

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

## 2SAR523M/2SAR523EB/2SAR523UB

**●Structure**

PNP silicon epitaxial planar transistor

**●Features**

Complements the 2SCR523M/2SCR523EB/2SCR523UB.

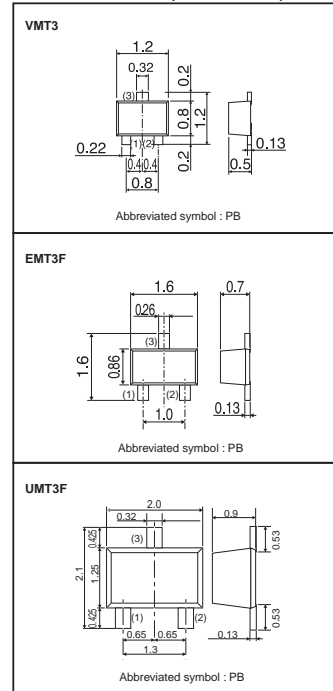
**●Applications**

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)**



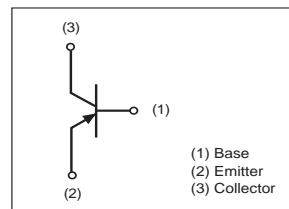
**● Absolute maximum ratings (Ta=25°C)**

| Parameter                 | Symbol             | Limits      | Unit |
|---------------------------|--------------------|-------------|------|
| Collector-base voltage    | V <sub>CBO</sub>   | -50         | V    |
| Collector-emitter voltage | V <sub>CEO</sub>   | -50         | V    |
| Emitter-base voltage      | V <sub>EBO</sub>   | -5          | V    |
| Collector current         | I <sub>C</sub>     | -100        | mA   |
|                           | I <sub>CP</sub> *1 | -200        | mA   |
| Power dissipation         | P <sub>D</sub> *2  | 150         | mW   |
|                           |                    | 200         | mW   |
| Junction temperature      | T <sub>j</sub>     | 150         | °C   |
| Storage temperature       | T <sub>stg</sub>   | -55 to +150 | °C   |

\*1 Pw=1mS Single pulse

\*2 Each terminal mounted on a recommended land

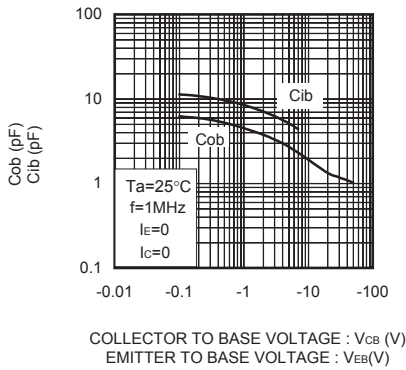
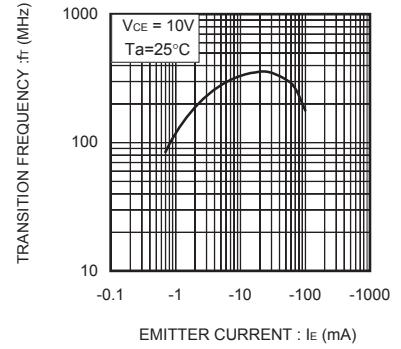
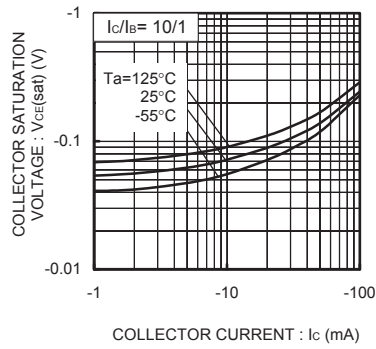
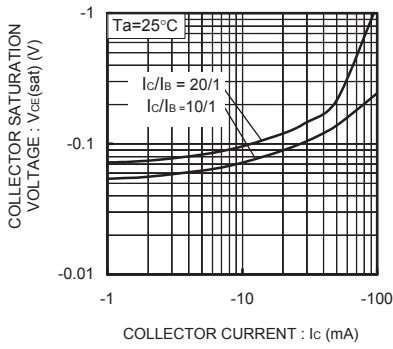
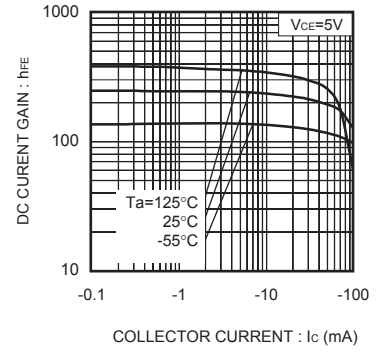
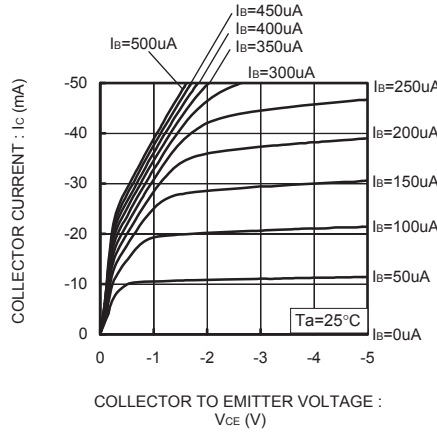
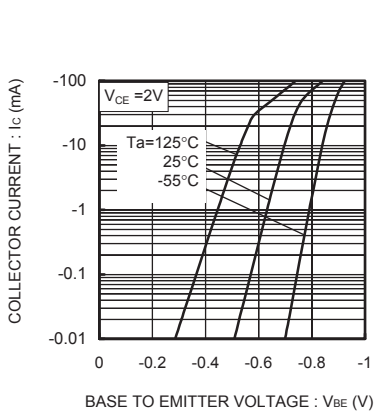
**●inner circuit**



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

| Parameter                            | Symbol               | Min. | Typ.  | Max.  | Unit | Conditions   |
|--------------------------------------|----------------------|------|-------|-------|------|--|
| Collector-emitter breakdown voltage  | BV <sub>CEO</sub>    | -50  | -     | -     | V    | I <sub>C</sub> = -1mA                                  |
| Collector-base breakdown voltage     | BV <sub>CBO</sub>    | -50  | -     | -     | V    | I <sub>C</sub> = -50μA                                 |
| Emitter-base breakdown voltage       | BV <sub>EBO</sub>    | -5   | -     | -     | V    | I <sub>E</sub> = -50μA                                 |
| Collector cut-off current            | I <sub>CBO</sub>     | -    | -     | -0.1  | μA   | V <sub>CB</sub> = -50V                                 |
| Emitter cut-off current              | I <sub>EBO</sub>     | -    | -     | -0.1  | μA   | V <sub>EB</sub> = -5V                                  |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | -    | -0.15 | -0.40 | V    | I <sub>C</sub> = -50mA, I <sub>B</sub> = -5mA          |
| DC current gain                      | h <sub>FE</sub>      | 120  | -     | 560   | -    | V <sub>CE</sub> = -6V, I <sub>C</sub> = -1mA           |
| Transition frequency                 | f <sub>T</sub>       | -    | 300   | -     | MHz  | V <sub>CE</sub> = -10V, I <sub>E</sub> =10mA, f=100MHz |
| Output capacitance                   | C <sub>ob</sub>      | -    | 2     | -     | pF   | V <sub>CB</sub> = -10V, I <sub>E</sub> =0A, f=1MHz     |

●Electrical characteristics curves



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