

# 2SA1859/1859A

Silicon PNP Epitaxial Planar Transistor (Complement to type 2SC4883/A)

Application : Audio Output Driver and TV Velocity-modulation

■ Absolute maximum ratings (Ta=25°C)

| Symbol           | Ratings                  |          | Unit |
|------------------|--------------------------|----------|------|
|                  | 2SA1859                  | 2SA1859A |      |
| V <sub>CB0</sub> | -150                     | -180     | V    |
| V <sub>CE0</sub> | -150                     | -180     | V    |
| V <sub>EB0</sub> | -6                       |          | V    |
| I <sub>c</sub>   | -2                       |          | A    |
| I <sub>b</sub>   | -1                       |          | A    |
| P <sub>c</sub>   | 20(T <sub>c</sub> =25°C) |          | W    |
| T <sub>j</sub>   | 150                      |          | °C   |
| T <sub>stg</sub> | -55 to +150              |          | °C   |

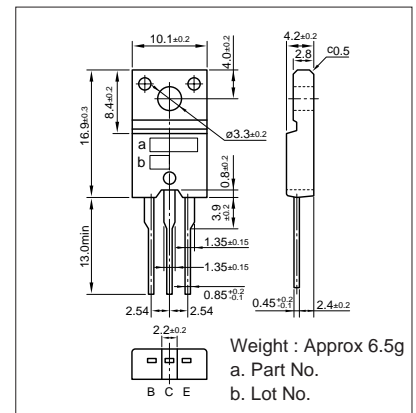
■ Electrical Characteristics (Ta=25°C)

| Symbol               | Conditions                                   | Ratings   |          | Unit |
|----------------------|--|-----------|----------|------|
|                      |  | 2SA1859   | 2SA1859A |      |
| I <sub>CB0</sub>     | V <sub>CB</sub> =                            | -10max    |          | μA   |
| I <sub>EB0</sub>     | V <sub>EB</sub> =-6V                         | -150      | -180     | V    |
| I <sub>EB0</sub>     |  | -10max    |          | μA   |
| V <sub>(BR)CEO</sub> | I <sub>c</sub> =-10mA                        | -150min   | -180min  | V    |
| h <sub>FE</sub>      | V <sub>CE</sub> =-10V, I <sub>c</sub> =-0.7A | 60 to 240 |          |      |
| V <sub>CE(sat)</sub> | I <sub>c</sub> =-0.7A, I <sub>b</sub> =-70mA | -1.0max   |          | V    |
| f <sub>r</sub>       | V <sub>CE</sub> =-12V, I <sub>e</sub> =0.7A  | 60typ     |          | MHz  |
| COB                  | V <sub>CB</sub> =-10V, f=1MHz                | 30typ     |          | pF   |

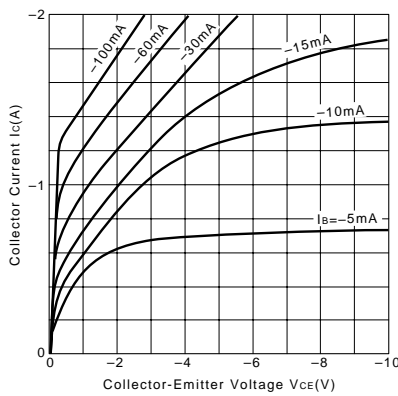
■ Typical Switching Characteristics (Common Emitter)

| 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) |
|---------------------|--------------------|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|---------------------|
| -20                 | 20                 | -1                 | -10                  | 5                    | -100                 | 100                  | 0.5typ               | 1.0typ                | 0.5typ              |

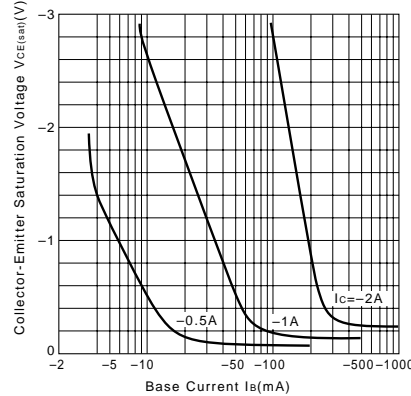
External Dimensions FM20(TO220F)



