

# 2SC3851/3851A

Silicon NPN Epitaxial Planar Transistor (Complement to type 2SA1488/A)

Application : Audio and PPC High Voltage Power Supply, and General Purpose

■ Absolute maximum ratings (Ta=25°C)

| Symbol           | 2SC3851                   | 2SC3851A | Unit |
|------------------|---------------------------|----------|------|
| V <sub>CB0</sub> | 80                        | 100      | V    |
| V <sub>CEO</sub> | 60                        | 80       | V    |
| V <sub>EB0</sub> | 6                         |          | V    |
| I <sub>C</sub>   | 4                         |          | A    |
| I <sub>B</sub>   | 1                         |          | A    |
| P <sub>C</sub>   | 25 (T <sub>C</sub> =25°C) |          | W    |
| T <sub>j</sub>   | 150                       |          | °C   |
| T <sub>stg</sub> | -55 to +150               |          | °C   |

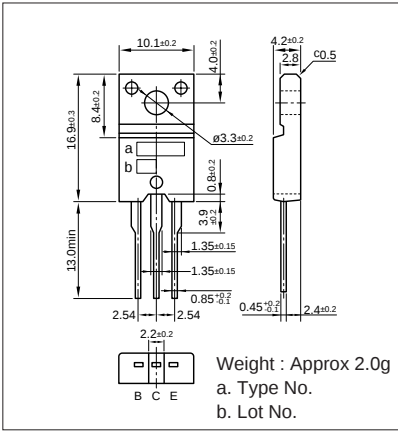
■ Electrical Characteristics (Ta=25°C)

| Symbol               | Conditions                                  | 2SC3851   | 2SC3851A | Unit |
|----------------------|---------------------------------------------|-----------|----------|------|
| I <sub>CB0</sub>     | V <sub>CB</sub> =                           | 100max    |          | μA   |
| I <sub>EB0</sub>     | V <sub>EB</sub> =6V                         | 100max    |          | μA   |
| V <sub>(BR)CEO</sub> | I <sub>C</sub> =25mA                        | 60min     | 80min    | V    |
| h <sub>FE</sub>      | V <sub>CE</sub> =4V, I <sub>C</sub> =1A     | 40 to 320 |          |      |
| V <sub>CE(sat)</sub> | I <sub>C</sub> =2A, I <sub>B</sub> =0.2A    | 0.5max    |          | V    |
| f <sub>T</sub>       | V <sub>CE</sub> =12V, I <sub>E</sub> =-0.2A | 15typ     |          | MHz  |
| COB                  | V <sub>CB</sub> =10V, f=1MHz                | 60typ     |          | pF   |

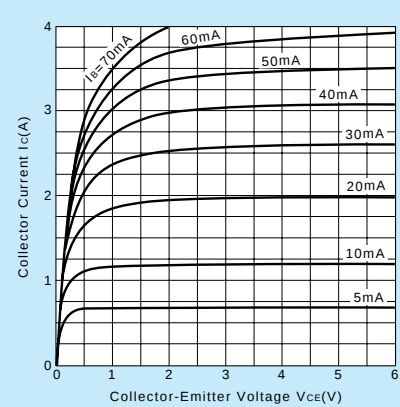
■ Typical Switching Characteristics (Common Emitter)

| 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> (mA) | I <sub>B2</sub> (mA) | t <sub>on</sub> (μs) | t <sub>stg</sub> (μs) | t <sub>f</sub> (μs) |
|---------------------|--------------------|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|---------------------|
| 12                  | 6                  | 2                  | 10                   | -5                   | 200                  | -200                 | 0.2typ               | 1typ                  | 0.3typ              |

