

# 2SC5101

Silicon NPN Triple Diffused Planar Transistor (Complement to type 2SA1909)

Application : Audio and General Purpose

## Absolute maximum ratings (Ta=25°C)

| Symbol           | 2SC5101                  | Unit |
|------------------|--------------------------|------|
| V <sub>CB0</sub> | 200                      | V    |
| V <sub>CE0</sub> | 140                      | V    |
| V <sub>EB0</sub> | 6                        | V    |
| I <sub>C</sub>   | 10                       | A    |
| I <sub>B</sub>   | 4                        | A    |
| P <sub>C</sub>   | 80(T <sub>C</sub> =25°C) | W    |
| T <sub>j</sub>   | 150                      | °C   |
| T <sub>stg</sub> | -55 to +150              | °C   |

## Electrical Characteristics (Ta=25°C)

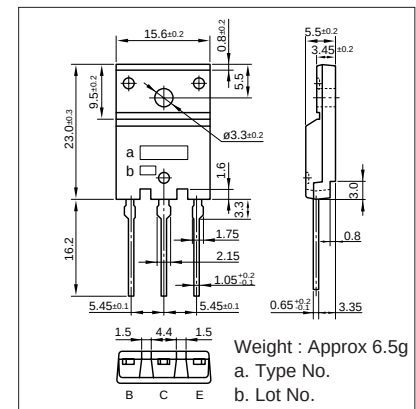
| Symbol               | Conditions                                  | 2SC5101 | Unit |
|----------------------|---------------------------------------------|---------|------|
| I <sub>CB0</sub>     | V <sub>CB</sub> =200V                       | 10max   | μA   |
| I <sub>EB0</sub>     | V <sub>EB</sub> =6V                         | 10max   | μA   |
| V <sub>(BR)CEO</sub> | I <sub>C</sub> =50mA                        | 140min  | V    |
| h <sub>FE</sub>      | V <sub>CE</sub> =4V, I <sub>C</sub> =3A     | 50min*  |      |
| V <sub>CE(sat)</sub> | I <sub>C</sub> =5A, I <sub>B</sub> =0.5A    | 0.5max  | V    |
| f <sub>T</sub>       | V <sub>CE</sub> =12V, I <sub>E</sub> =-0.5A | 20typ   | MHz  |
| COB                  | V <sub>CB</sub> =10V, f=1MHz                | 250typ  | pF   |

\*h<sub>FE</sub> Rank  $\bar{O}$ (50 to 100), P(70 to 140), Y(90 to 180)

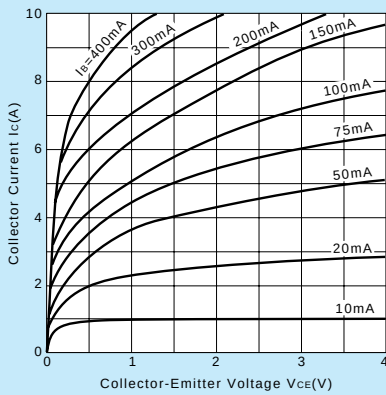
## Typical Switching Characteristics (Common Emitter)

| 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) |
|------------------------|-----------------------|-----------------------|-------------------------|-------------------------|------------------------|------------------------|-------------------------|--------------------------|------------------------|
| 60                     | 12                    | 5                     | 10                      | -5                      | 0.5                    | -0.5                   | 0.24typ                 | 4.32typ                  | 0.40typ                |

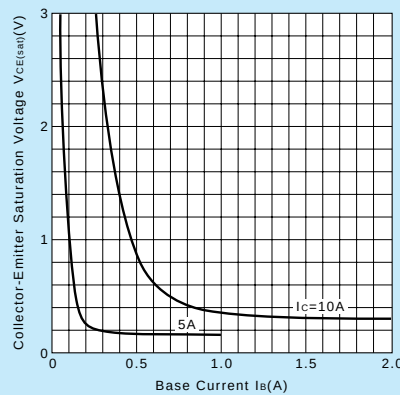
## External Dimensions FM100(TO3PF)



