

# SHINDENGEN

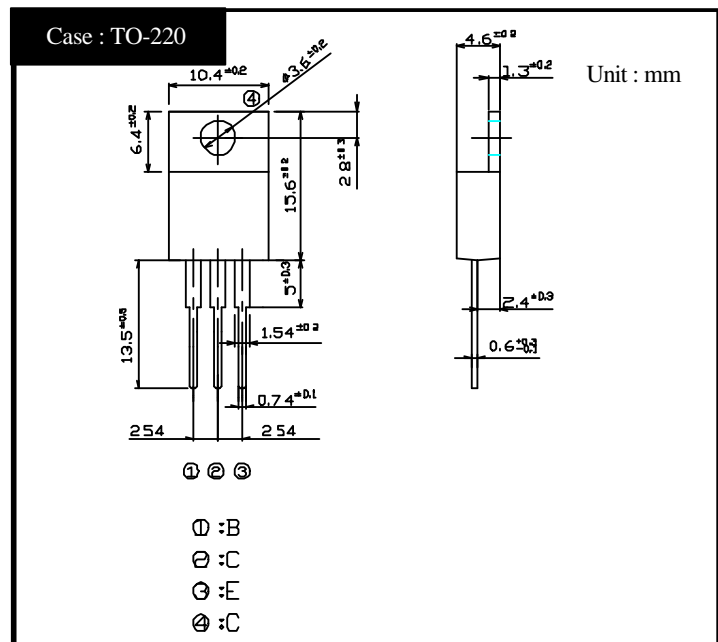
## Switching Power Transistor

HFX Series

**2SC4233**  
(T3V80HFX)

**3A NPN**

### OUTLINE DIMENSIONS



### RATINGS

#### • Absolute Maximum Ratings

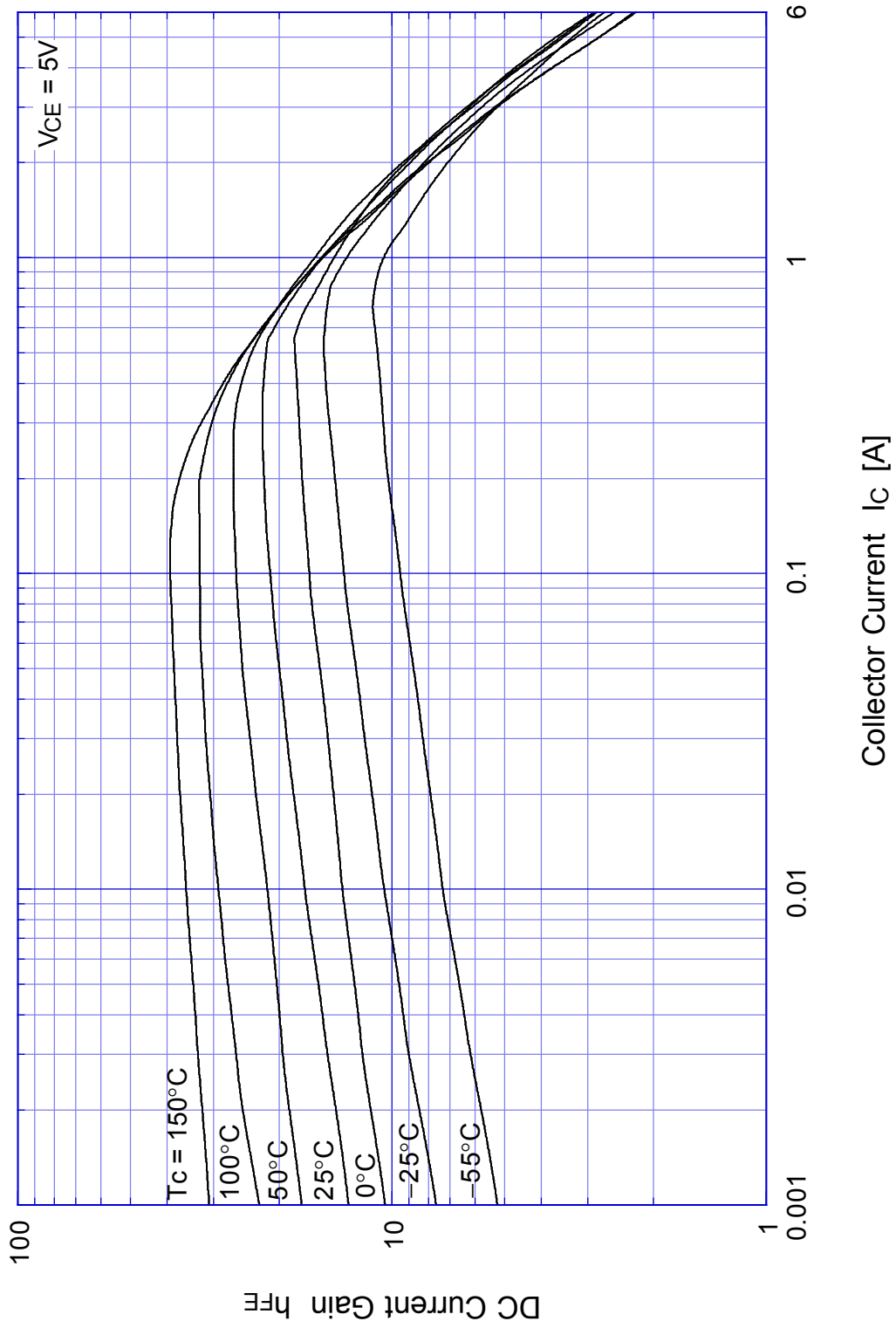
Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T <sub>stg</sub>		-55•150	• ℃
Junction Temperature	T <sub>j</sub>		150	• ℃
Collector to Base Voltage	V <sub>CB0</sub>		1200	V
Collector to Emitter Voltage	V <sub>CEO</sub>		800	V
Emitter to Base Voltage	V <sub>EBO</sub>		7	V
Collector Current DC	I <sub>C</sub>		3	A
Collector Current Peak	I <sub>CP</sub>		6	
Base Current DC	I <sub>B</sub>		1	A
Base Current Peak	I <sub>BP</sub>		2	
Total Transistor Dissipation	P <sub>T</sub>	T <sub>c</sub> = 25•℃	60	W
Mounting Torque	TOR	(Recommended torque : 0.3N•m)	0.5	N•m

