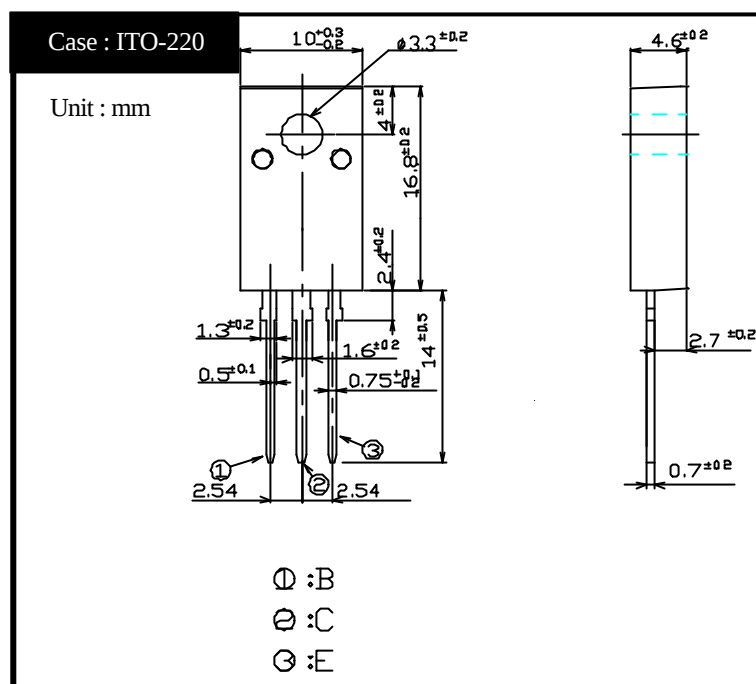


## Darlington Transistor

**2SB1283**  
(TP7J10)

- 7 A PNP

### OUTLINE DIMENSIONS



### RATINGS

#### • Absolute Maximum Ratings

| Item                         | Symbol           | Conditions                     | Ratings    | Unit |
|------------------------------|------------------|--------------------------------|------------|------|
| Storage Temperature          | T <sub>stg</sub> |                                | -55 ~ +150 |      |
| Junction Temperature         | T <sub>j</sub>   |                                | +150       |      |
| Collector to Base Voltage    | V <sub>CBO</sub> |                                | -100       | V    |
| Collector to Emitter Voltage | V <sub>CEO</sub> |                                | -100       | V    |
| Emitter to Base Voltage      | V <sub>EBO</sub> |                                | -7         | V    |
| Collector Current DC         | I <sub>C</sub>   |                                | -7         | A    |
| Collector Current Peak       | I <sub>CP</sub>  |                                | -10        | A    |
| Base Current DC              | I <sub>B</sub>   |                                | -0.5       | A    |
| Base Current Peak            | I <sub>BP</sub>  |                                | -1         | A    |
| Total Transistor Dissipation | P <sub>T</sub>   | T <sub>c</sub> = 25            | 30         | W    |
| Dielectric Strength          | V <sub>dis</sub> | Terminals to case AC 1 minute  | 2          | kV   |
| Mounting Torque              | TOR              | (Recommended torque : 0.3N·m ) | 0.5        | N·m  |

