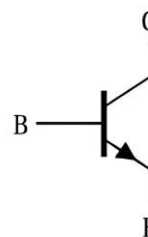


## Features

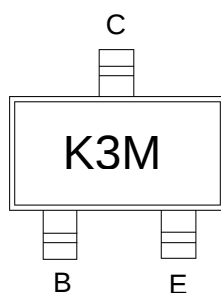
- High Breakdown Voltage
- Low Collector-Emitter Saturation Voltage
- Complementary to MMSTA92(PNP)



SOT-323 top view



Schematic diagram



Marking and pin assignment



Pb-Free



RoHS



Halogen-Free

## Maximum Ratings (Ta=25°C unless otherwise noted)

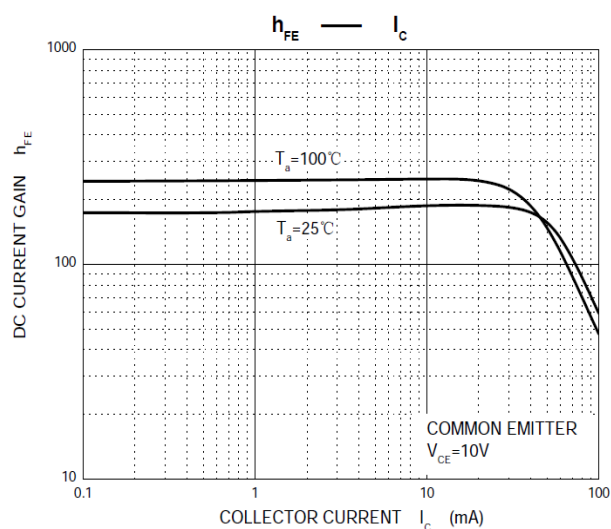
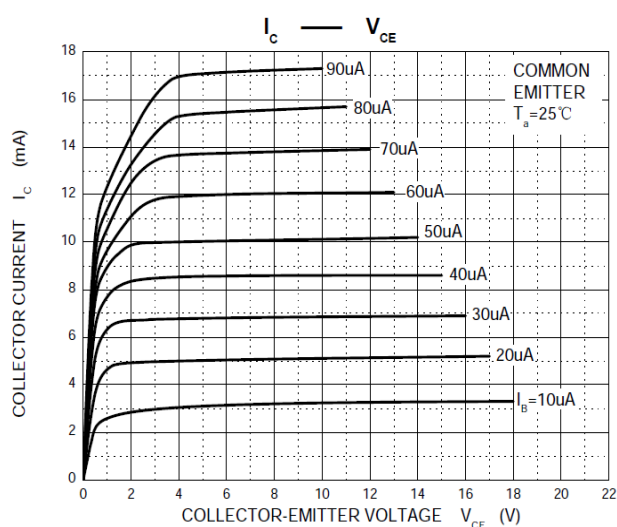
| Symbol          | Parameter                                        | Value    | Unit |
|-----------------|--------------------------------------------------|----------|------|
| $V_{CBO}$       | Collector-Base Voltage                           | 300      | V    |
| $V_{CEO}$       | Collector-Emitter Voltage                        | 300      | V    |
| $V_{EBO}$       | Emitter-Base Voltage                             | 5        | V    |
| $I_C$           | Collector Current                                | 0.2      | A    |
| $I_{CM}$        | Collector Current -Pulsed                        | 0.5      | A    |
| $P_C$           | Collector Power Dissipation                      | 0.3      | W    |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient      | 417      | °C/W |
| $T_J, T_{stg}$  | Operation Junction and Storage Temperature Range | -55~+150 | °C   |