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

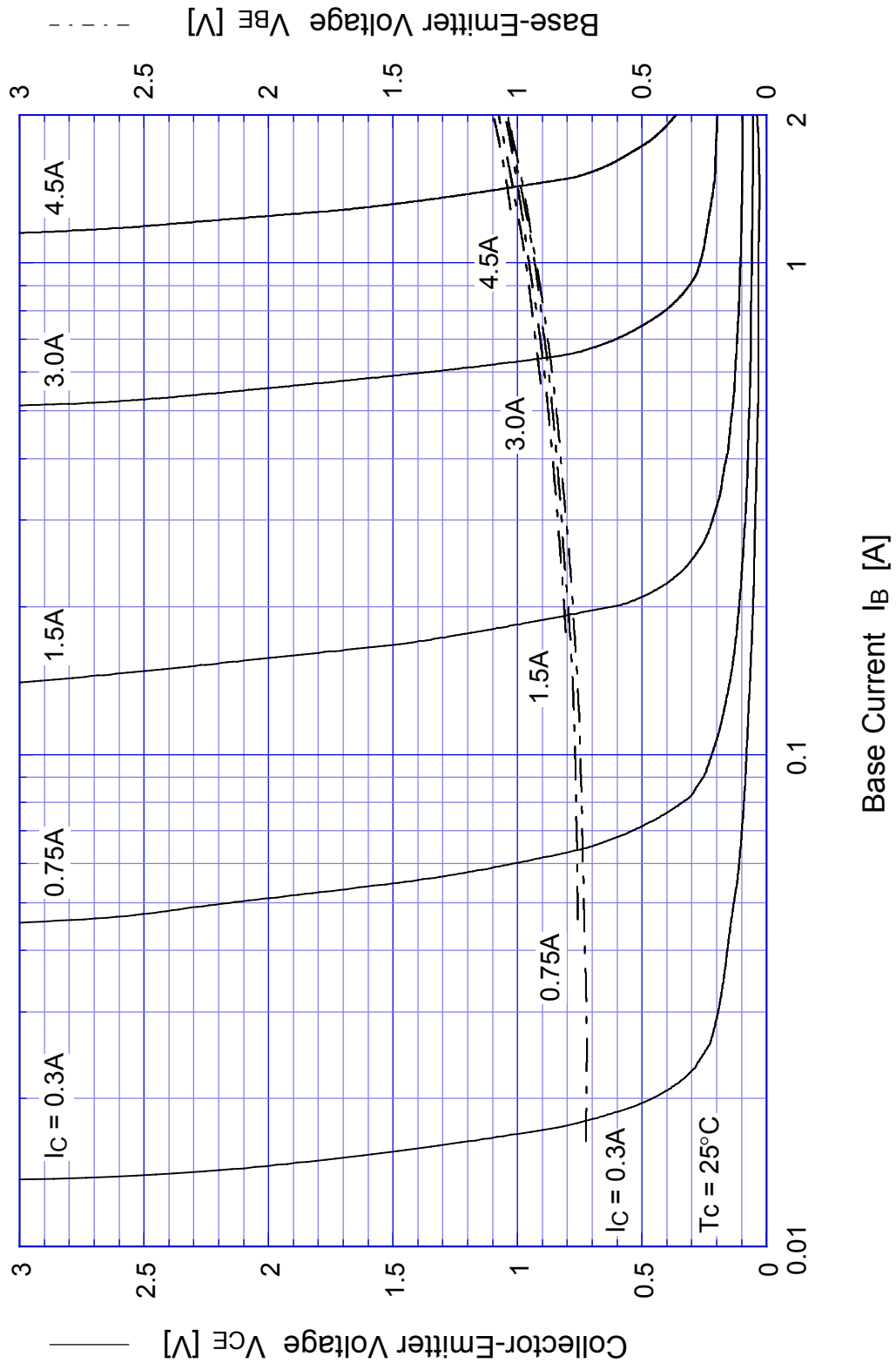
Item	Symbol	Conditions	Ratings	Unit
Collector to Emitter Sustaining Voltage	V <sub>CE(sus)</sub>	I <sub>C</sub> = 0.1A	Min 800	V
Collector Cutoff Current	I <sub>CB0</sub>	At rated Voltage	Max 0.1	mA
	I <sub>CEO</sub>		Max 0.1	
Emitter Cutoff Current	I <sub>EBO</sub>	At rated Voltage	Max 0.1	mA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 1.5A	Min 8	
	h <sub>FEL</sub>	V <sub>CE</sub> = 5V, I <sub>C</sub> = 1mA	Min 7	
Collector to Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 1.5A	Max 1.0	V
Base to Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>B</sub> = 0.3A	Max 1.5	V
Thermal Resistance	f <sub>θjc</sub>	Junction to case	Max 2.08	• ℃/W
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 0.3A	TYP 8	MHz
Turn on Time	ton	I <sub>C</sub> = 1.5A	Max 0.5	f <sub>Es</sub>
Storage Time	ts	I <sub>B1</sub> = 0.3A, I <sub>B2</sub> = 0.6A	Max 3.5	
Fall Time	tf	R <sub>L</sub> = 170f <sub>Ω</sub> , V <sub>BB</sub> ≥ 4V	Max 0.3	