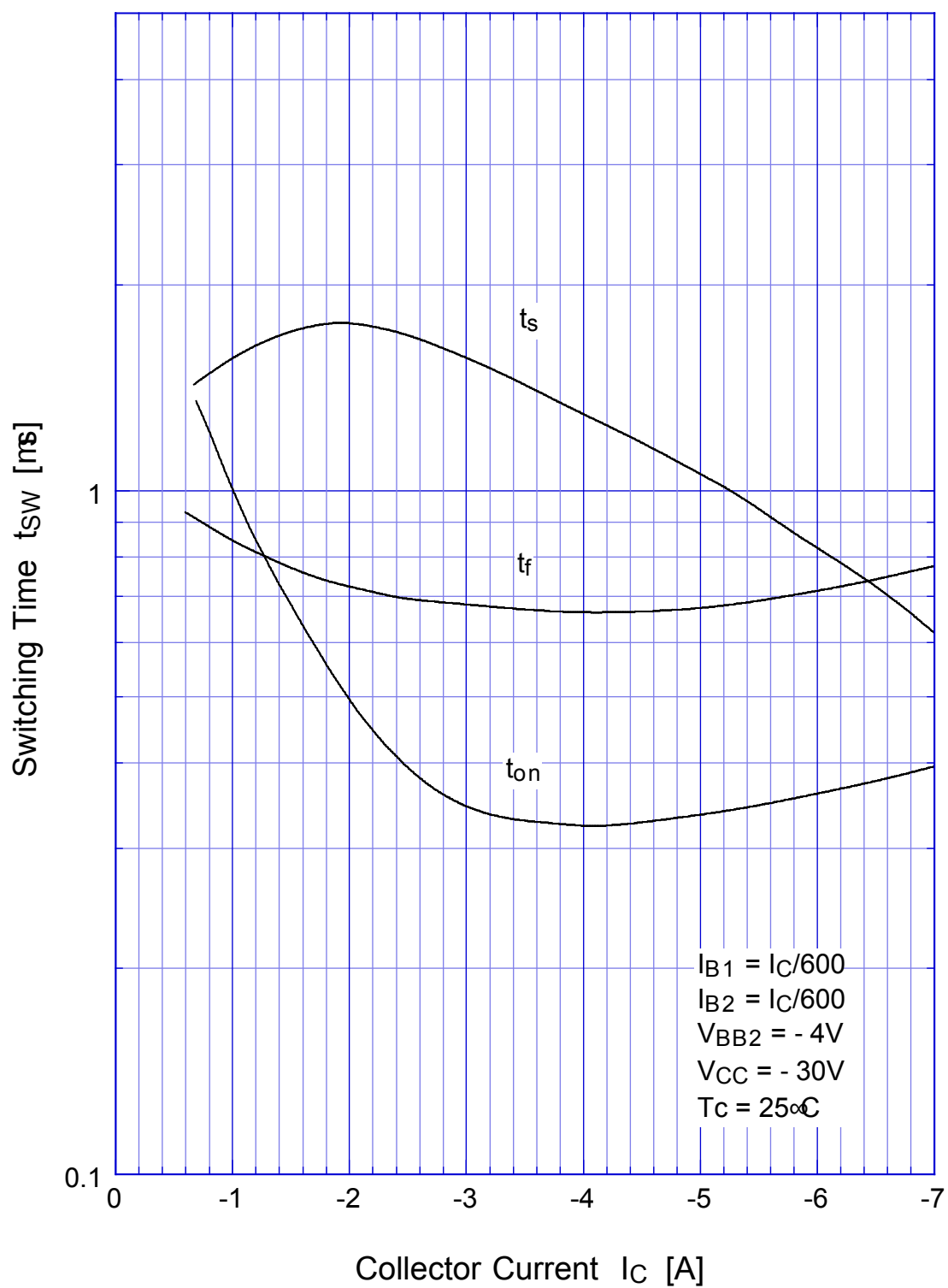
#### • Electrical Characteristics (T<sub>c</sub>=25 )

