

# 2SC5002

Silicon NPN Triple Diffused Planar Transistor (High Voltage Switching Transistor)

Application : Display Horizontal Deflection Output, Switching Regulator and General Purpose

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

| Symbol           | 2SC5002     | Unit |
|------------------|-------------|------|
| V <sub>CB0</sub> | 1500        | V    |
| V <sub>CEO</sub> | 800         | V    |
| V <sub>EBO</sub> | 6           | V    |
| I <sub>c</sub>   | 7(Pulse14)  | A    |
| I <sub>B</sub>   | 3.5         | A    |
| P <sub>c</sub>   | 80(Tc=25°C) | W    |
| T <sub>J</sub>   | 150         | °C   |
| T <sub>stg</sub> | -55 to +150 | °C   |

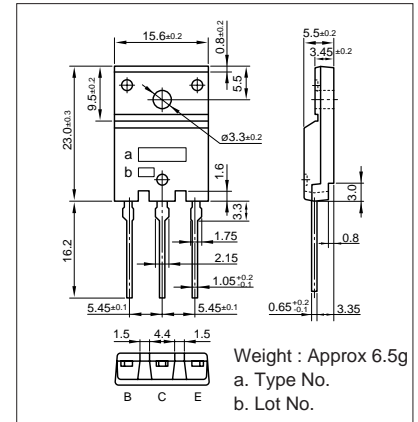
**Electrical Characteristics** (Ta=25°C)

| Symbol               | Conditions                                  | 2SC5002 | Unit |
|----------------------|---|---------|------|
| I <sub>CB01</sub>    | V <sub>CB</sub> =1200V                      | 100max  | μA   |
| I <sub>CB02</sub>    | V <sub>CB</sub> =1500V                      | 1max    | mA   |
| I <sub>EBO</sub>     | V <sub>EB</sub> =6V                         | 100max  | μA   |
| V(BR) <sub>CEO</sub> | I <sub>c</sub> =10mA                        | 800min  | V    |
| h <sub>FE1</sub>     | V <sub>CE</sub> =5V, I <sub>c</sub> =1A     | 8min    |      |
| h <sub>FE2</sub>     | V <sub>CE</sub> =5V, I <sub>c</sub> =5A     | 4 to 9  |      |
| V <sub>CE(sat)</sub> | I <sub>c</sub> =5A, I <sub>B</sub> =1.2A    | 5max    | V    |
| V <sub>BE(sat)</sub> | I <sub>c</sub> =5A, I <sub>B</sub> =1.2A    | 1.5max  | V    |
| f <sub>r</sub>       | V <sub>CE</sub> =12V, I <sub>e</sub> =-0.5A | 4typ    | MHz  |
| C <sub>OB</sub>      | V <sub>CB</sub> =10V, f=1MHz                | 100typ  | pF   |

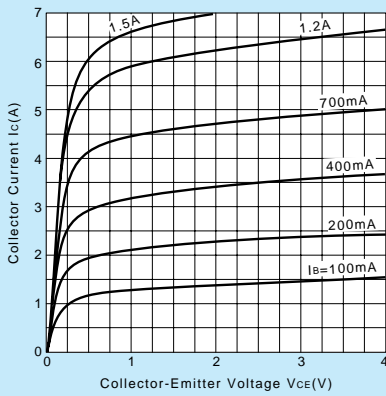
**Typical Switching Characteristics (Common Emitter)**

| V <sub>CC</sub> (V) | R <sub>L</sub> (Ω) | I <sub>c</sub> (A) | V <sub>BB1</sub> (V) | V <sub>BB2</sub> (V) | I <sub>B1</sub> (A) | I <sub>B2</sub> (A) | t <sub>stg</sub> (μs) | t <sub>f</sub> (μs) |
|---------------------|--------------------|--------------------|----------------------|----------------------|---------------------|---------------------|-----------------------|---------------------|
| 200                 | 50                 | 4                  | 10                   | -5                   | 0.8                 | -1.6                | 4.0max                | 0.2max              |