2SC4233

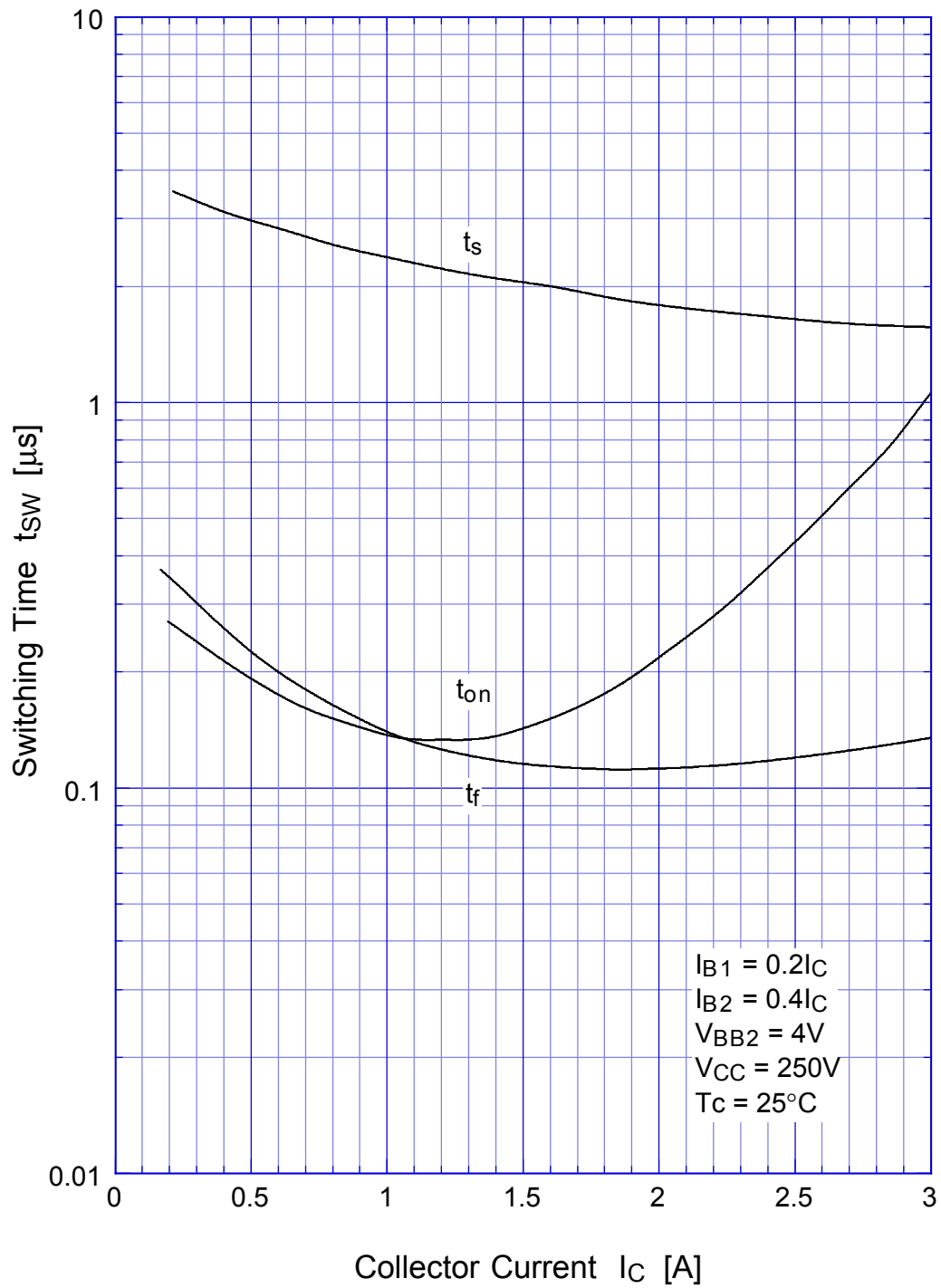
$h_{FE} - I_C$



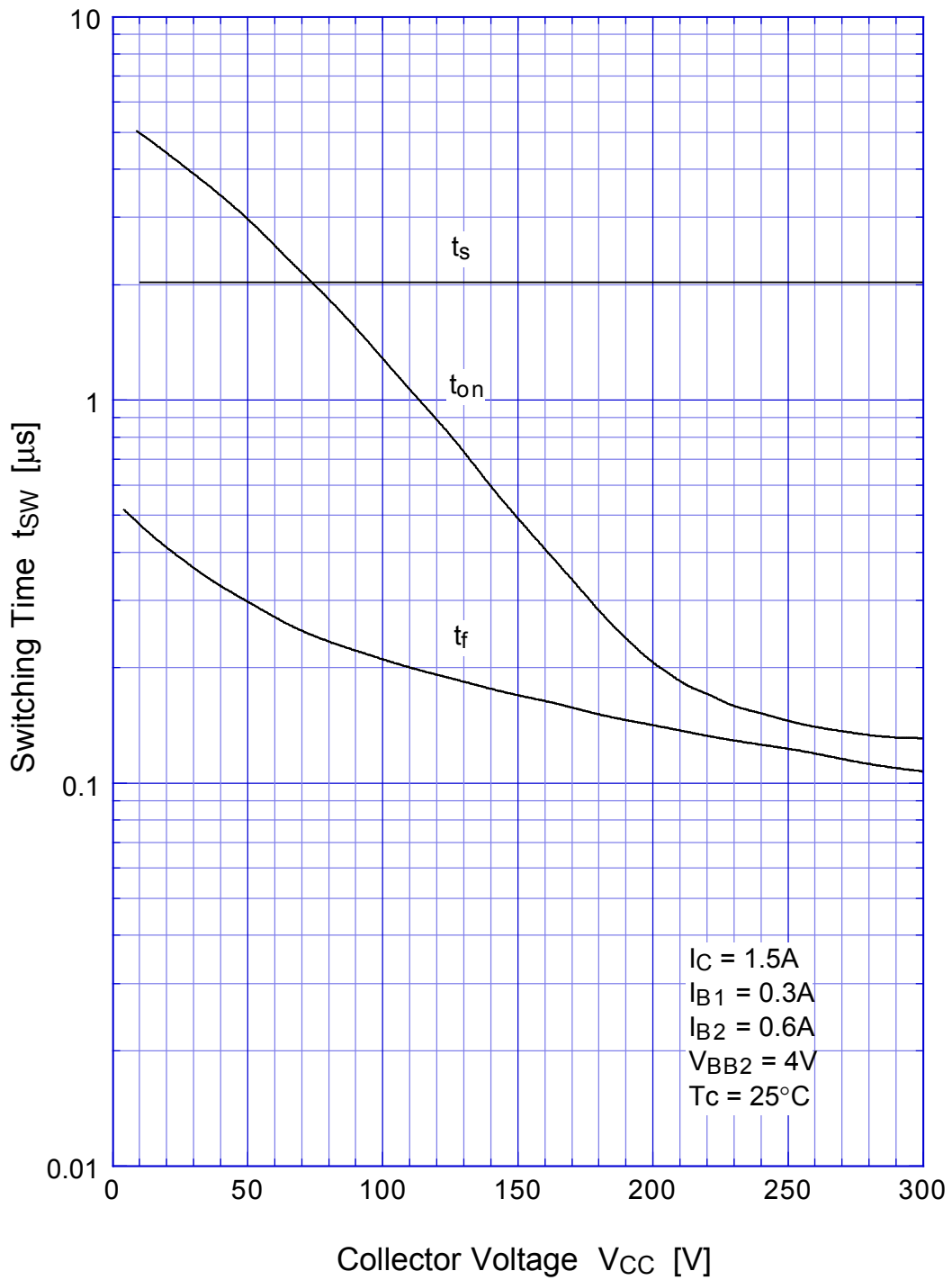
