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# 2SA1909

Silicon PNP Epitaxial Planar Transistor (Complement to type 2SC5101)

Application : Audio and General Purpose

■ Absolute maximum ratings (Ta=25°C)

| Symbol           | Ratings                  | Unit |
|------------------|--------------------------|------|
| V <sub>CB0</sub> | -140                     | 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)

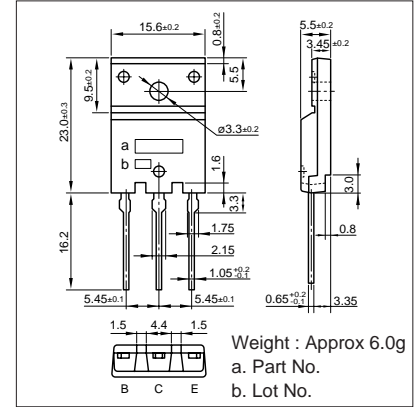
| Symbol               | Conditions                                  | Ratings | Unit |
|----------------------|---|---------|------|
| I <sub>CB0</sub>     | V <sub>CB</sub> =-140V                      | -10max  | μA   |
| I <sub>EB0</sub>     | V <sub>EB</sub> =-6V                        | -10max  | 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  |
| C <sub>OB</sub>      | V <sub>CB</sub> =-10V, f=1MHz               | 400typ  | pF   |

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

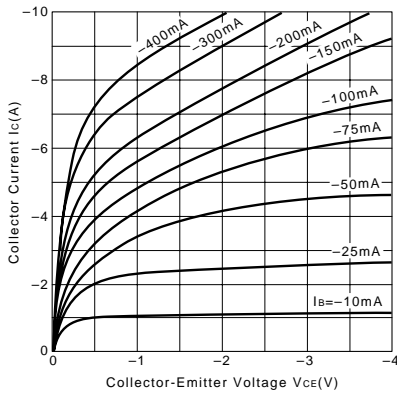
■ Typical Switching Characteristics (Common Emitter)

| 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>on</sub> (μs) | t <sub>stg</sub> (μs) | t <sub>f</sub> (μs) |
|---------------------|--------------------|--------------------|----------------------|----------------------|---------------------|---------------------|----------------------|-----------------------|---------------------|
| -60                 | 12                 | -5                 | -10                  | 5                    | -0.5                | 0.5                 | 0.17typ              | 1.86typ               | 0.27typ             |

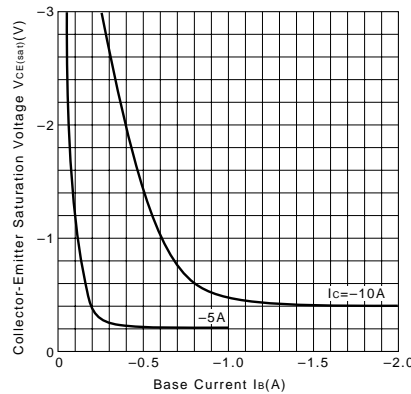
External Dimensions FM100(TO3PF)



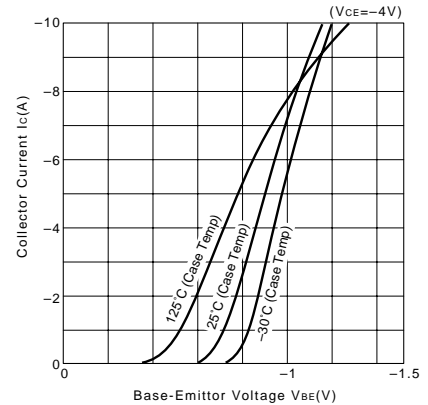
I<sub>C</sub>-V<sub>CE</sub> Characteristics (Typical)



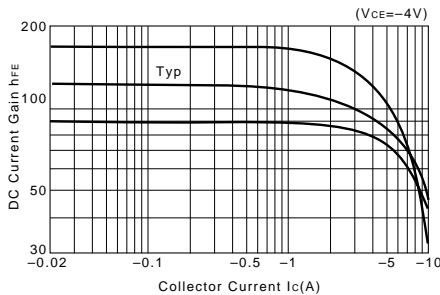
V<sub>CE(sat)</sub>-I<sub>B</sub> Characteristics (Typical)



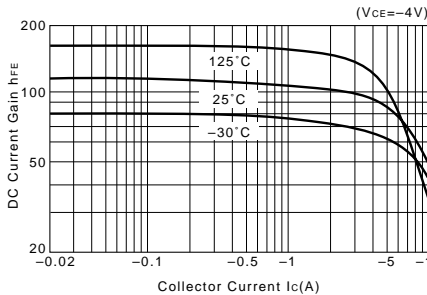
I<sub>C</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)



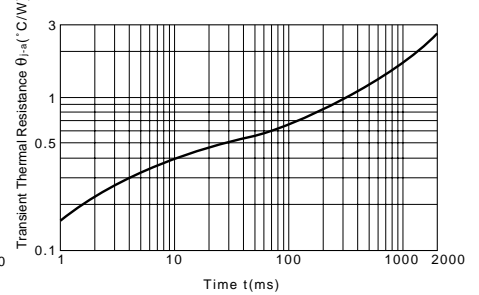
h<sub>FE</sub>-I<sub>C</sub> Characteristics (Typical)



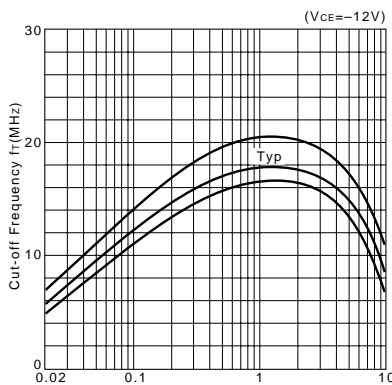
h<sub>FE</sub>-I<sub>C</sub> Temperature Characteristics (Typical)



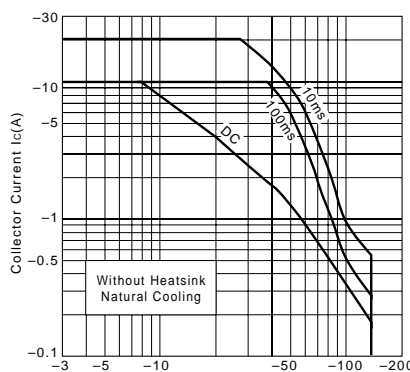
θ<sub>j-a</sub>-t Characteristics



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



Safe Operating Area (Single Pulse)



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

