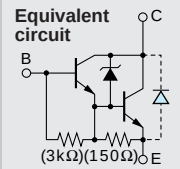


# 2SD1796



### Silicon NPN Triple Diffused Planar Transistor

**Application :** Driver for Solenoid, Relay and Motor and General Purpose

■ Absolute maximum ratings (Ta=25°C)

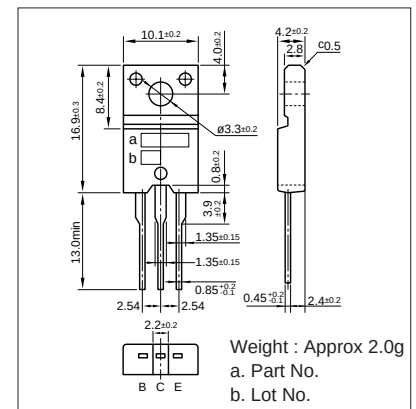
| Symbol | Ratings     | Unit |
|--------|-------------|------|
| VCBO   | 60±10       | V    |
| VCEO   | 60±10       | V    |
| VEBO   | 6           | V    |
| IC     | 4           | A    |
| IB     | 0.5         | A    |
| PC     | 25(Tc=25°C) | W    |
| Tj     | 150         | °C   |
| Tstg   | -55 to +150 | °C   |

## ■Electrical Characteristics

( $T_a=25^{\circ}\text{C}$ )

| Symbol               | Conditions                                  | Ratings | Unit |
|----------------------|---------------------------------------------|---------|------|
| ICBO                 | V <sub>CB</sub> =50V                        | 10max   | μA   |
| IEBO                 | V <sub>EB</sub> =6V                         | 10max   | mA   |
| V <sub>(BR)CEO</sub> | I <sub>C</sub> =10mA                        | 60±10   | V    |
| h <sub>FE</sub>      | V <sub>CE</sub> =4V, I <sub>C</sub> =3A     | 2000min |      |
| V <sub>CE(sat)</sub> | I <sub>C</sub> =3A, I <sub>B</sub> =10mA    | 1.5max  | V    |
| f <sub>T</sub>       | V <sub>CE</sub> =12V, I <sub>E</sub> =-0.2A | 60typ   | MHz  |
| C <sub>OB</sub>      | V <sub>CB</sub> =10V, f=1MHz                | 45 typ  | pF   |

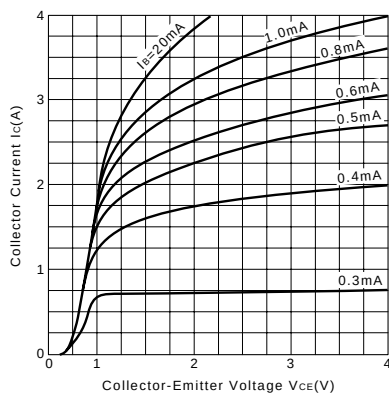
### External Dimensions FM20(TO220F)



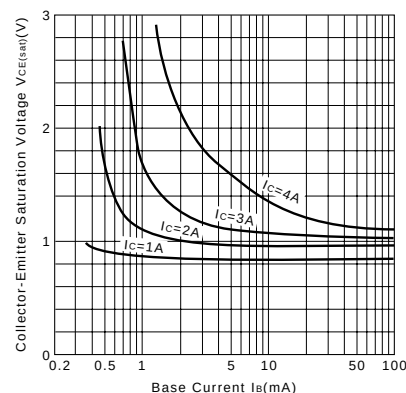
### ■ Typical Switching Characteristics (Common Emitter)

| VCC<br>(V) | RL<br>(Ω) | IC<br>(A) | VBB1<br>(V) | VBB2<br>(V) | IB1<br>(mA) | IB2<br>(mA) | ton<br>(μs) | tstg<br>(μs) | tf<br>(μs) |
|------------|-----------|-----------|-------------|-------------|-------------|-------------|-------------|--------------|------------|
| 30         | 10        | 3         | 10          | -5          | 10          | -10         | 1.0typ      | 4.0typ       | 1.5typ     |