## 2SC4233 Saturation Voltage



2SC4233 Switching Time -  $I_C$

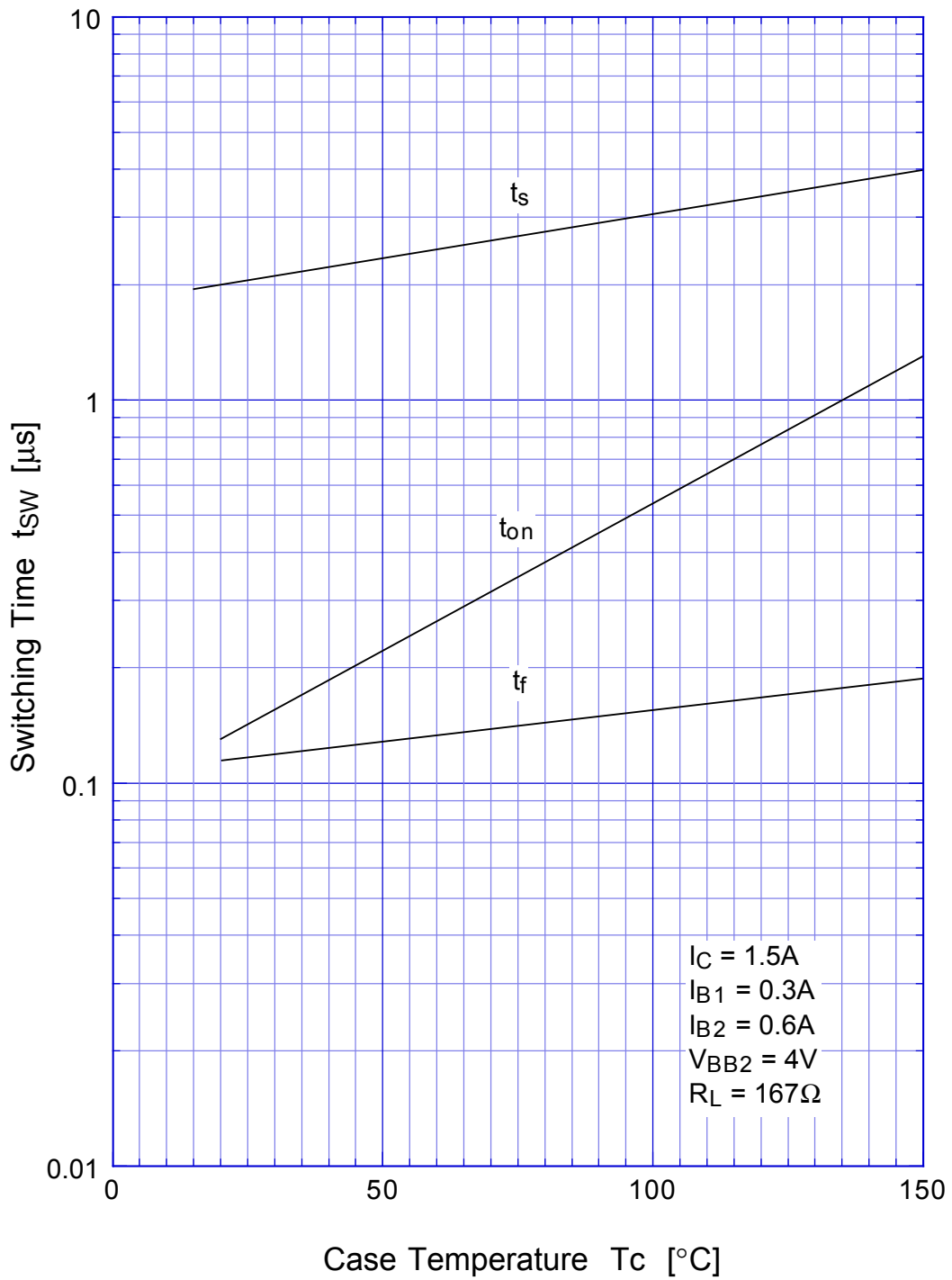


# 2SC4233 Switching Time - $V_{CC}$

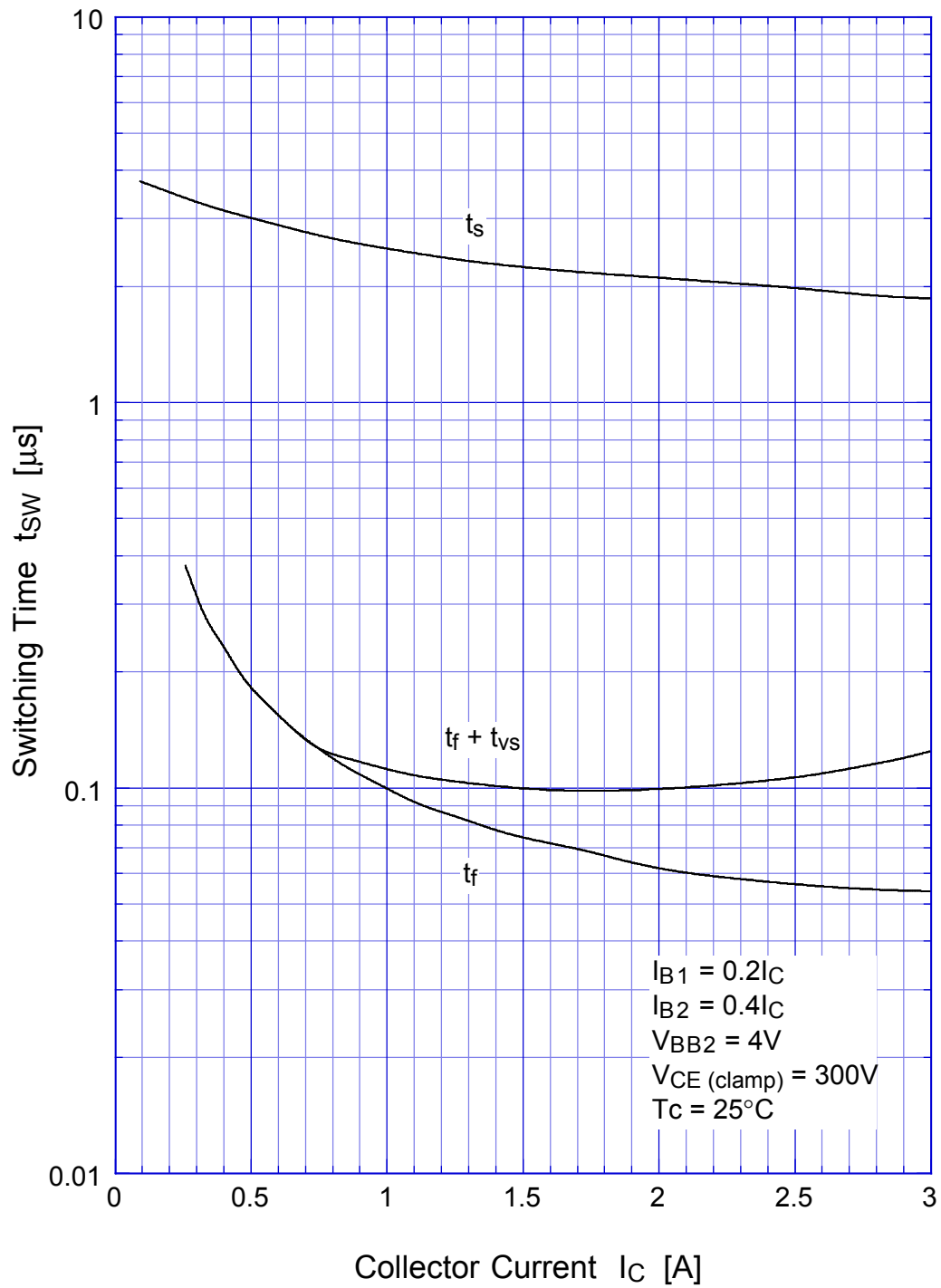


