

# SHINDENGEN

## Switching Power Transistor

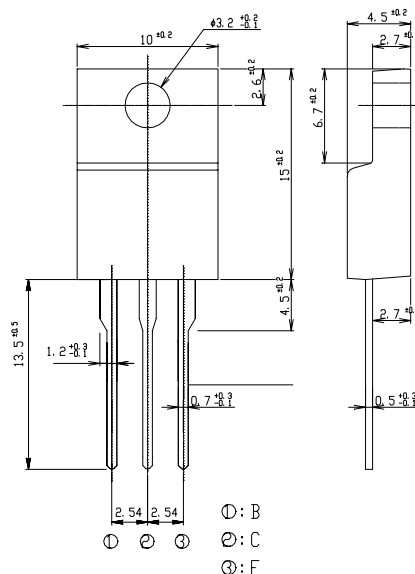
FX Series

**2SC5241****5A NPN**

### OUTLINE DIMENSIONS

Case : FTO-220

Unit : mm



### RATINGS

#### ● Absolute Maximum Ratings

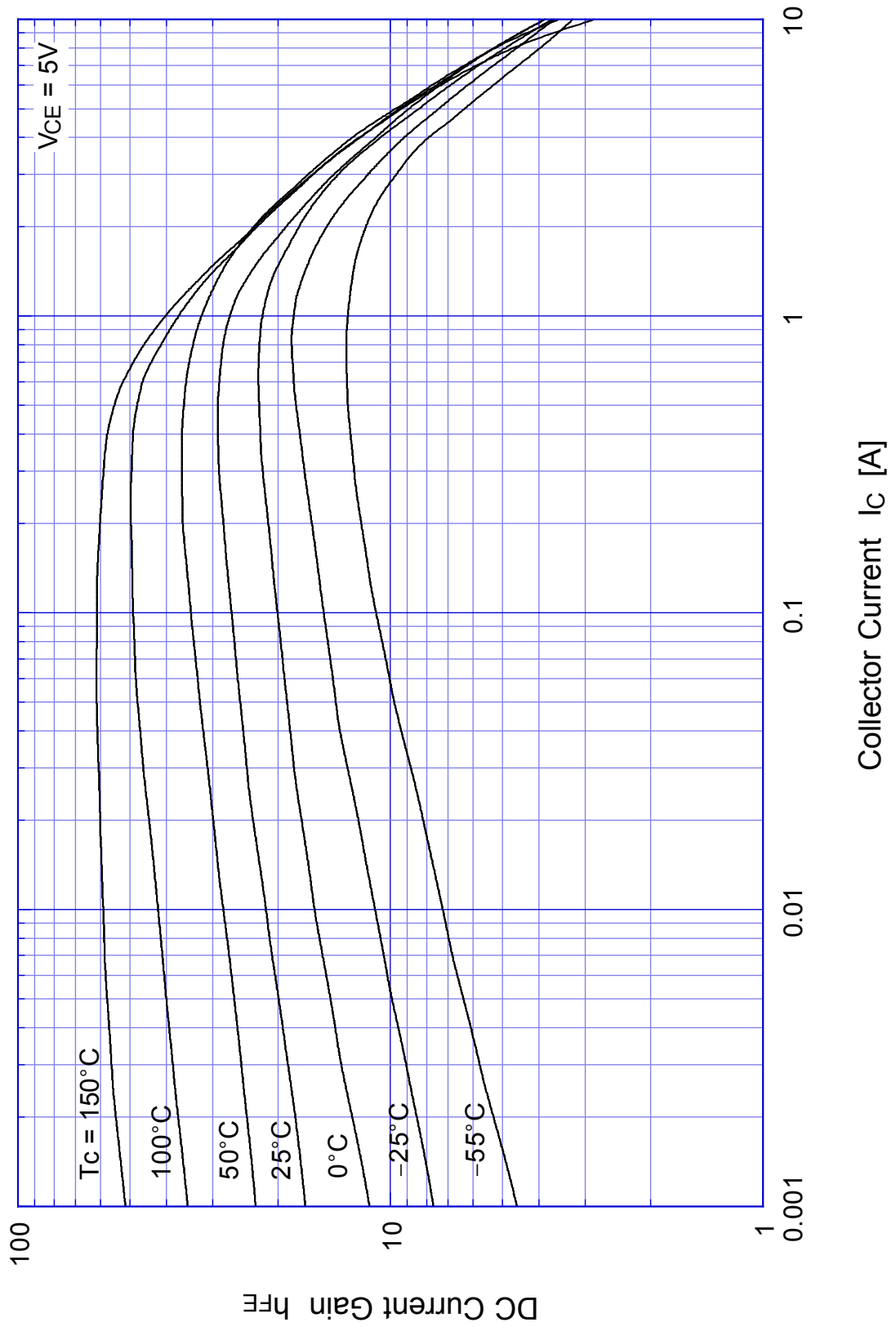
| Item                         | Symbol    | Conditions                     | Ratings  | Unit |
|------------------------------|-----------|--------------------------------|----------|------|
| Storage Temperature          | $T_{stg}$ |                                | -55~150  | °C   |
| Junction Temperature         | $T_j$     |                                | 150      | °C   |
| Collector to Base Voltage    | $V_{CBO}$ |                                | 600      | V    |
| Collector to Emitter Voltage | $V_{CEO}$ |                                | 450      | V    |
|                              | $V_{CEX}$ | $V_{EB} = 5V$                  | 600      |      |
| Emitter to Base Voltage      | $V_{EBO}$ |                                | 7        | V    |
| Collector Current DC         | $I_C$     |                                | 5        | A    |
| Collector Current Peak       | $I_{CP}$  |                                | 10       |      |
| Base Current DC              | $I_B$     |                                | 2        | A    |
| Base Current Peak            | $I_{BP}$  |                                | 4        |      |
| Total Transistor Dissipation | $P_T$     |                                | 30       | W    |
| Dielectric Strength          | $V_{dis}$ | Terminals to case, AC 1 minute | 2        | kV   |
| Mounting Torque              | TOR       | (Recommended torque)           | 0.5(0.3) | N·m  |