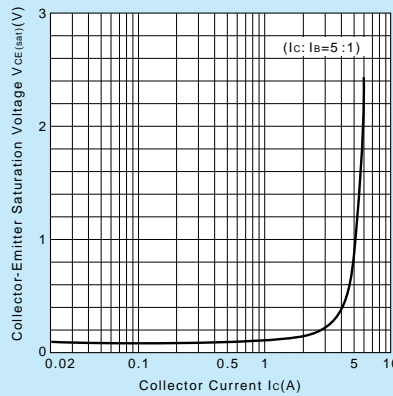
**External Dimensions FM100(TO3PF)**



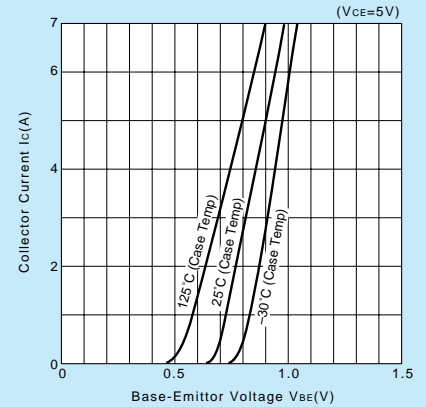
**I<sub>c</sub>-V<sub>CE</sub> Characteristics (Typical)**



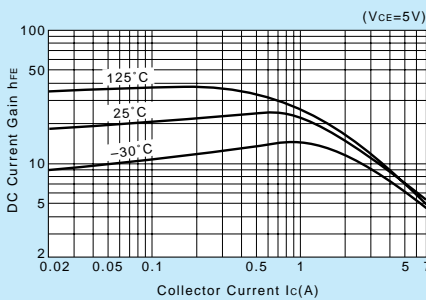
**V<sub>CE(sat)</sub>-I<sub>c</sub> Characteristics (Typical)**



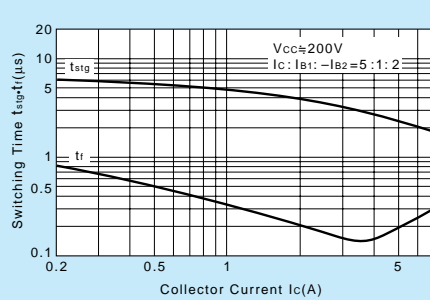
**I<sub>c</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)**



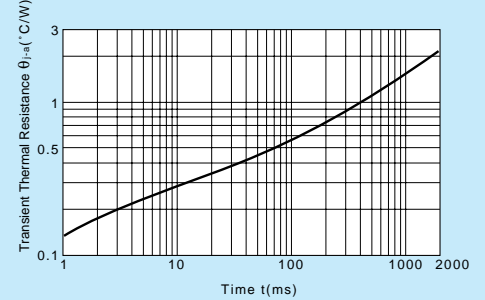
**h<sub>FE</sub>-I<sub>c</sub> Characteristics (Typical)**



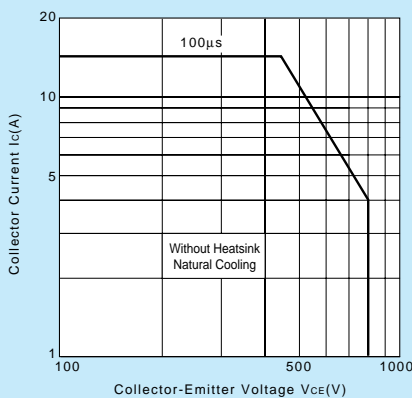
**t<sub>stg</sub>\*t<sub>r</sub>-I<sub>c</sub> Characteristics (Typical)**



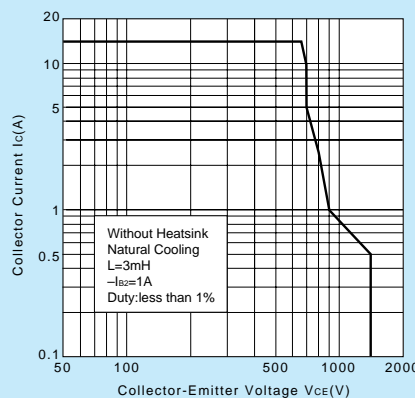
**θ<sub>j-a</sub>-t Characteristics**



**Safe Operating Area (Single Pulse)**



**Reverse Bias Safe Operating Area**



**P<sub>c</sub>-T<sub>a</sub> Derating**