# 2SC4233

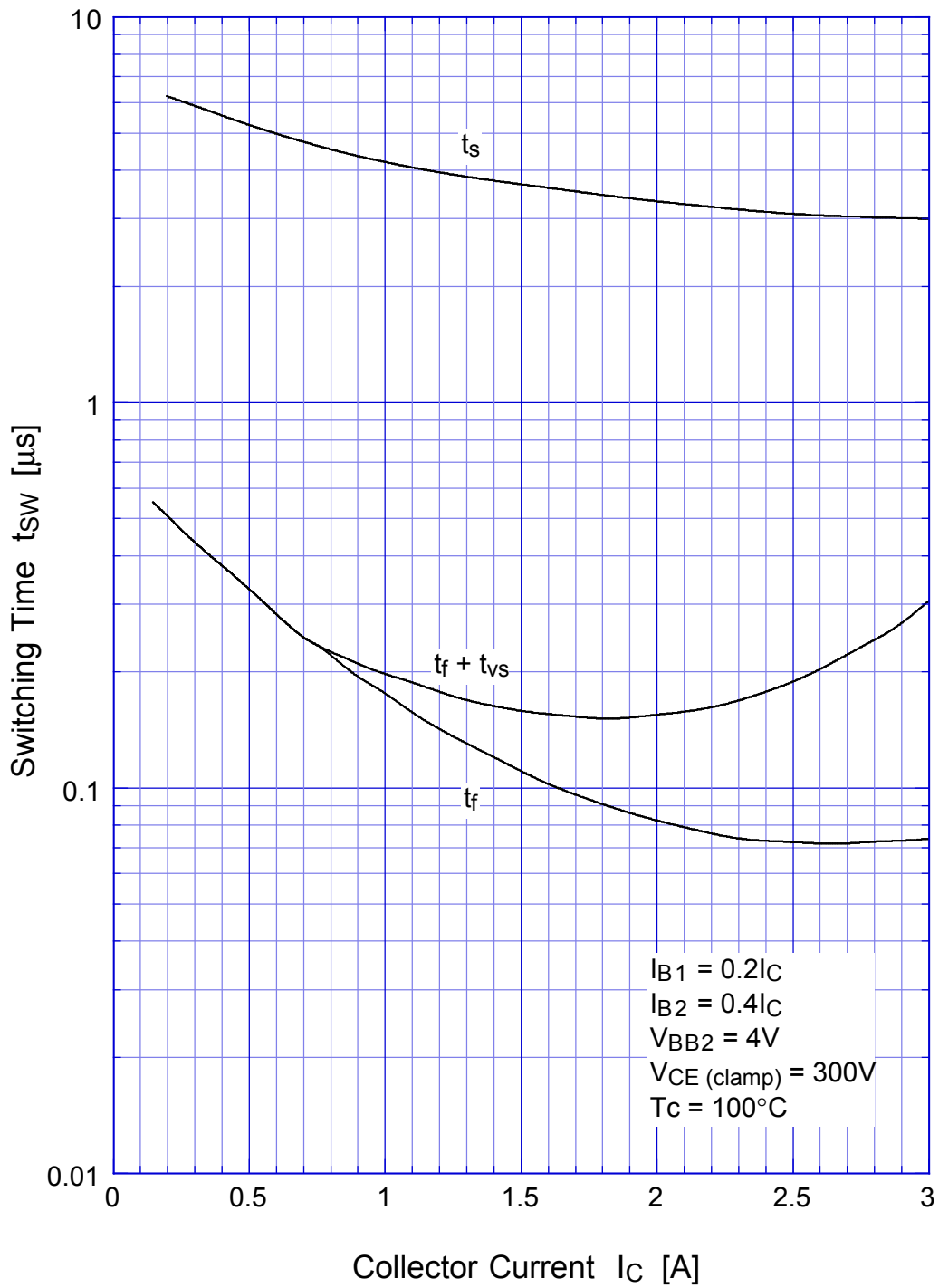
## Switching Time - Tc



## 2SC4233 