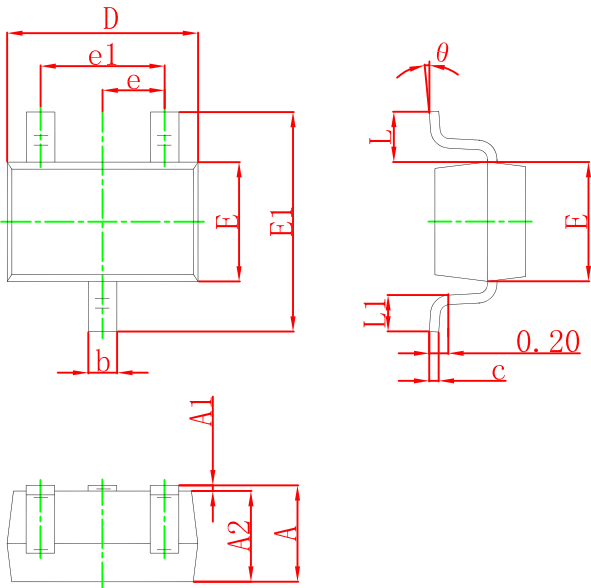
**ELECTRICAL CHARACTERISTICS** ( $T_a=25^{\circ}\text{C}$  unless otherwise specified)

| Parameter                            | Symbol        | Test conditions                                        | Min  | Typ | Max  | Unit          |
|--------------------------------------|---------------|--------------------------------------------------------|------|-----|------|---------------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C=-100\mu\text{A}, I_E=0$                           | -310 |     |      | V             |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C=-1\text{mA}, I_B=0$                               | -305 |     |      | V             |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E=-100\mu\text{A}, I_C=0$                           | -5   |     |      | V             |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB}=-200\text{V}, I_E=0$                           |      |     | -250 | nA            |
| Collector cut-off current            | $I_{CEO}$     | $V_{CE}=-200\text{V}, I_B=0$                           |      |     | -250 | nA            |
|                                      |               | $V_{CE}=-300\text{V}, I_B=0$                           |      |     | -5   | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB}=-5\text{V}, I_C=0$                             |      |     | -100 | nA            |
| DC current gain                      | $h_{FE}$      | $V_{CE}=-10\text{V}, I_C=-1\text{mA}$                  | 60   |     |      |               |
|                                      |               | $V_{CE}=-10\text{V}, I_C=-10\text{mA}$                 | 100  |     | 200  |               |
|                                      |               | $V_{CE}=-10\text{V}, I_C=-30\text{mA}$                 | 60   |     |      |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=-20\text{mA}, I_B=-2\text{mA}$                    |      |     | -0.2 | V             |
| Base-emitter saturation voltage      | $V_{BE(sat)}$ | $I_C=-20\text{mA}, I_B=-2\text{mA}$                    |      |     | -0.9 | V             |
| Transition frequency                 | $f_T$         | $V_{CE}=-20\text{V}, I_E=-10\text{mA}, f=30\text{MHz}$ | 50   |     |      | MHz           |
| Collector output capacitance         | $C_{ob}$      | $V_{CB}=-20\text{V}, I_E=0, f=1\text{MHz}$             |      |     | 6    | pF            |

## Typical Characteristics

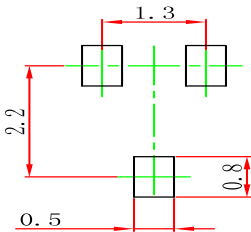


Package Outline Dimensions (SOT-323)



| 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.