

# NPN small signal transistor

## MMSTA13

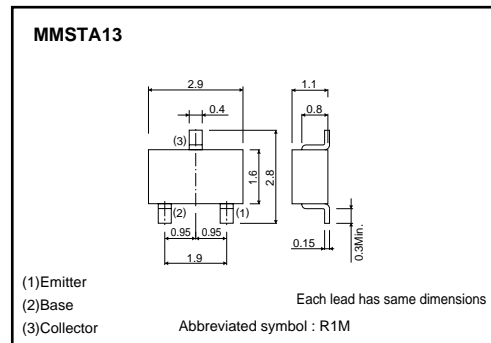
### ●Features

1) High Current Gain.

### ●Packaging specifications

| Type    | Package                      | Taping |
|---------|------------------------------|--------|
|         | Code                         | T146   |
|         | Basic ordering unit (pieces) | 3000   |
| MMSTA13 |                              | ○      |

### ●Dimensions (Unit : mm)



### ●Absolute maximum ratings (Ta=25°C)

| Parameter                   | Symbol    | Limits     | Unit |
|-----------------------------|-----------|------------|------|
| Collector-base voltage      | $V_{CB0}$ | 30         | V    |
| Collector-emitter voltage   | $V_{CES}$ | 30         | V    |
| Emitter-base voltage        | $V_{EBO}$ | 10         | V    |
| Collector current           | $I_c$     | 0.3        | A    |
| Collector power dissipation | $P_c$     | 0.2        | W    |
|                             |           | 0.35       | W *  |
| Junction temperature        | $T_j$     | 150        | °C   |
| Storage temperature         | $T_{stg}$ | -55 to 125 | °C   |

\* Mounted on a 7×5×0.6 mm CERAMIC SUBSTRATE

### ●Electrical characteristics (Ta=25°C)

| Parameter                            | Symbol        | Min.  | Typ. | Max. | Unit    | Conditions                             |
|--------------------------------------|---------------|-------|------|------|---------|--|
| Collector-emitter breakdown voltage  | $BV_{CES}$    | 30    | -    | -    | V       | $I_c = 100\mu A$                       |
| Collector-emitter breakdown voltage  | $BV_{CEO}$    | 30    | -    | -    | V       | $I_c = 10\mu A$                        |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | 10    | -    | -    | V       | $I_E = 10\mu A$                        |
| Collector-base cutoff current        | $I_{cBO}$     | -     | -    | 0.1  | $\mu A$ | $V_{CB} = 30V$                         |
| Emitter-base cutoff current          | $I_{CEO}$     | -     | -    | 0.1  | $\mu A$ | $V_{EB} = 10V$                         |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | -     | -    | 1.5  | V       | $I_c/I_B = 100mA/100\mu A$             |
| Base-emitter voltage                 | $V_{BE(on)}$  | -     | -    | 2.0  | V       | $V_{CE} = 5V, I_c = 100mA$ *           |
| DC current transfer ratio            | $h_{FE}$      | 5000  | -    | -    | -       | $V_{CE} = 5V, I_c = 10mA$              |
|                                      |               | 10000 | -    | -    | -       | $V_{CE} = 5V, I_c = 100mA$ *           |
| Transition frequency                 | $f_T$         | 125   | -    | -    | MHz     | $V_{CE} = 5V, I_E = -10mA, f = 100MHz$ |
| Collector output capacitance         | $C_{ob}$      | -     | 5.4  | -    | pF      | $V_{CB} = 10V, f = 100kHz, I_E = 0$    |

\* Pulsed

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