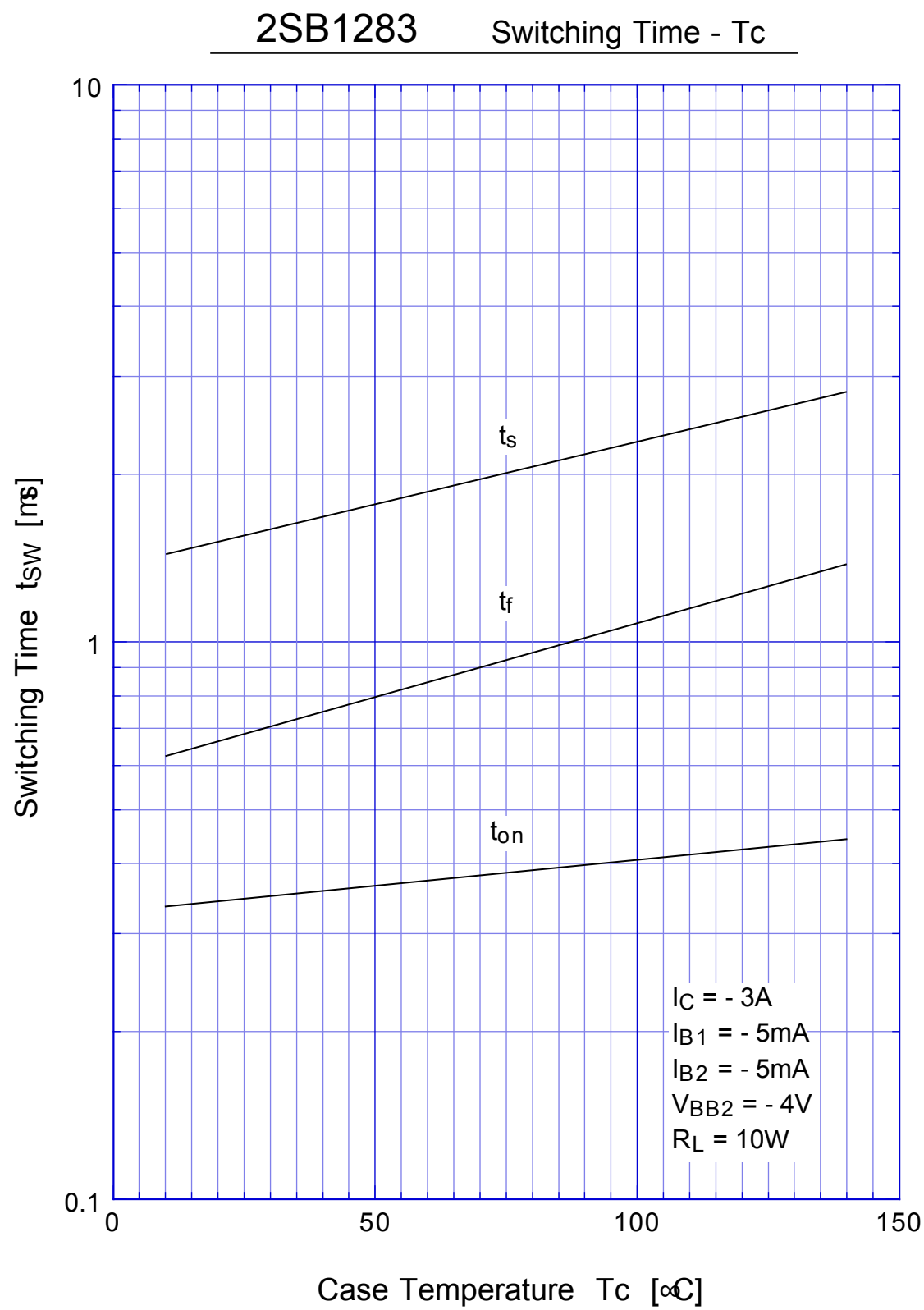
| Item                                    | Symbol               | Conditions                                                                                                         | Ratings    | Unit |
|-----------------------------------------|----------------------|--------------------------------------------------------------------------------------------------------------------|------------|------|
| Collector Cutoff Current                | I <sub>CBO</sub>     | V <sub>CB</sub> = -100V                                                                                            | Max -0.1   | mA   |
|                                         | I <sub>CEO</sub>     | V <sub>CE</sub> = -100V                                                                                            | Max -0.1   |      |
| Emitter Cutoff Current                  | I <sub>EBO</sub>     | V <sub>EB</sub> = -7V                                                                                              | Max -5     | mA   |
| DC Current Gain                         | h <sub>FE</sub>      | V <sub>CE</sub> = -3V, I <sub>C</sub> = -3A                                                                        | Min 1,500  |      |
|                                         |                      |                                                                                                                    | Max 15,000 |      |
| Collector to Emitter Saturation Voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> = -3A                                                                                               | Max -1.5   | V    |
| Base to Emitter Saturation Voltage      | V <sub>BE(sat)</sub> | I <sub>B</sub> = -5mA                                                                                              | Max -2.0   | V    |
| Thermal Resistance                      | θ <sub>jc</sub>      | Junction to case                                                                                                   | Max 4.16   | /W   |
| Transition Frequency                    | f <sub>T</sub>       | V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.7A                                                                       | TYP 20     | MHz  |
| Turn on Time                            | ton                  | I <sub>C</sub> = -3A<br>I <sub>B1</sub> = I <sub>B2</sub> = -5mA<br>R <sub>L</sub> = 10Ω<br>V <sub>BB2</sub> = -4V | Max 1      | μs   |
| Storage Time                            | ts                   |                                                                                                                    | Max 4      |      |
| Fall Time                               | tf                   |                                                                                                                    | Max 2      |      |



