

# 2SC5071

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

Application : Switching Regulator and General Purpose

## Absolute maximum ratings (Ta=25°C)

| Symbol           | Ratings      | Unit |
|------------------|--------------|------|
| V <sub>CB0</sub> | 500          | V    |
| V <sub>CEO</sub> | 400          | V    |
| V <sub>EB0</sub> | 10           | V    |
| I <sub>C</sub>   | 12(Pulse24)  | A    |
| I <sub>B</sub>   | 4            | A    |
| P <sub>C</sub>   | 100(Tc=25°C) | W    |
| T <sub>j</sub>   | 150          | °C   |
| T <sub>stg</sub> | -55 to +150  | °C   |

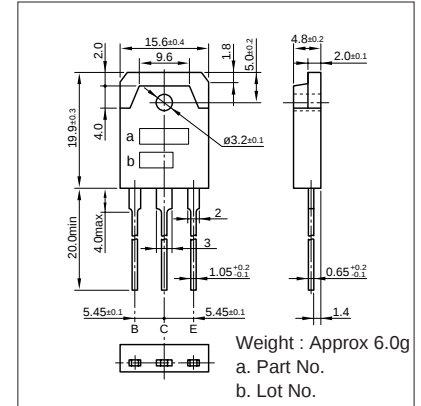
## Electrical Characteristics (Ta=25°C)

| Symbol               | Conditions                                | Ratings  | Unit |
|----------------------|-------------------------------------------|----------|------|
| I <sub>CBO</sub>     | V <sub>CB</sub> =500V                     | 100max   | μA   |
| I <sub>EBO</sub>     | V <sub>EB</sub> =10V                      | 100max   | μA   |
| V <sub>(BR)CEO</sub> | I <sub>C</sub> =25mA                      | 400min   | V    |
| h <sub>FE</sub>      | V <sub>CE</sub> =4V, I <sub>C</sub> =7A   | 10 to 30 |      |
| V <sub>CE(sat)</sub> | I <sub>C</sub> =7A, I <sub>B</sub> =1.4A  | 0.5max   | V    |
| V <sub>BE(sat)</sub> | I <sub>C</sub> =7A, I <sub>B</sub> =1.4A  | 1.3max   | V    |
| f <sub>r</sub>       | V <sub>CE</sub> =12V, I <sub>E</sub> =-1A | 10typ    | MHz  |
| COB                  | V <sub>CB</sub> =10V, f=1MHz              | 105typ   | pF   |

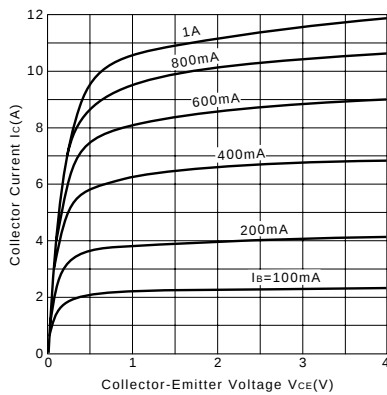
## Typical Switching Characteristics (Common Emitter)

| V <sub>CC</sub><br>(V) | R <sub>L</sub><br>(Ω) | I <sub>C</sub><br>(A) | V <sub>BB1</sub><br>(V) | V <sub>BB2</sub><br>(V) | I <sub>B1</sub><br>(A) | I <sub>B2</sub><br>(A) | t <sub>on</sub><br>(μs) | t <sub>stg</sub><br>(μs) | t <sub>f</sub><br>(μs) |
|------------------------|-----------------------|-----------------------|-------------------------|-------------------------|------------------------|------------------------|-------------------------|--------------------------|------------------------|
| 200                    | 28.5                  | 7                     | 10                      | -5                      | 0.7                    | -1.4                   | 1.0max                  | 3.0max                   | 0.5max                 |