#### ● Electrical Characteristics ( $T_c=25^{\circ}C$ )

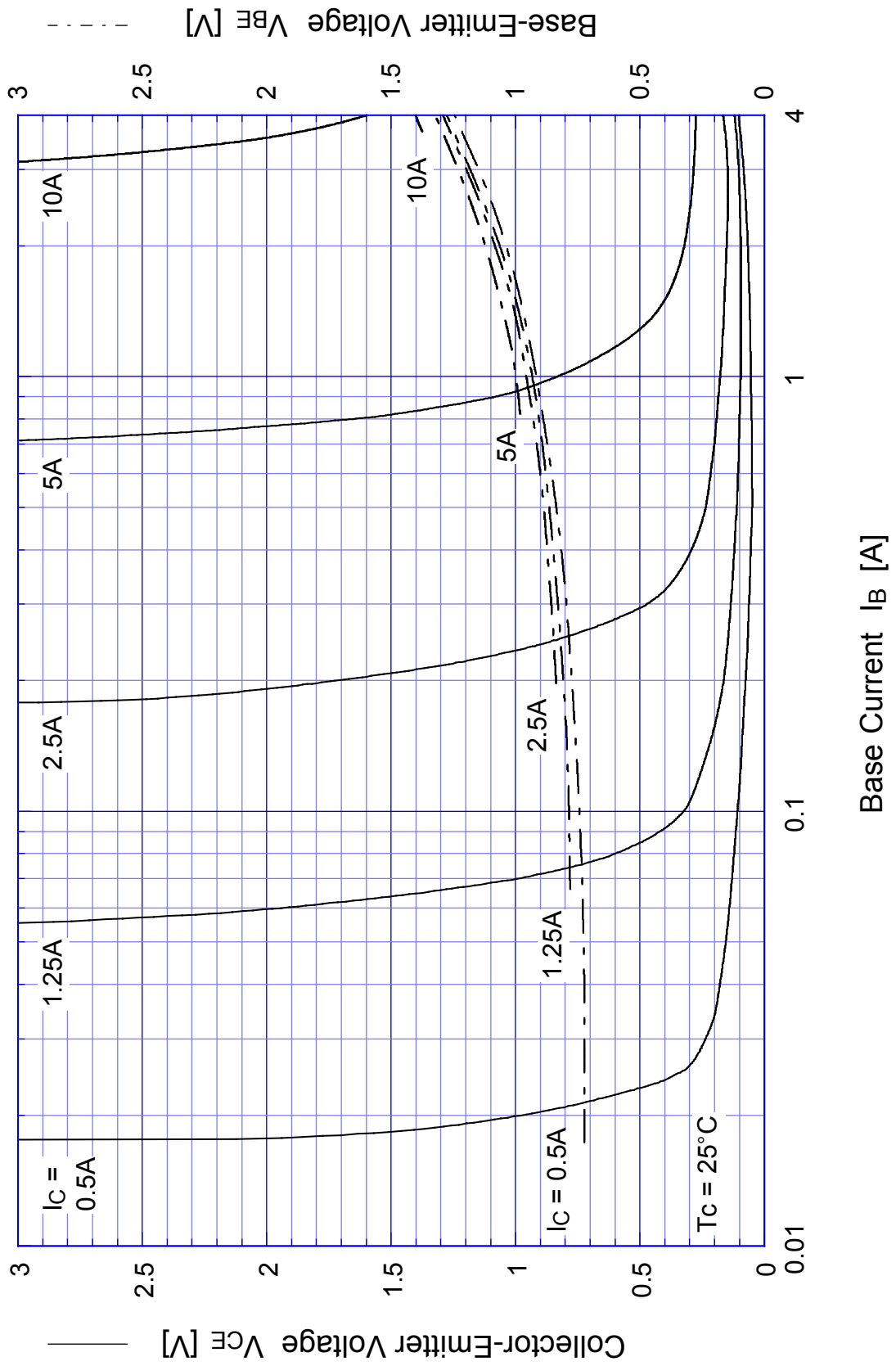
| Item                                    | Symbol         | Conditions                     | Ratings  | Unit    |
|---|----------------|--------------------------------|----------|---------|
| Collector to Emitter Sustaining Voltage | $V_{CEO(sus)}$ | $I_C = 0.1A$                   | Min 450  | V       |
| Collector Cutoff Current                | $I_{CBO}$      | rated $V_{CBO}$                | Max 0.1  | mA      |
|   | $I_{CEO}$      | rated $V_{CEO}$                | Max 0.1  |         |
| Emitter Cutoff Current                  | $I_{EBO}$      | rated $V_{EBO}$                | Max 0.1  | mA      |
| DC Current Gain                         | $h_{FE}$       | $V_{CE} = 5V, I_C = 2.5A$      | Min 10   |         |
|   | $h_{FEL}$      | $V_{CE} = 5V, I_C = 1mA$       | Min 5    |         |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$  | $I_C = 2.5A$                   | Max 1.0  | V       |
| Base to Emitter Saturation Voltage      | $V_{BE(sat)}$  | $I_B = 0.5A$                   | Max 1.5  | V       |
| Thermal Resistance                      | $\theta_{jc}$  | Junction to case               | Max 4.16 | °C/W    |
| Transition Frequency                    | $f_T$          | $V_{CE} = 10V, I_C = 0.5A$     | STD 20   | MHz     |
| Turn on Time                            | $t_{on}$       | $I_C = 2.5A$                   | Max 0.5  | $\mu s$ |
| Storage Time                            | $t_s$          | $I_{B1} = 0.5A, I_{B2} = 1A$   | Max 2.0  |         |
| Fall Time                               | $t_f$          | $R_L = 60\Omega, V_{BB2} = 4V$ | Max 0.2  |         |