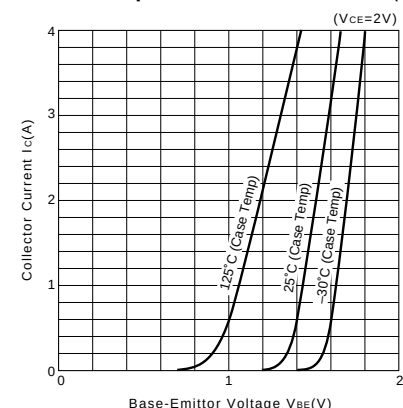
### **I<sub>C</sub>-V<sub>CE</sub> Characteristics (Typical)**



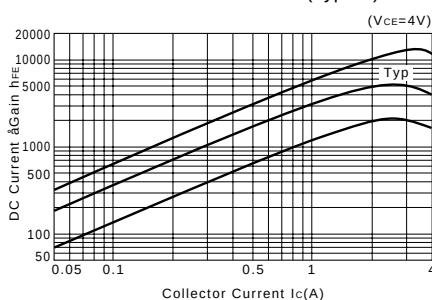
### V<sub>CE(sat)</sub>-I<sub>B</sub> Characteristics (Typical)



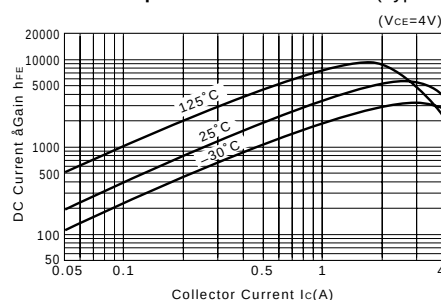
### **I<sub>C</sub>-V<sub>BE</sub> Temperature Characteristics (Typical)**



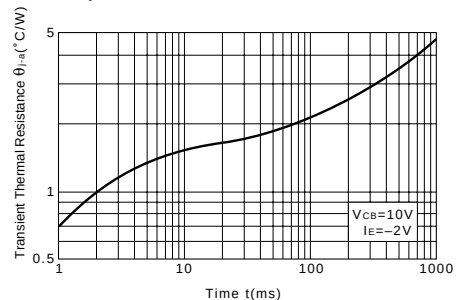
### **$h_{FE}-I_C$ Characteristics (Typical)**



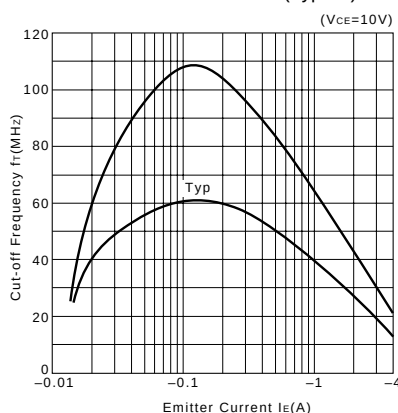
### **$h_{FE}-I_C$ Temperature Characteristics (Typical)**



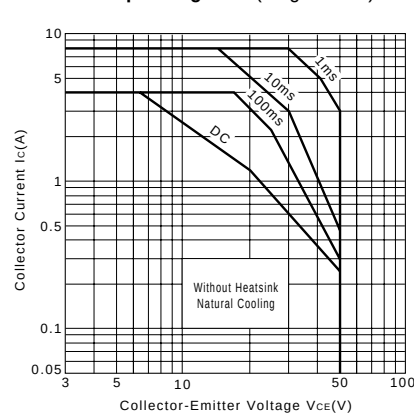
### $\theta_{j-a-t}$ Characteristics



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



### Safe Operating Area (Single Pulse)



### Pc-Ta Derating