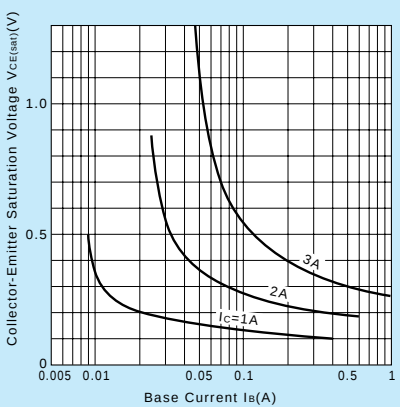
External Dimensions FM20(TO220F)



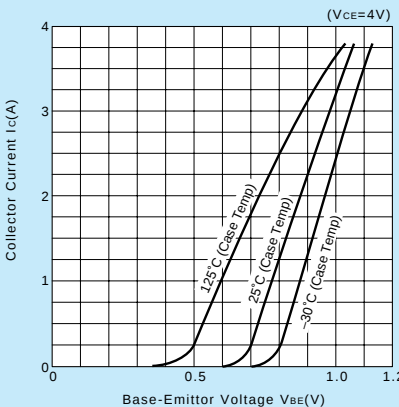
I<sub>C</sub>-V<sub>CE</sub> Characteristics (Typical)



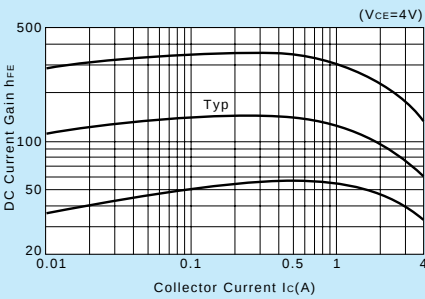
V<sub>CE(sat)</sub>-I<sub>B</sub> Characteristics (Typical)



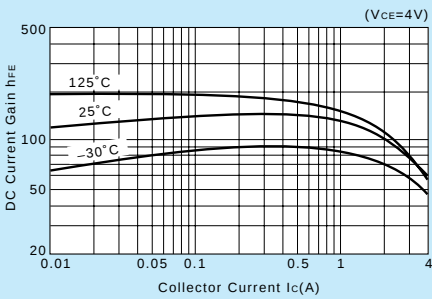
I<sub>C</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)



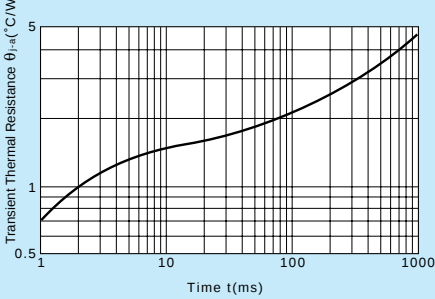
h<sub>FE</sub>-I<sub>C</sub> Characteristics (Typical)



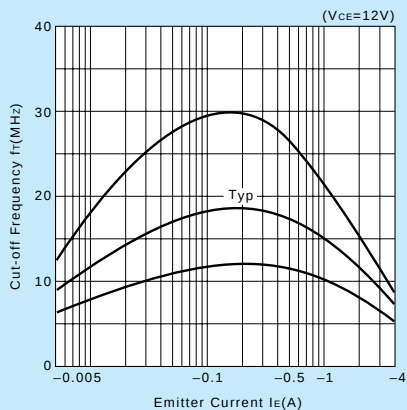
h<sub>FE</sub>-I<sub>C</sub> Temperature Characteristics (Typical)



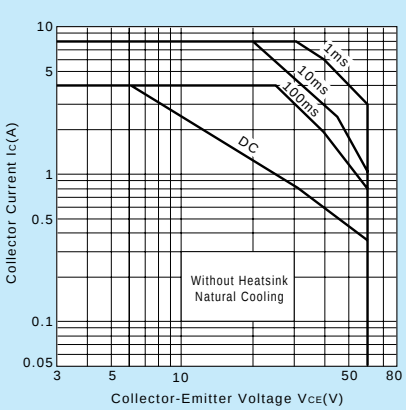
θ<sub>JA</sub>-t Characteristics



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



Safe Operating Area (Single Pulse)



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