# 2SC5241

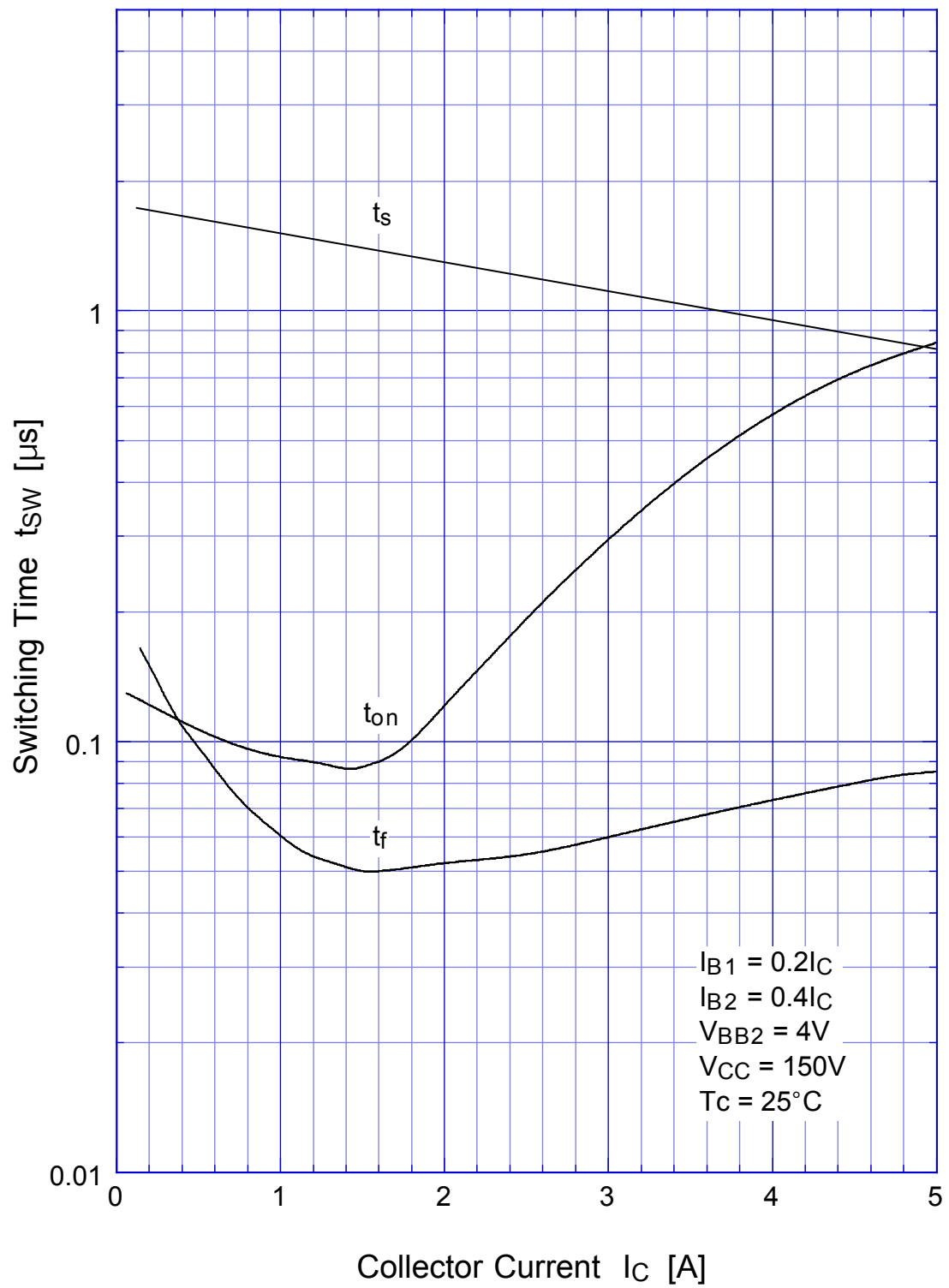
$h_{FE} - I_C$



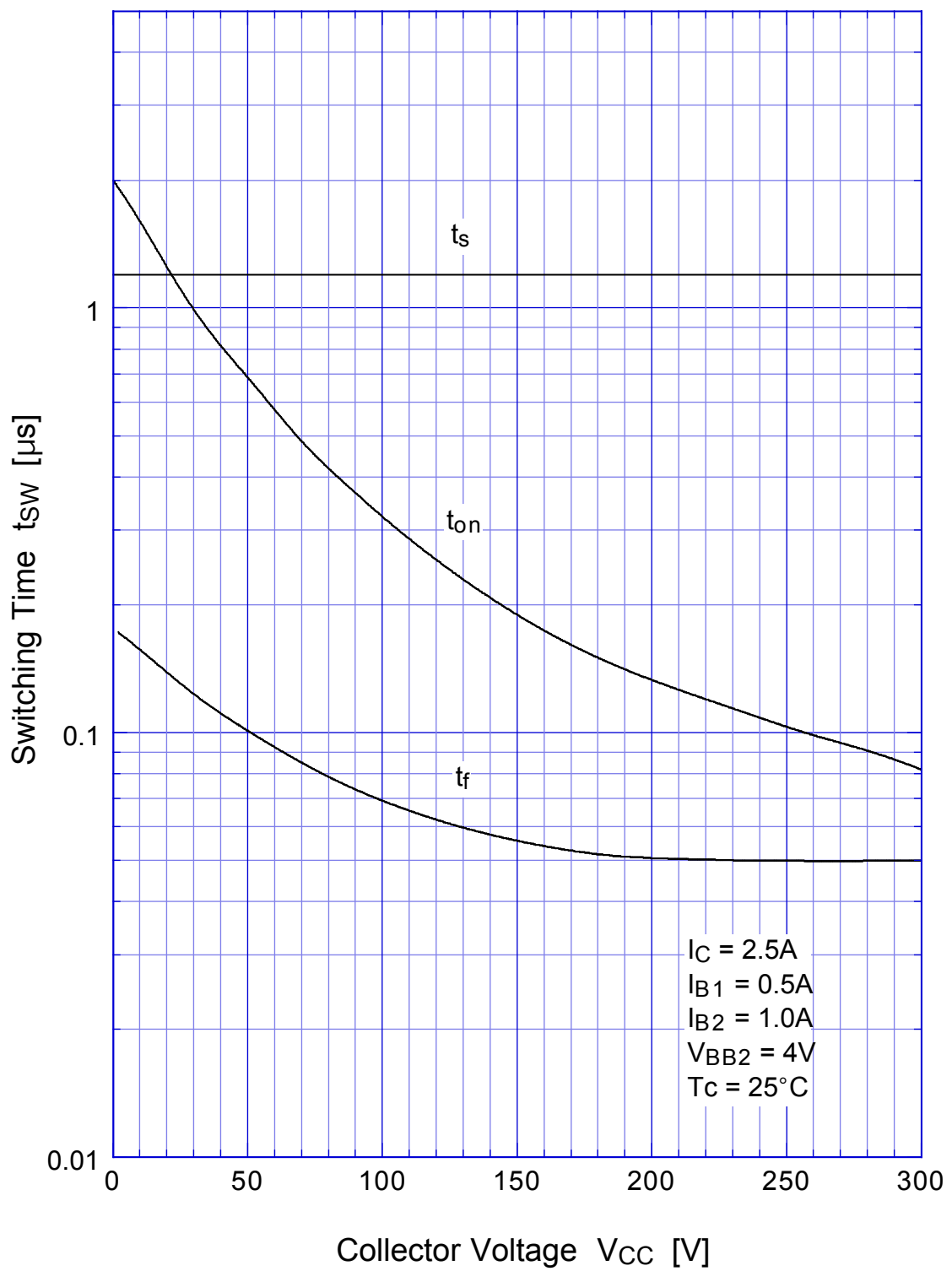
