

# General purpose transistor(-50V,-0.1A)

## 2SAR523M/2SAR523EB/2SAR523UB

### ●Structure

PNP silicon epitaxial planar transistor

### ●Features

Complements the 2SCR523M/2SCR523EB/2SCR523UB.

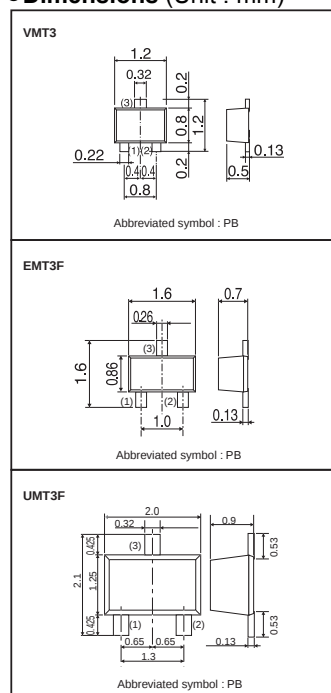
### ●Applications

Switch, LED driver

### ●Packaging specifications

| Type      | Package                      | VMT3   | EMT3F  | UMT3F  |
|-----------|------------------------------|--------|--------|--------|
|           | Packaging Type               | Taping | Taping | Taping |
|           | Code                         | T2L    | TL     | TL     |
|           | Basic ordering unit (pieces) | 8000   | 3000   | 3000   |
| 2SAR523M  |                              | ○      | —      | —      |
| 2SAR523EB |                              | —      | ○      | —      |
| 2SAR523UB |                              | —      | —      | ○      |

### ●Dimensions (Unit : mm)



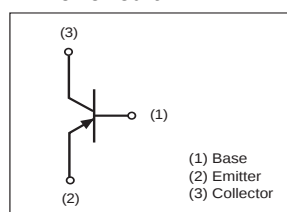
### ● Absolute maximum ratings (Ta=25°C)

| Parameter                 | Symbol        | Limits      | Unit |
|---------------------------|---------------|-------------|------|
| Collector-base voltage    | $V_{CBO}$     | -50         | V    |
| Collector-emitter voltage | $V_{CEO}$     | -50         | V    |
| Emitter-base voltage      | $V_{EBO}$     | -5          | V    |
| Collector current         | $I_C$         | -100        | mA   |
|                           | $I_{CP}^{*1}$ | -200        | mA   |
| Power dissipation         | $P_D^{*2}$    | 150         | mW   |
|                           |               | 200         | mW   |
| Junction temperature      | $T_j$         | 150         | °C   |
| Storage temperature       | $T_{stg}$     | -55 to +150 | °C   |