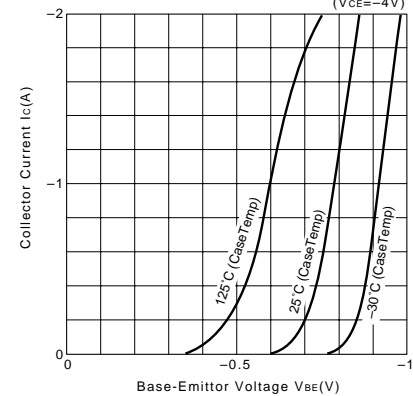
I<sub>c</sub>-V<sub>CE</sub> Characteristics (Typical)



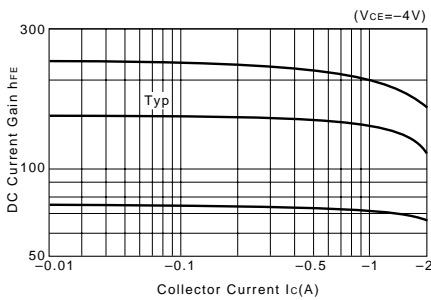
V<sub>CE(sat)</sub>-I<sub>b</sub> Characteristics (Typical)



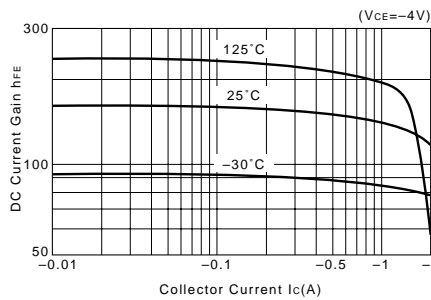
I<sub>c</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)



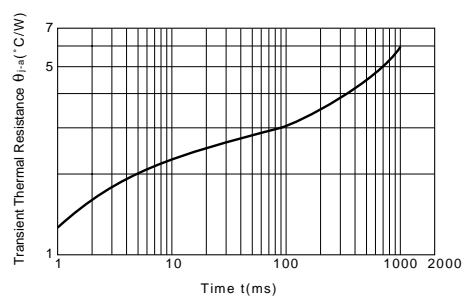
h<sub>FE</sub>-I<sub>c</sub> Characteristics (Typical)



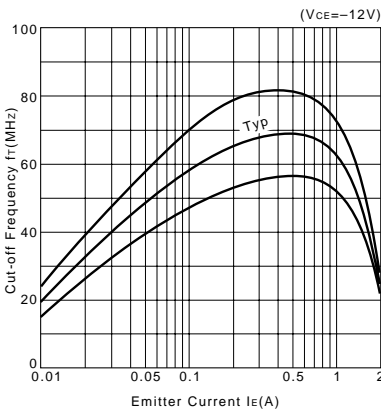
h<sub>FE</sub>-I<sub>c</sub> Temperature Characteristics (Typical)



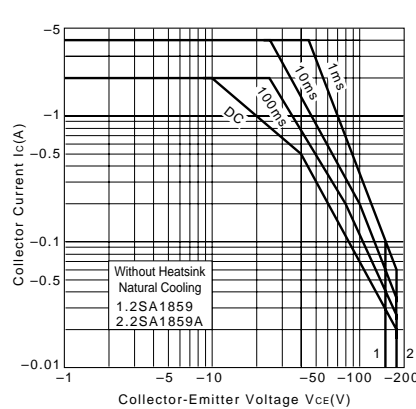
θ<sub>j-a</sub>-t Characteristics



f<sub>r</sub>-I<sub>e</sub> Characteristics (Typical)



Safe Operating Area (Single Pulse)



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

