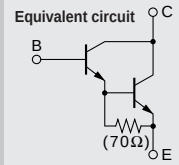


Darlington

# 2SD2642



Silicon NPN Triple Diffused Planar Transistor (Complement to type 2SB1687)

Application : Audio, Series Regulator and General Purpose

## Absolute maximum ratings (Ta=25°C)

| Symbol           | Ratings                  | Unit |
|------------------|--------------------------|------|
| V <sub>CB0</sub> | 110                      | V    |
| V <sub>CE0</sub> | 110                      | V    |
| V <sub>EB0</sub> | 5                        | V    |
| I <sub>c</sub>   | 6                        | A    |
| I <sub>B</sub>   | 1                        | A    |
| P <sub>c</sub>   | 30(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)

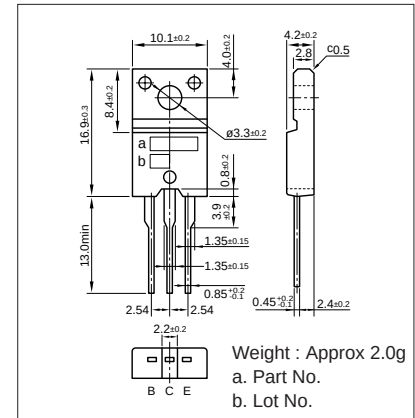
| Symbol               | Conditions                                  | Ratings  | Unit |
|----------------------|---------------------------------------------|----------|------|
| I <sub>CB0</sub>     | V <sub>CB</sub> =110V                       | 100max   | μA   |
| I <sub>EB0</sub>     | V <sub>EB</sub> =5V                         | 100max   | μA   |
| V <sub>(BR)CEO</sub> | I <sub>c</sub> =30mA                        | 110min   | V    |
| h <sub>FE</sub>      | V <sub>CE</sub> =4V, I <sub>c</sub> =5A     | 5000min* |      |
| V <sub>CE(sat)</sub> | I <sub>c</sub> =5A, I <sub>B</sub> =5mA     | 2.5max   | V    |
| V <sub>BE(sat)</sub> | I <sub>c</sub> =5A, I <sub>B</sub> =5mA     | 3.0max   | V    |
| f <sub>T</sub>       | V <sub>CE</sub> =12V, I <sub>E</sub> =-0.5A | 60typ    | MHz  |
| C <sub>OB</sub>      | V <sub>CB</sub> =10V, f=1MHz                | 55typ    | pF   |

\*h<sub>FE</sub> Rank  $\bar{O}$ (5000 to 12000), P(6500 to 20000), Y(15000 to 30000)

## Typical Switching Characteristics (Common Emitter)

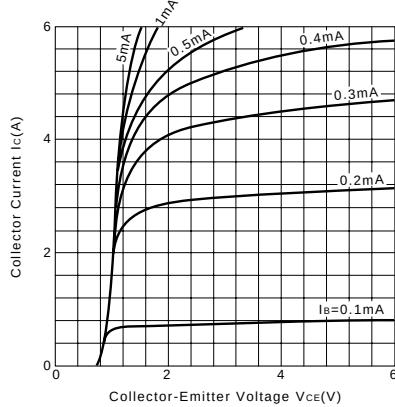
| V <sub>CC</sub><br>(V) | R <sub>L</sub><br>(Ω) | I <sub>c</sub><br>(A) | V <sub>BB1</sub><br>(V) | V <sub>BB2</sub><br>(V) | I <sub>B1</sub><br>(mA) | I <sub>B2</sub><br>(mA) | t <sub>on</sub><br>(μs) | t <sub>stg</sub><br>(μs) | t <sub>f</sub><br>(μs) |
|------------------------|-----------------------|-----------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|--------------------------|------------------------|
| 30                     | 6                     | 5                     | 10                      | -5                      | 5                       | -5                      | 0.8typ                  | 6.2typ                   | 1.1typ                 |

## External Dimensions FM20(TO220F)

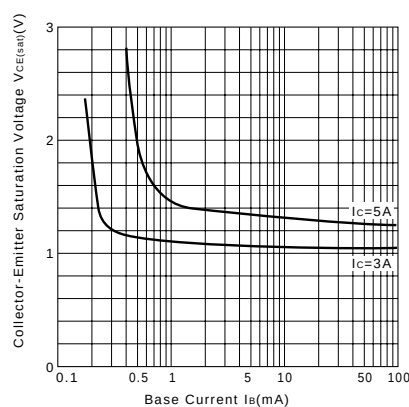


Weight : Approx 2.0g  
a. Part No.  
b. Lot No.