## 2SC5241 Saturation Voltage



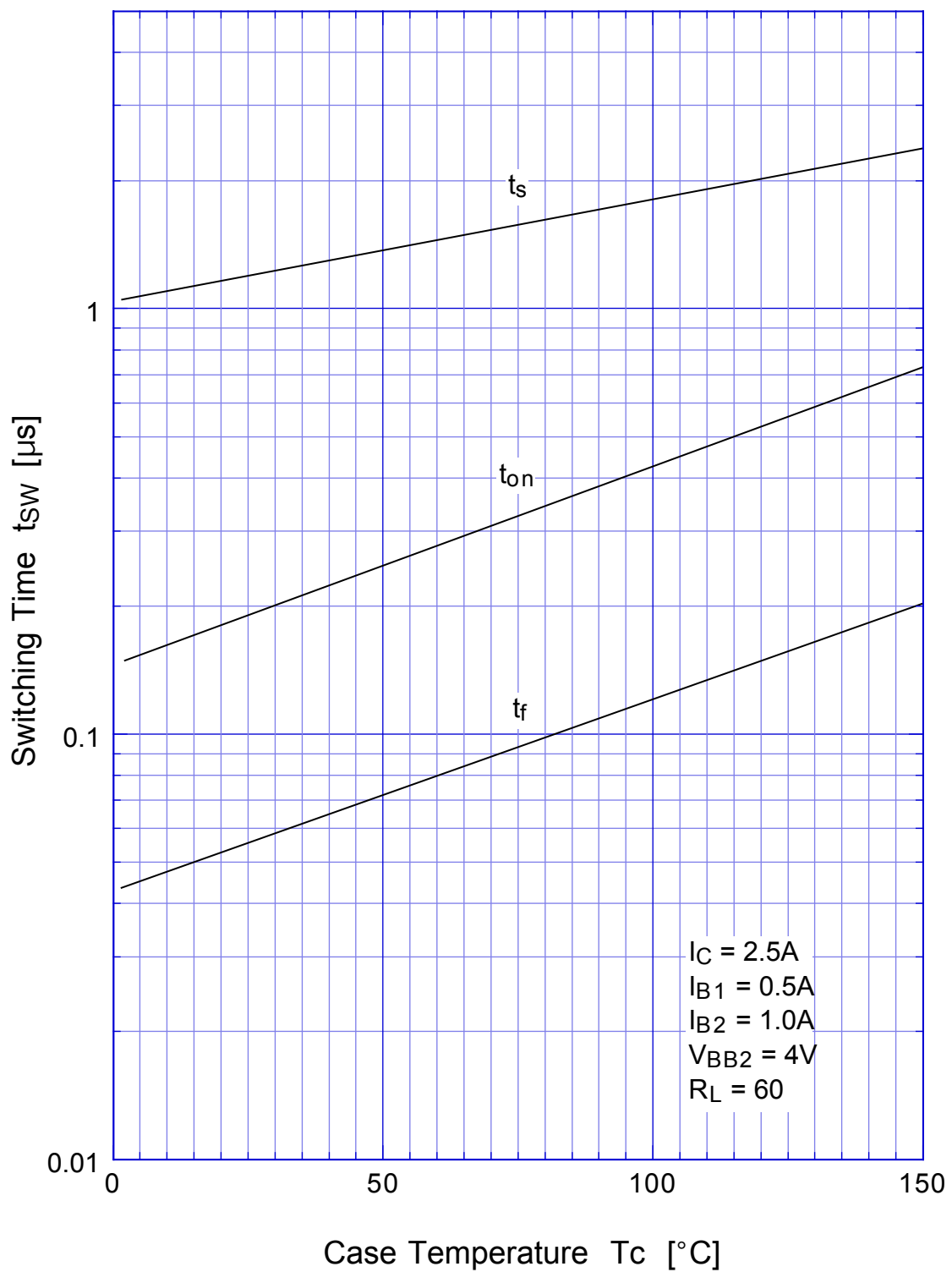
## 2SC5241      Switching Time - $I_C$



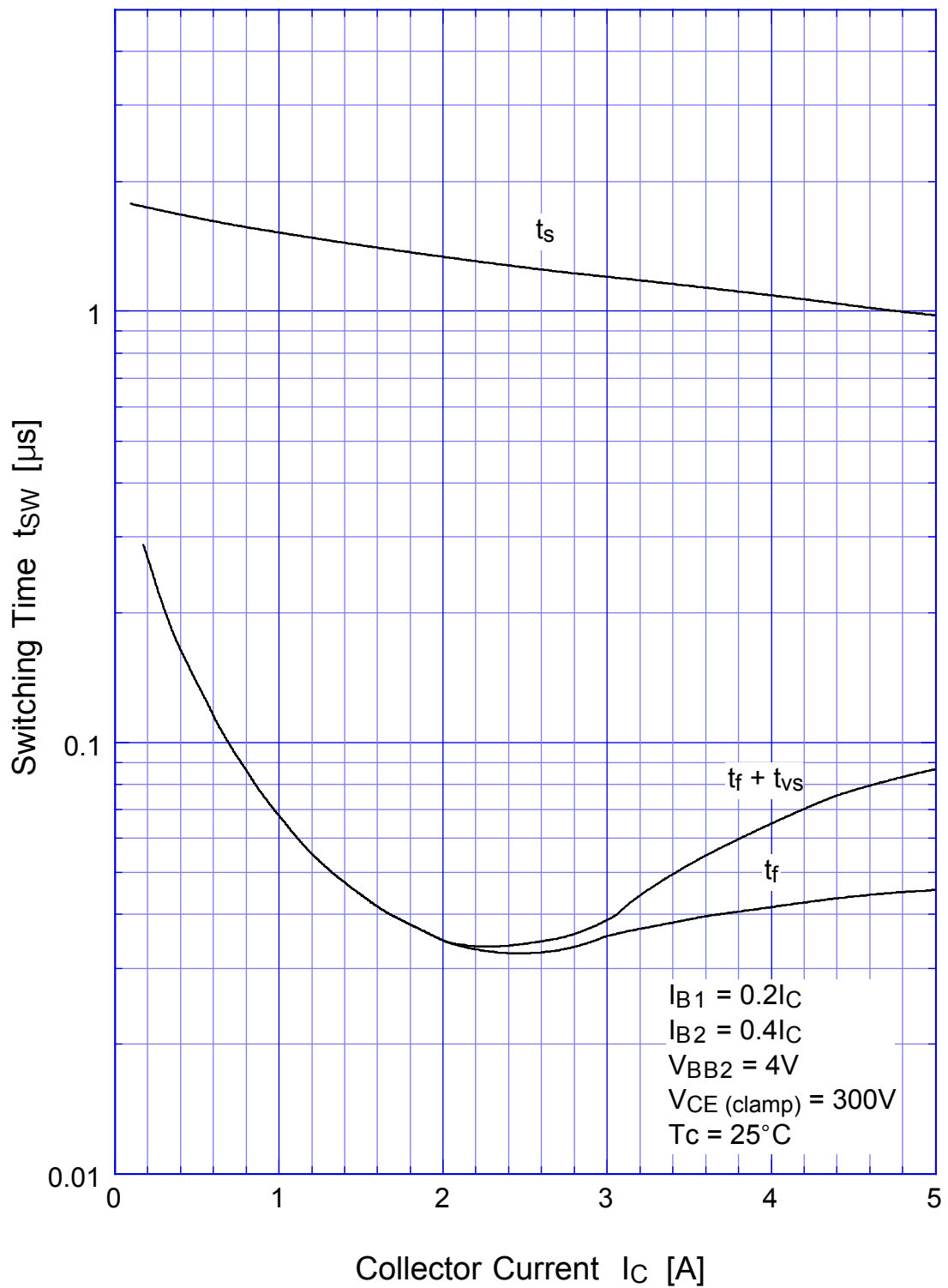