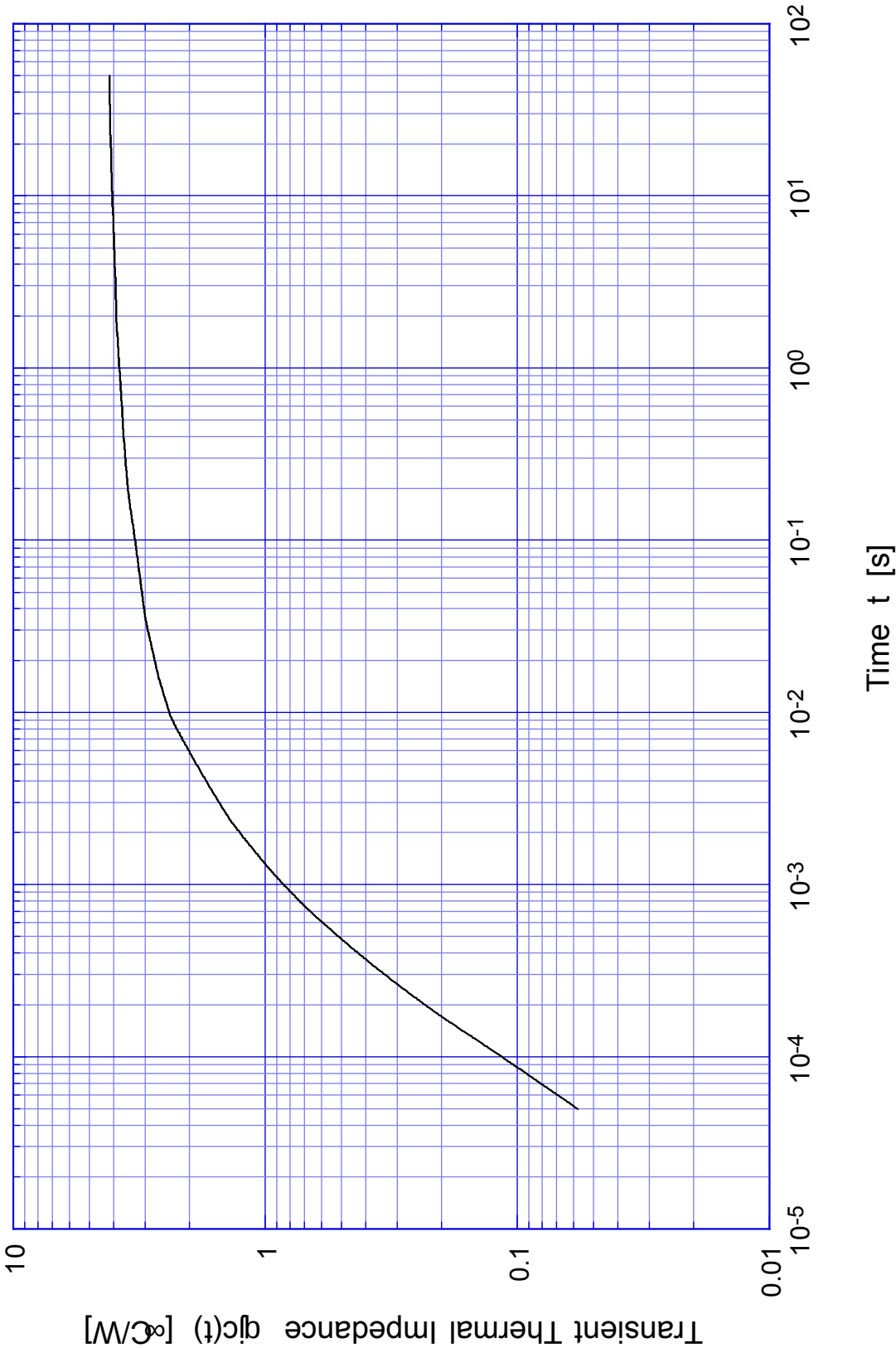
## 2SB1283

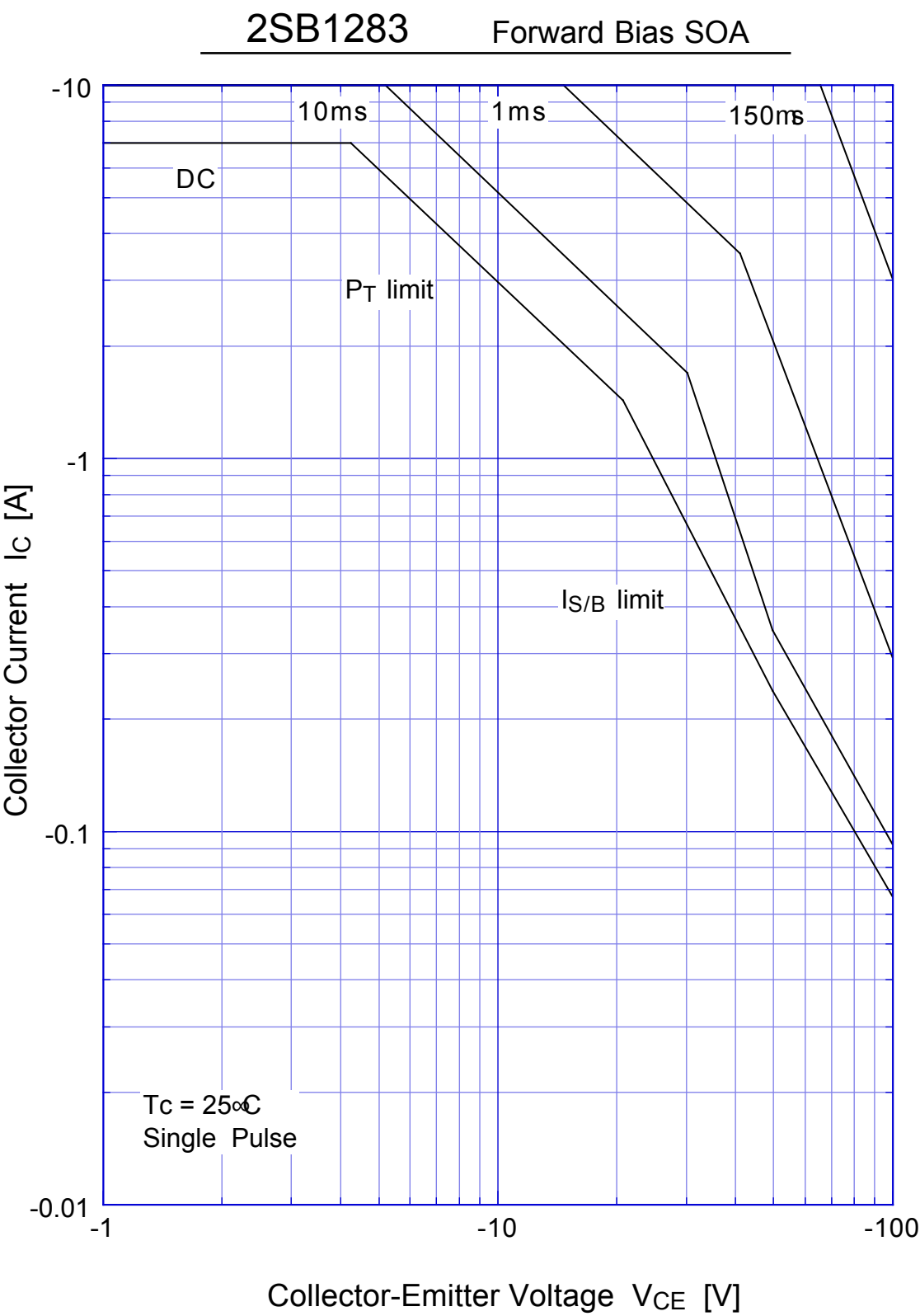