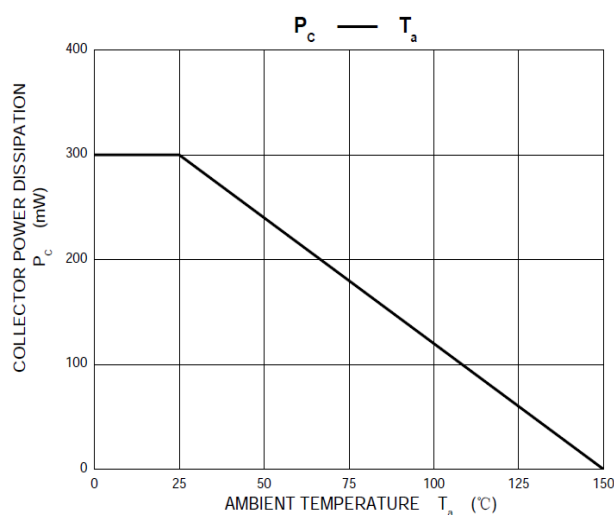
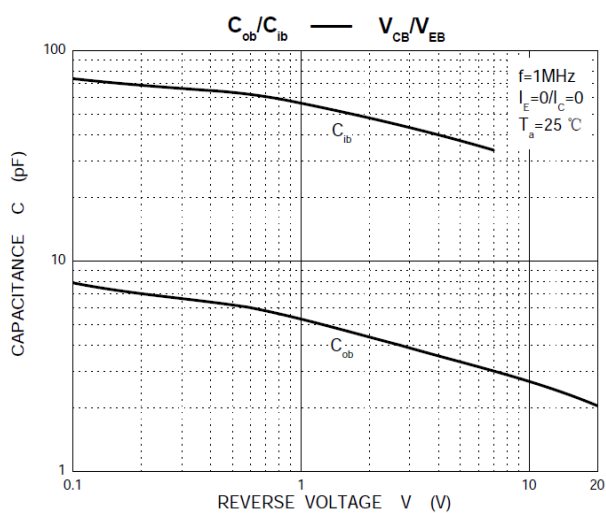
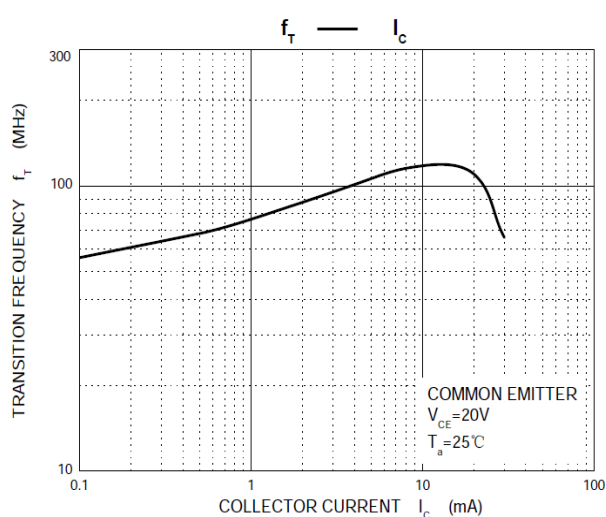
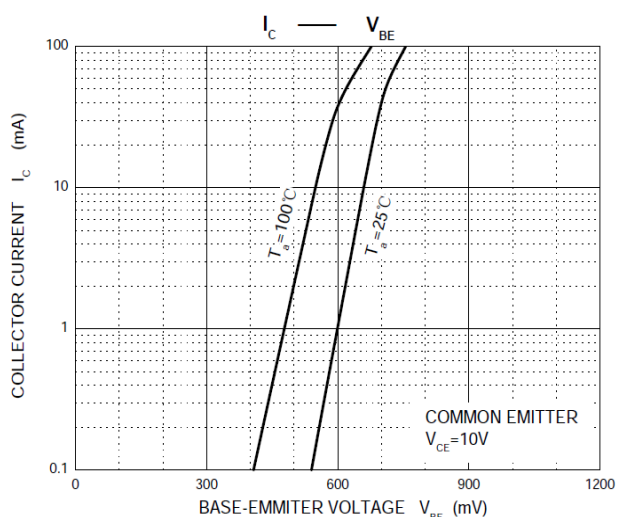
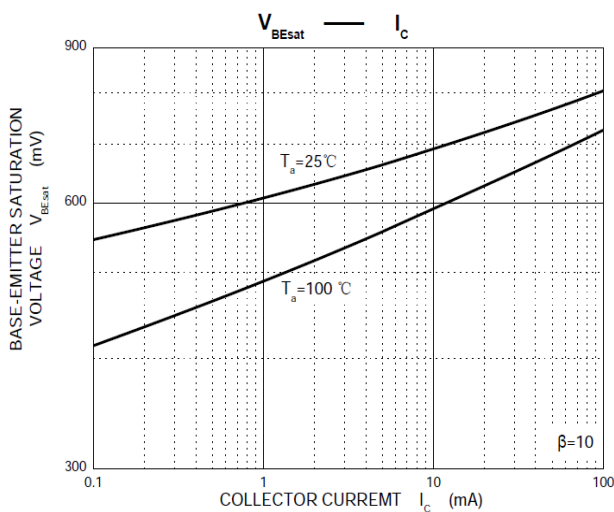
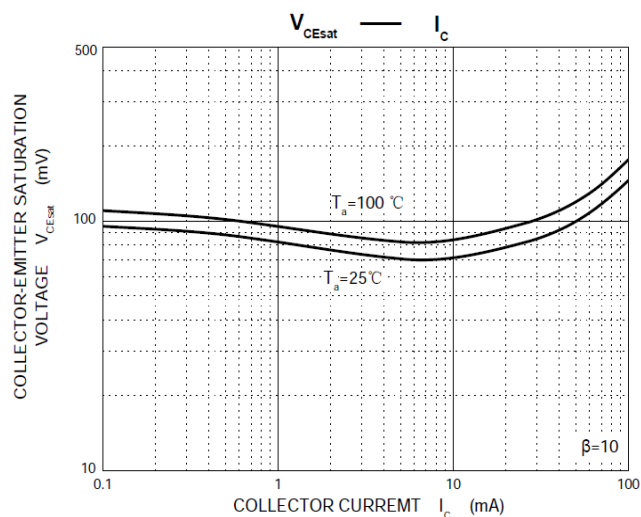
## Ordering Information (Example)

| Type    | Package | Marking | Minimum Package(pcs) | Inner Box Quantity(pcs) | Outer Carton Quantity(pcs) | Delivery Mode |
|---------|---------|---------|----------------------|-------------------------|----------------------------|---------------|
| MMSTA42 | SOT-323 | K3M     | 3,000                | 45,000                  | 180,000                    | 7"reel        |