## 2SC5241 Switching Time - $V_{CC}$



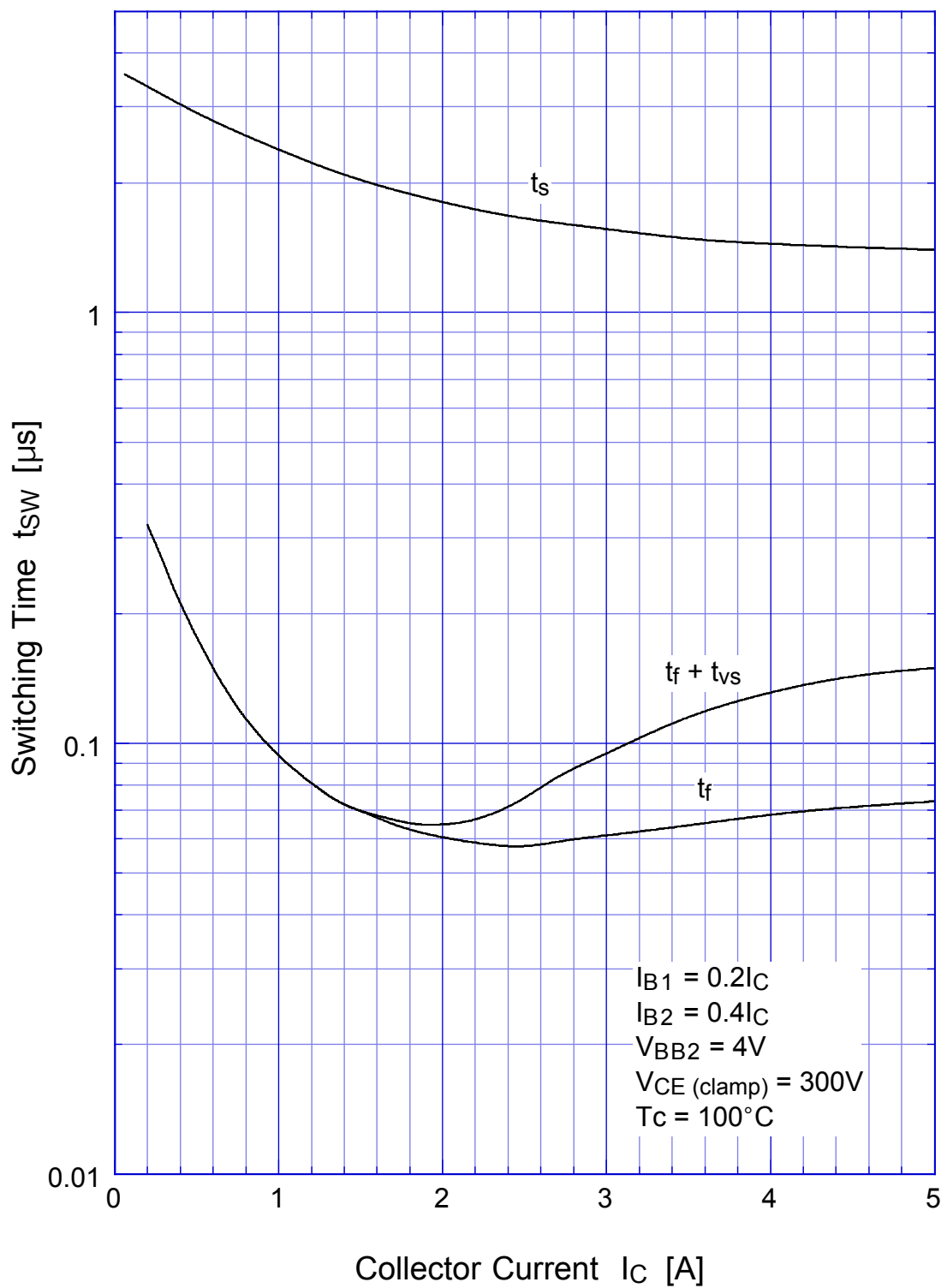
## 2SC5241 Switching Time - Tc



