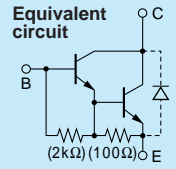


Darlington

# 2SD2082

Equivalent circuit



Silicon NPN Triple Diffused Planar Transistor (Complement to type 2SB1382)

Application : Driver for Solenoid, Motor and General Purpose

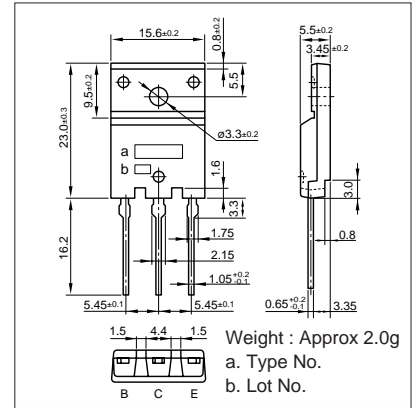
**Absolute maximum ratings** (Ta=25°C)

| Symbol           | 2SD2082                  | Unit |
|------------------|--------------------------|------|
| V <sub>CB0</sub> | 120                      | V    |
| V <sub>CE0</sub> | 120                      | V    |
| V <sub>EB0</sub> | 6                        | V    |
| I <sub>C</sub>   | 16(Pulse26)              | A    |
| I <sub>B</sub>   | 1                        | A    |
| P <sub>C</sub>   | 75(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                                | 2SD2082 | Unit |
|----------------------|---|---------|------|
| I <sub>CB0</sub>     | V <sub>CB</sub> =120V                     | 10max   | μA   |
| I <sub>EB0</sub>     | V <sub>EB</sub> =6V                       | 10max   | mA   |
| V <sub>(BR)CEO</sub> | I <sub>C</sub> =10mA                      | 120min  | V    |
| h <sub>FE</sub>      | V <sub>CE</sub> =4V, I <sub>C</sub> =8A   | 2000min |      |
| V <sub>CE(sat)</sub> | I <sub>C</sub> =8A, I <sub>B</sub> =16mA  | 1.5max  | V    |
| V <sub>BE(sat)</sub> | I <sub>C</sub> =8A, I <sub>B</sub> =16mA  | 2.5max  | V    |
| f <sub>T</sub>       | V <sub>CE</sub> =12V, I <sub>E</sub> =-1A | 20typ   | MHZ  |
| C <sub>OB</sub>      | V <sub>CB</sub> =10V, f=1MHZ              | 210typ  | pF   |

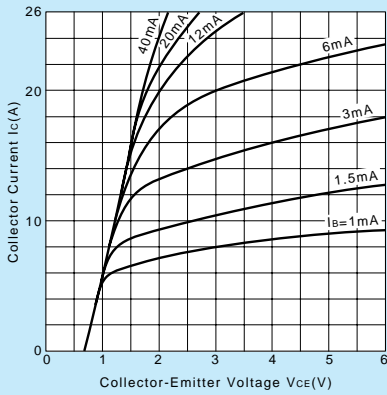
**External Dimensions FM100(TO3PF)**



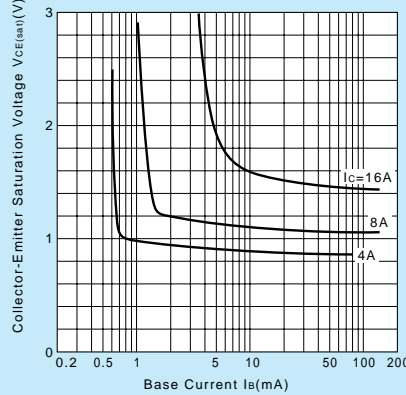
**Typical Switching Characteristics (Common Emitter)**

| 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) |
|---------------------|--------------------|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|---------------------|
| 40                  | 5                  | 8                  | 10                   | -5                   | 16                   | -16                  | 0.6typ               | 7.0typ                | 1.5typ              |

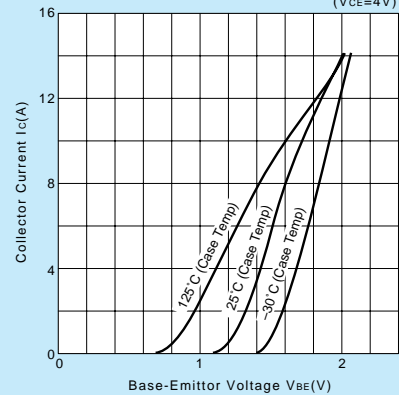
**I<sub>C</sub>-V<sub>CE</sub> Characteristics (Typical)**



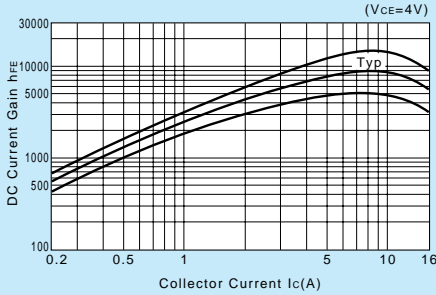
**V<sub>CE(sat)</sub>-I<sub>B</sub> Characteristics (Typical)**



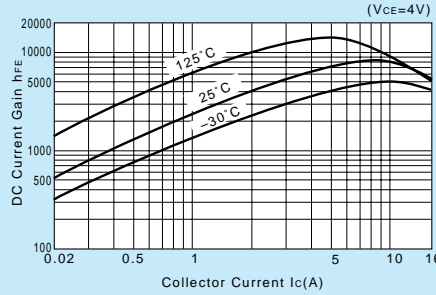
**I<sub>C</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)**



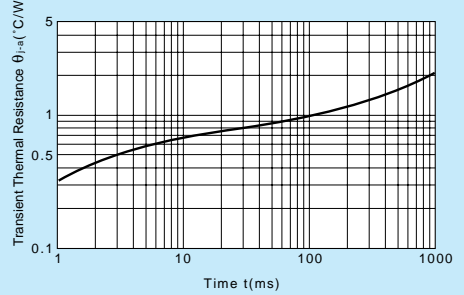
**h<sub>FE</sub>-I<sub>C</sub> Characteristics (Typical)**



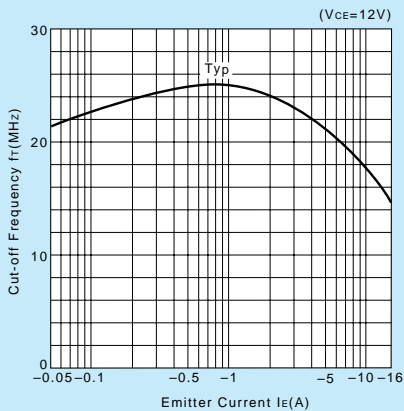
**h<sub>FE</sub>-I<sub>C</sub> Temperature Characteristics (Typical)**



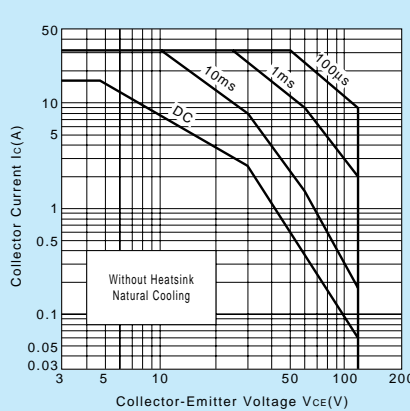
**θ<sub>j-a</sub>-t Characteristics**



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



**Safe Operating Area (Single Pulse)**



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