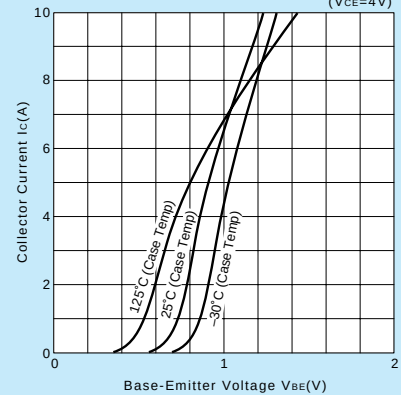
I<sub>C</sub>-V<sub>CE</sub> Characteristics (Typical)



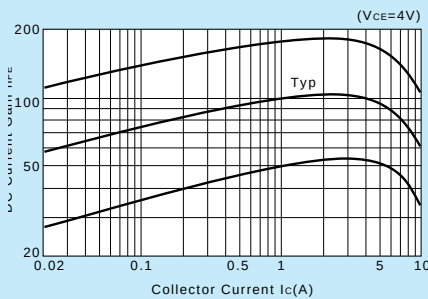
V<sub>CE(sat)</sub>-I<sub>B</sub> Characteristics (Typical)



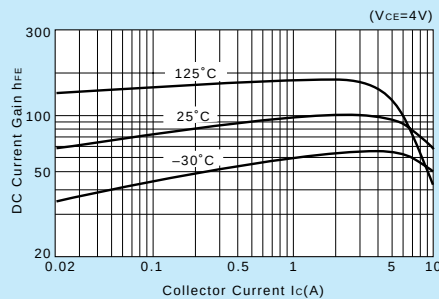
I<sub>C</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)



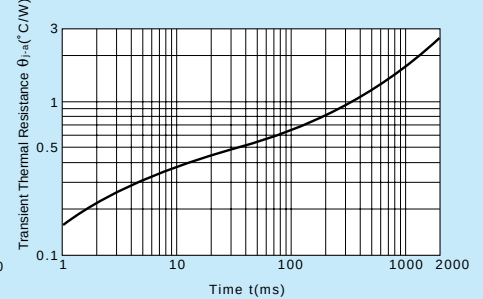
h<sub>FE</sub>-I<sub>C</sub> Characteristics (Typical)



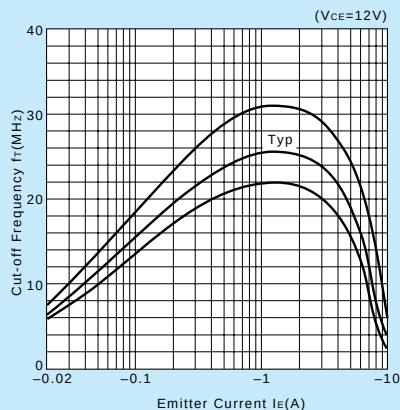
h<sub>FE</sub>-I<sub>C</sub> Temperature Characteristics (Typical)



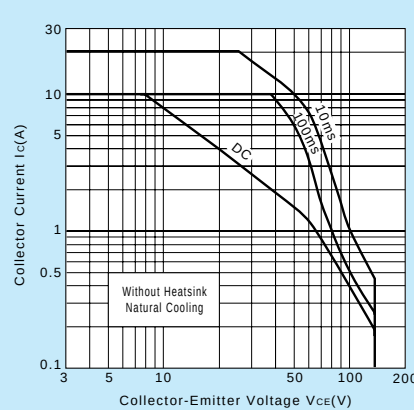
θ<sub>j-a</sub>-t Characteristics



f<sub>T</sub>-I<sub>E</sub> Characteristics (Typical)



Safe Operating Area (Single Pulse)



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