## Switching Time - $I_C$



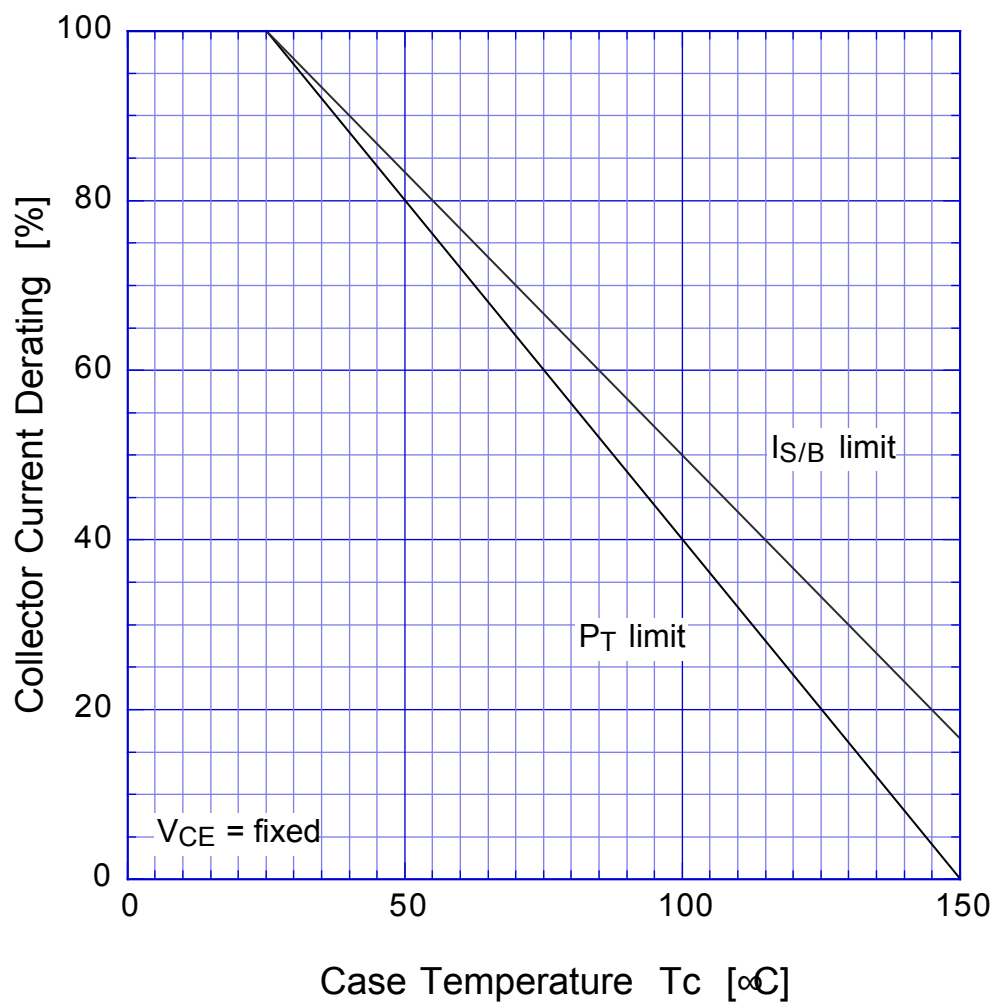


2SB1283      