

# 2SC4301

Silicon NPN Triple Diffused Planar Transistor (High Voltage Switching Transistor) Application : Switching Regulator, Lighting Inverter and General Purpose

## Absolute maximum ratings (Ta=25°C)

| Symbol           | Ratings     | Unit |
|------------------|-------------|------|
| V <sub>CB0</sub> | 900         | V    |
| V <sub>CEO</sub> | 800         | V    |
| V <sub>EBO</sub> | 7           | 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   |

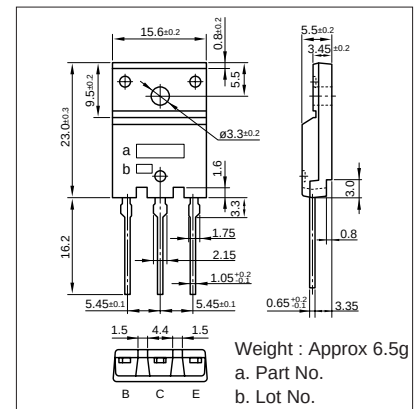
## Electrical Characteristics (Ta=25°C)

| Symbol               | Conditions                                | Ratings | Unit |
|----------------------|-------------------------------------------|---------|------|
| I <sub>CBO</sub>     | V <sub>CB</sub> =800V                     | 100max  | μA   |
| I <sub>EBO</sub>     | V <sub>EB</sub> =7V                       | 100max  | μA   |
| V <sub>(BR)CEO</sub> | I <sub>C</sub> =10mA                      | 800min  | V    |
| h <sub>FE</sub>      | V <sub>CE</sub> =4V, I <sub>C</sub> =3A   | 10to30  |      |
| V <sub>CE(sat)</sub> | I <sub>C</sub> =3A, I <sub>B</sub> =0.6A  | 0.5max  | V    |
| V <sub>BE(sat)</sub> | I <sub>C</sub> =3A, I <sub>B</sub> =0.6A  | 1.2max  | V    |
| f <sub>r</sub>       | V <sub>CE</sub> =12V, I <sub>E</sub> =-1A | 6typ    | MHz  |
| C <sub>OB</sub>      | V <sub>CB</sub> =10V, f=1MHz              | 105typ  | pF   |

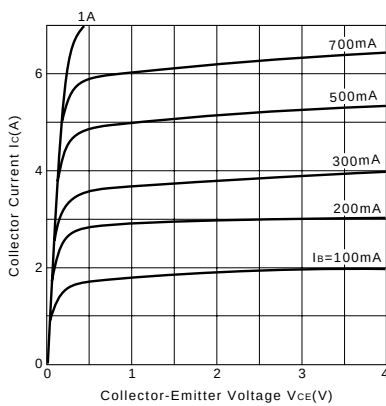
## Typical Switching Characteristics (Common Emitter)

| 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) |
|------------------------|-----------------------|-----------------------|-------------------------|-------------------------|------------------------|------------------------|-------------------------|--------------------------|------------------------|
| 250                    | 83                    | 3                     | 10                      | -5                      | 0.45                   | -1.5                   | 1max                    | 5max                     | 1max                   |

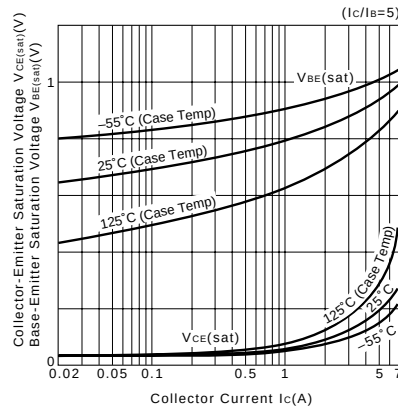
## External Dimensions FM100(TO3PF)



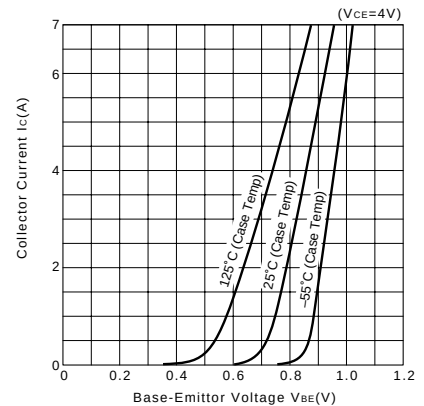
I<sub>C</sub>-V<sub>CE</sub> Characteristics (Typical)



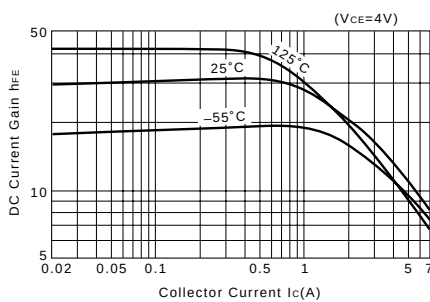
V<sub>CE(sat)</sub>, V<sub>BE(sat)</sub>-I<sub>C</sub> Temperature Characteristics (Typical)



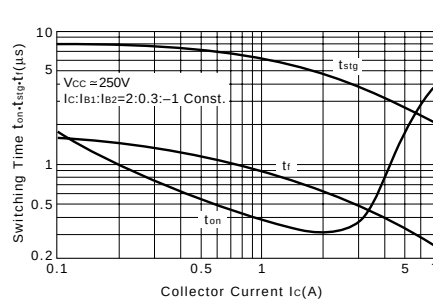
I<sub>C</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)



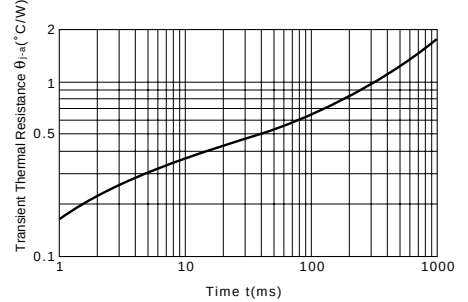
h<sub>FE</sub>-I<sub>C</sub> Characteristics (Typical)



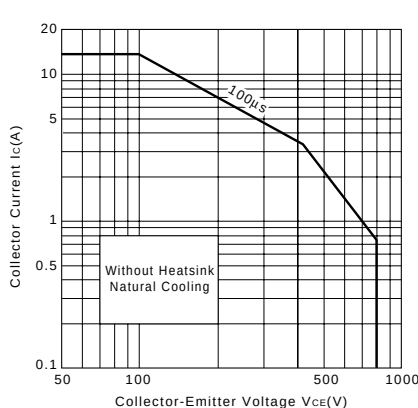
t<sub>on</sub>•t<sub>stg</sub>•t<sub>r</sub>-I<sub>C</sub> Characteristics (Typical)



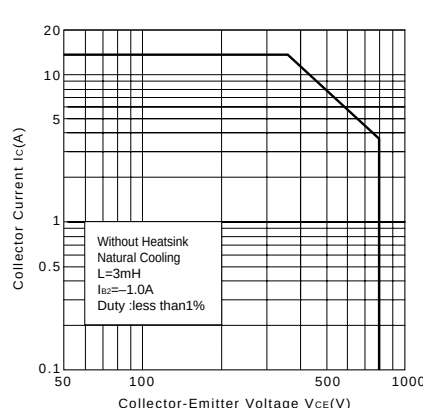
θ<sub>J-a</sub>-t Characteristics



Safe Operating Area (Single Pulse)



Reverse Bias Safe Operating Area



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