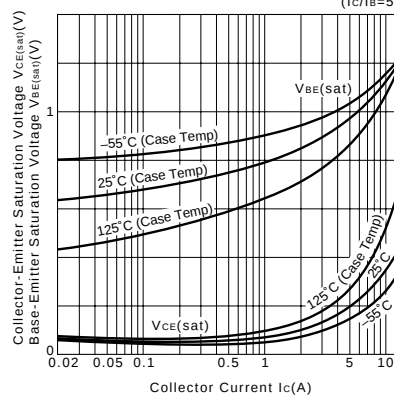
## External Dimensions MT-100(TO3P)



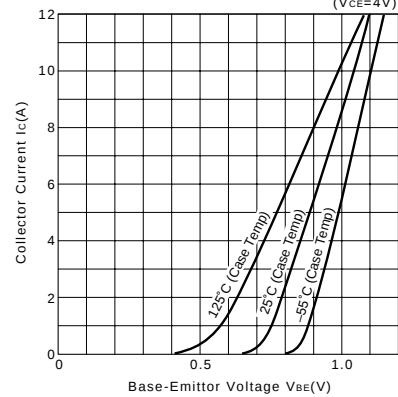
I<sub>C</sub>-V<sub>CE</sub> Characteristics (Typical)



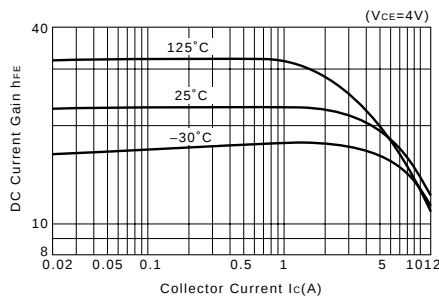
V<sub>CE(sat)</sub>, V<sub>BE(sat)</sub>-I<sub>C</sub> Temperature Characteristics (Typical)



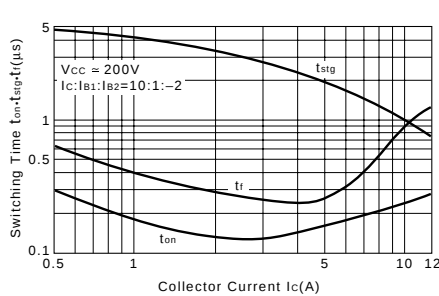
I<sub>C</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)



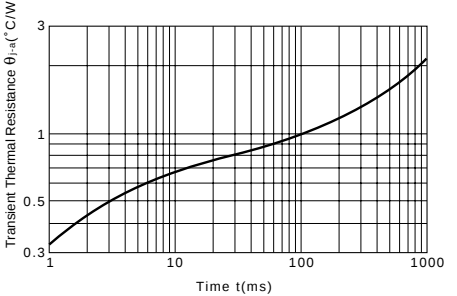
h<sub>FE</sub>-I<sub>C</sub> Characteristics (Typical)



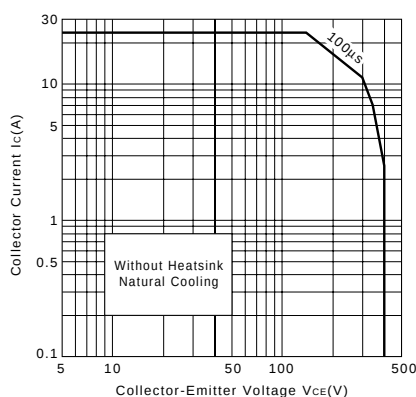
t<sub>on</sub>•t<sub>stg</sub>•t<sub>r</sub>-I<sub>C</sub> Characteristics (Typical)



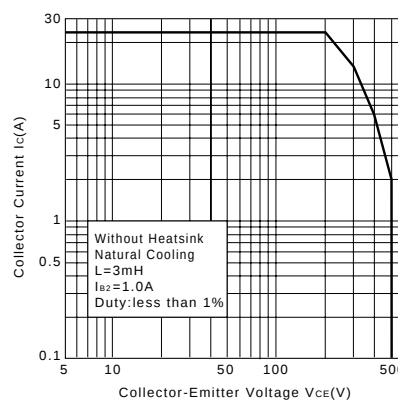
θ<sub>J-a</sub>-t Characteristics



Safe Operating Area (Single Pulse)



Reverse Bias Safe Operating Area



P<sub>C</sub>-T<sub>a</sub> Derating