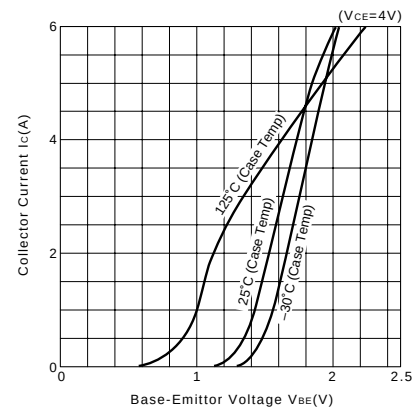
I<sub>c</sub>-V<sub>CE</sub> Characteristics (Typical)



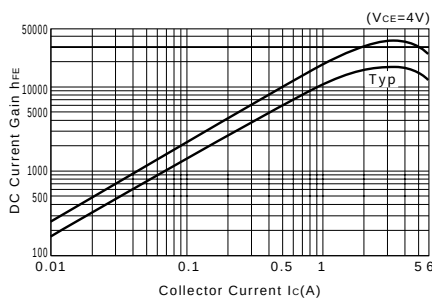
V<sub>CE(sat)</sub>-I<sub>B</sub> Characteristics (Typical)



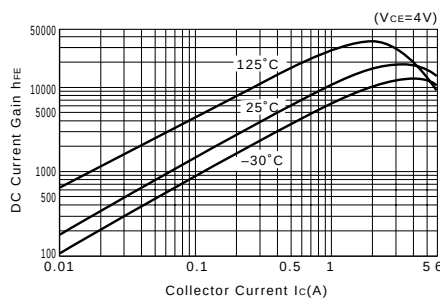
I<sub>c</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)



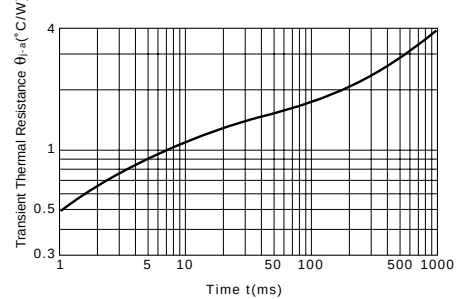
h<sub>FE</sub>-I<sub>c</sub> Characteristics (Typical)



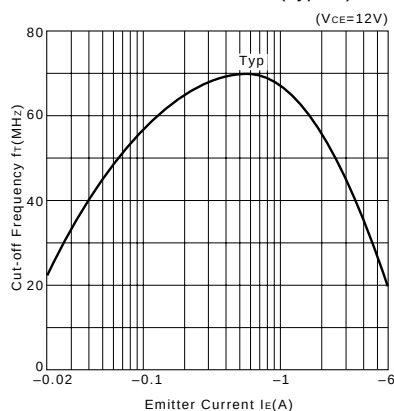
h<sub>FE</sub>-I<sub>c</sub> Temperature Characteristics (Typical)



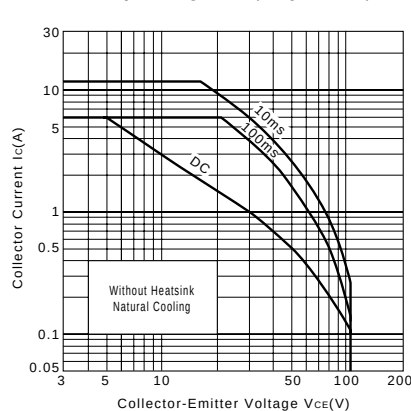
θ<sub>J-a</sub>-t Characteristics



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



Safe Operating Area (Single Pulse)



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