## 2SC5241 L-Load Switching Time - $I_C$

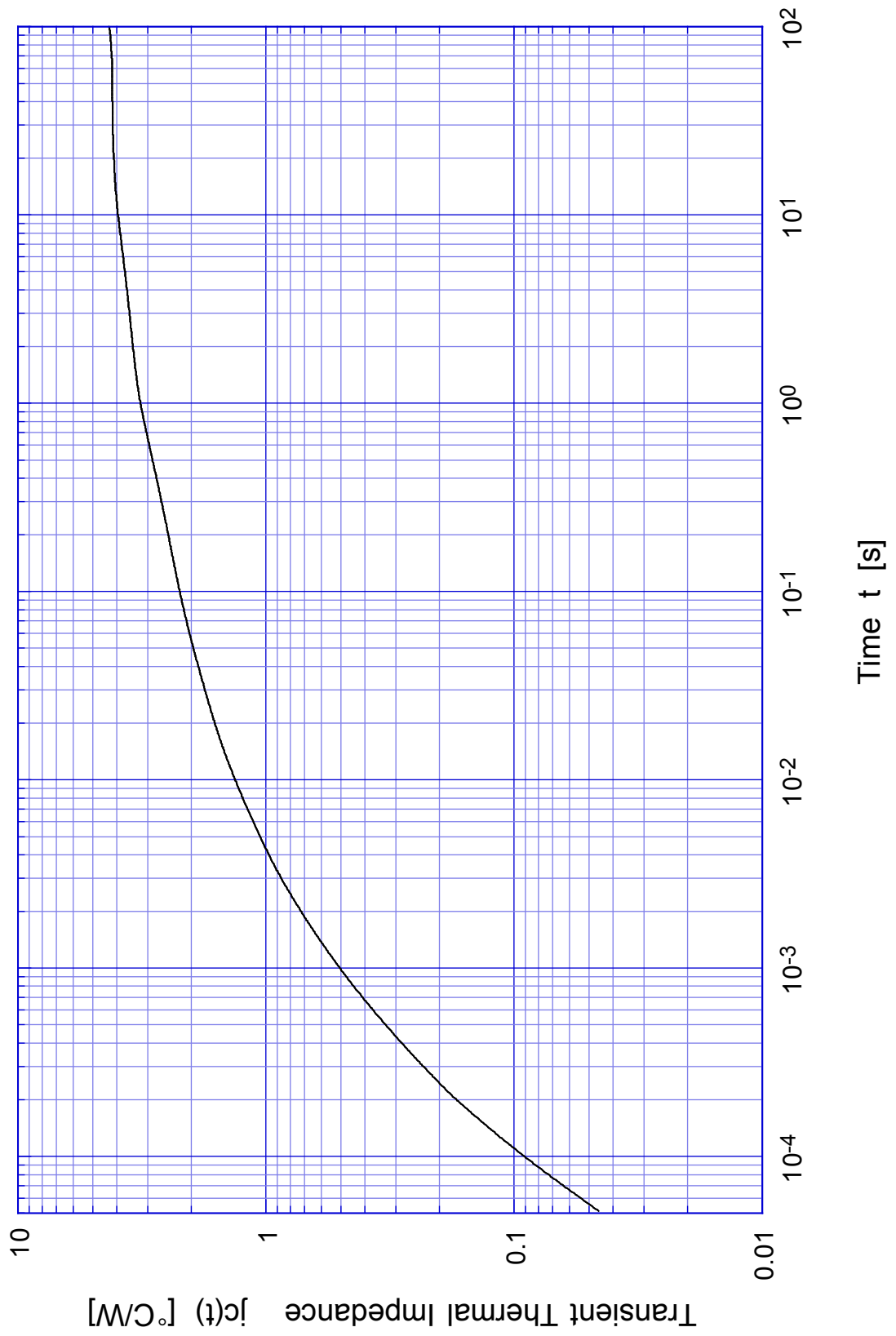


## 2SC5241 L-Load Switching Time - $I_C$ (At High Temperature)

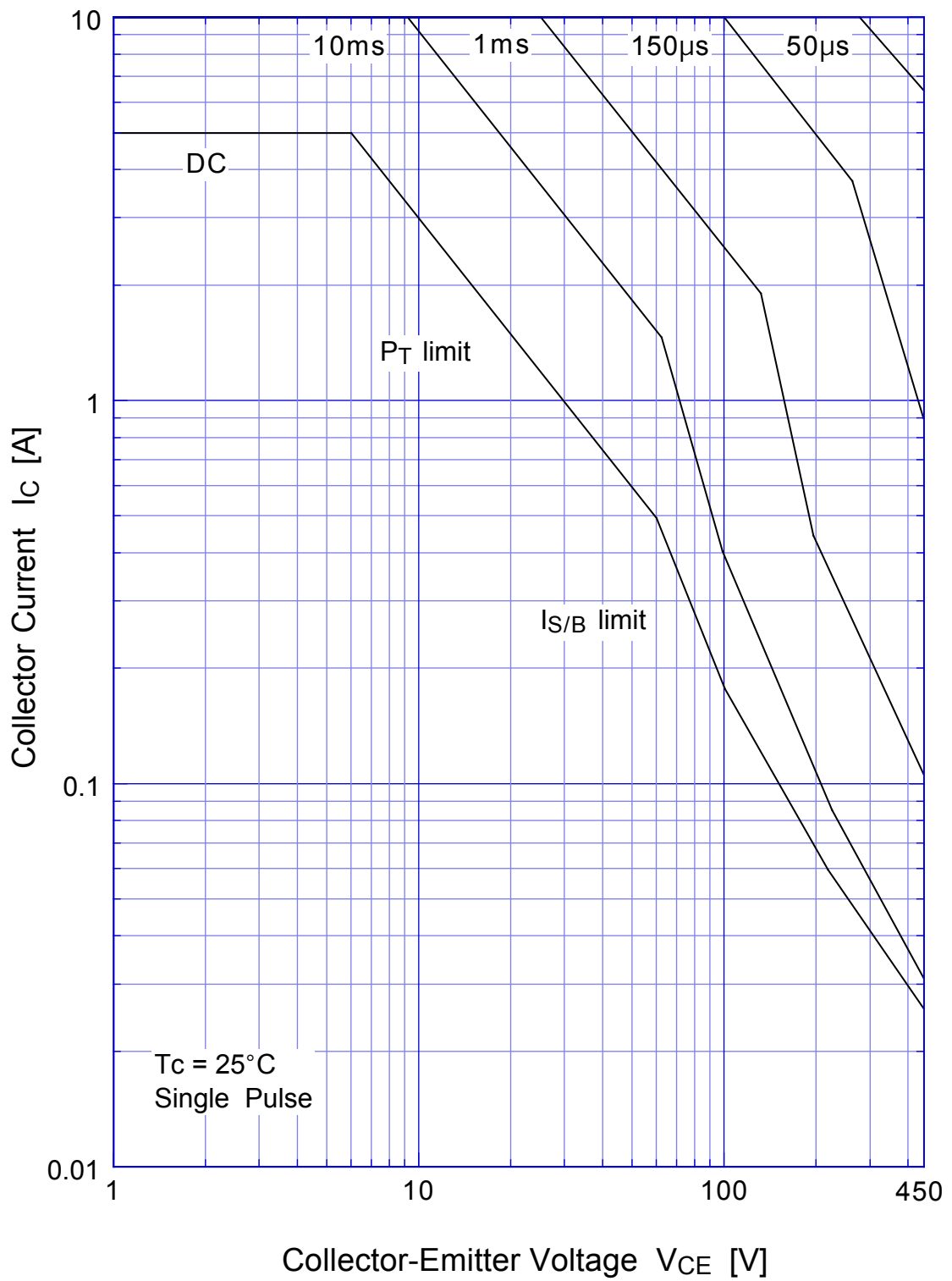




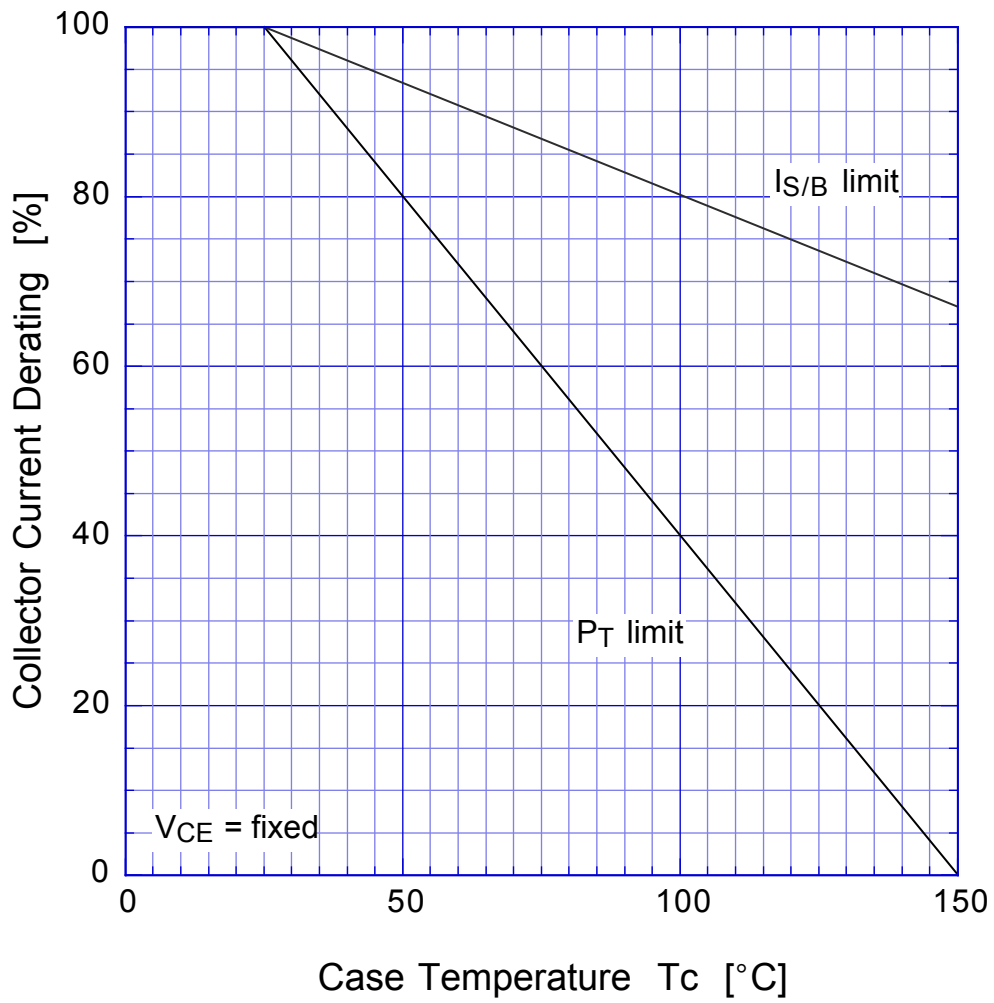
### 2SC5241 Transient Thermal Impedance



## 2SC5241 Forward Bias SOA



## 2SC5241 Collector Current Derating



## 2SC5241 Reverse Bias SOA