\*1  $P_W=1mS$  Single pulse

\*2 Each terminal mounted on a recommended land

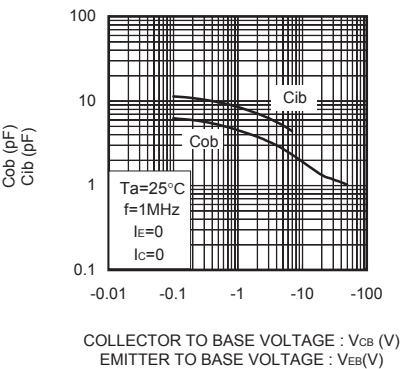
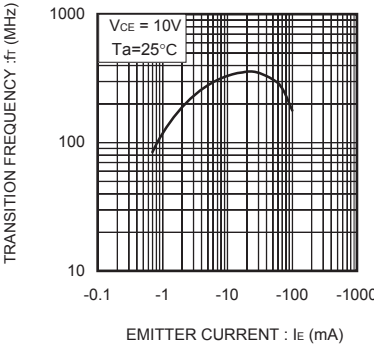
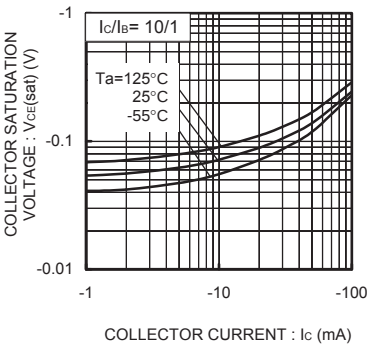
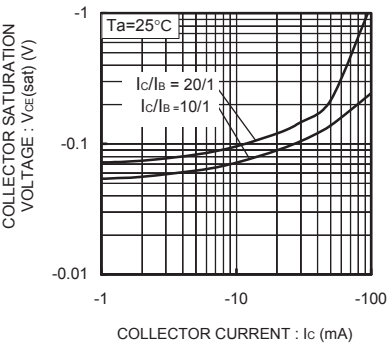
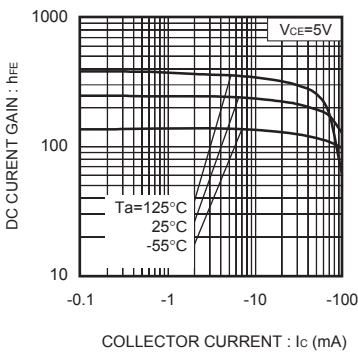
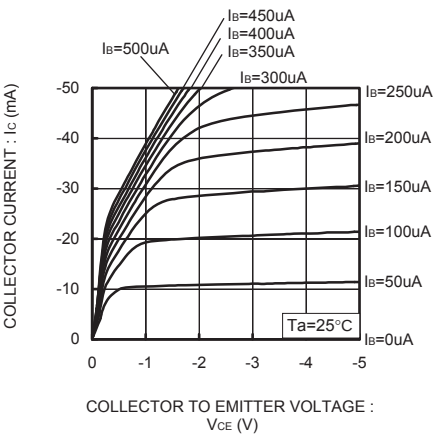
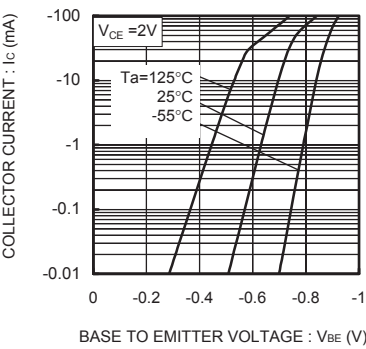
### ●inner circuit



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

| Parameter                            | Symbol        | Min. | Typ.  | Max.  | Unit    | Conditions                              |
|--------------------------------------|---------------|------|-------|-------|---------|-----------------------------------------|
| Collector-emitter breakdown voltage  | $BV_{CEO}$    | -50  | —     | —     | V       | $I_C = -1mA$                            |
| Collector-base breakdown voltage     | $BV_{CBO}$    | -50  | —     | —     | V       | $I_C = -50\mu A$                        |
| Emitter-base breakdown voltage       | $BV_{EBO}$    | -5   | —     | —     | V       | $I_E = -50\mu A$                        |
| Collector cut-off current            | $I_{CBO}$     | —    | —     | -0.1  | $\mu A$ | $V_{CB} = -50V$                         |
| Emitter cut-off current              | $I_{EBO}$     | —    | —     | -0.1  | $\mu A$ | $V_{EB} = -5V$                          |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | —    | -0.15 | -0.40 | V       | $I_C = -50mA, I_B = -5mA$               |
| DC current gain                      | $h_{FE}$      | 120  | —     | 560   | —       | $V_{CE} = -6V, I_C = -1mA$              |
| Transition frequency                 | $f_T$         | —    | 300   | —     | MHz     | $V_{CE} = -10V, I_E = 10mA, f = 100MHz$ |
| Output capacitance                   | $C_{ob}$      | —    | 2     | —     | pF      | $V_{CB} = -10V, I_E = 0A, f = 1MHz$     |

●Electrical characteristics curves



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