Transient Thermal Impedance



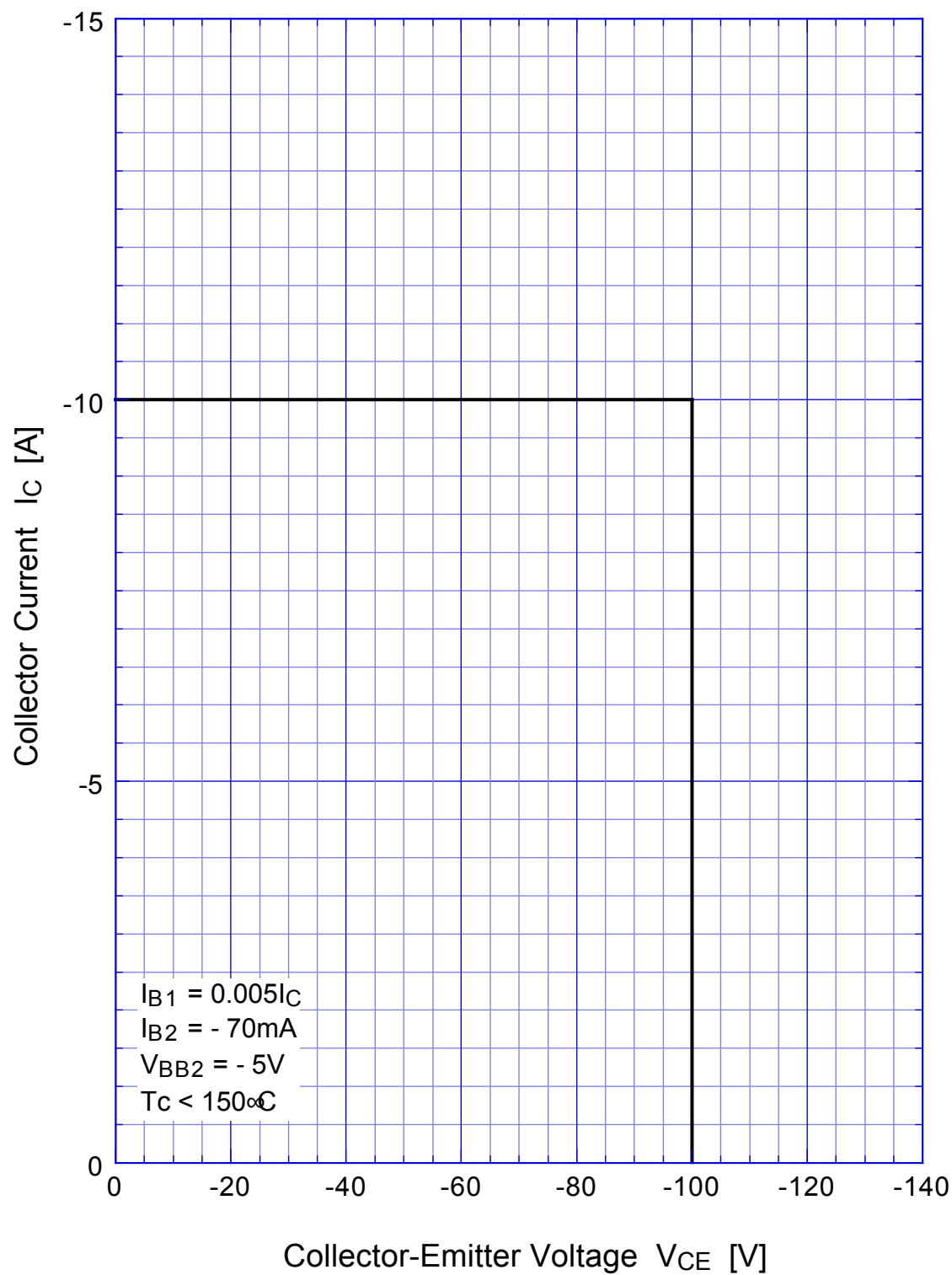


## 2SB1283 Collector Current Derating



## 2SB1283

## Reverse Bias SOA



## 2SB1283

## Derating Curve