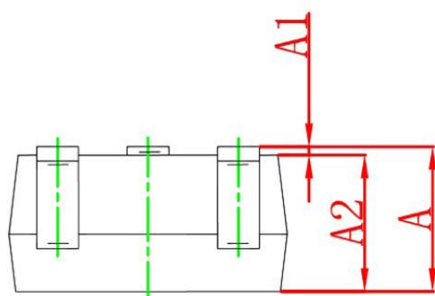
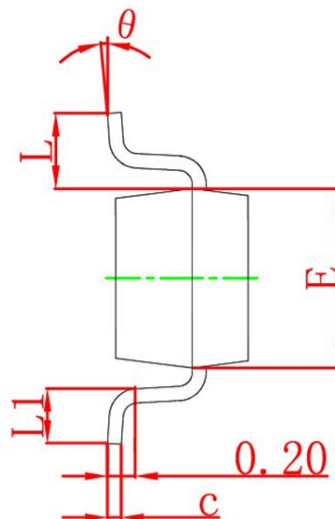
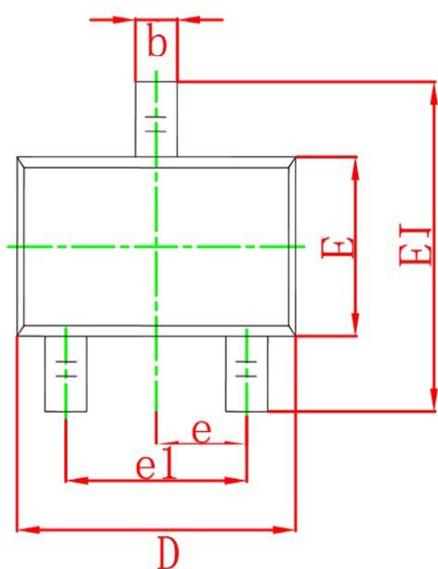
**Electrical Characteristics (Ta=25°C unless otherwise specified)**

| Symbol        | Parameter                            | Condition                       | Min | Typ | Max  | Unit    |
|---------------|--------------------------------------|---------------------------------|-----|-----|------|---------|
| $V_{(BR)CBO}$ | Collector-base breakdown voltage     | $I_C=100\mu A, I_E=0$           | 300 | --  | --   | V       |
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage  | $I_C=1mA, I_B=0$                | 300 | --  | --   | V       |
| $V_{(BR)EBO}$ | Emitter-base breakdown voltage       | $I_E=100\mu A, I_C=0$           | 5   | --  | --   | V       |
| $I_{CBO}$     | Collector cut-off current            | $V_{CB}=200V, I_E=0$            | --  | --  | 0.25 | $\mu A$ |
| $I_{EBO}$     | Emitter cut-off current              | $V_{EB}=5V, I_C=0$              | --  | --  | 0.1  | $\mu A$ |
| $H_{FE1}$     | DC current gain                      | $V_{CE}=10V, I_C=1mA$           | 60  | --  | --   | --      |
| $H_{FE2}$     |                                      | $V_{CE}=10V, I_C=10mA$          | 100 | --  | 200  |         |
| $H_{FE3}$     |                                      | $V_{CE}=10V, I_C=30mA$          | 75  | --  | --   |         |
| $V_{CE(sat)}$ | Collector-emitter saturation voltage | $I_C=20mA, I_B=2mA$             | --  | --  | 0.2  | V       |
| $V_{BE(sat)}$ | Base-emitter saturation voltage      | $I_C=20mA, I_B=2mA$             | --  | --  | 0.9  | V       |
| $f_T$         | Transition frequency                 | $V_{CE}=20V, I_C=10mA, f=30MHz$ | 50  | --  | --   | MHz     |

**Typical Characteristics**




SOT-323 Package information



| Symbol   | Dimensions in Millimeters(mm) |       | 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        | 0.650TYP                      |       | 0.026TYP             |       |
| e1       | 1.200                         | 1.400 | 0.047                | 0.055 |
| L        | 0.525REF                      |       | 0.021REF             |       |
| L1       | 0.260                         | 0.460 | 0.010                | 0.018 |
| $\theta$ | 0°                            | 8°    | 0°                   | 8°    |