L-Load Switching Time - $I_C$

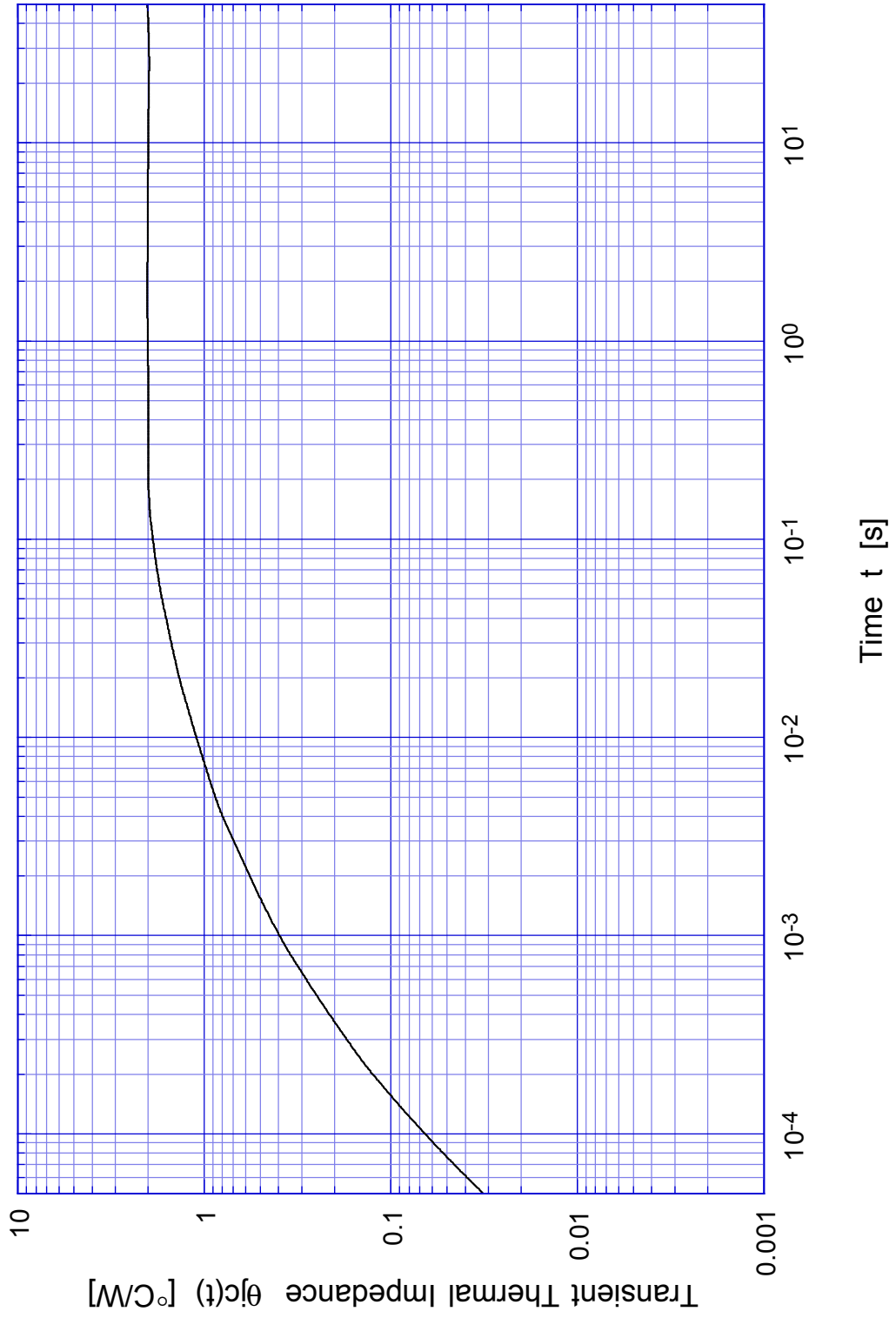


## 2SC4233 L-Load Switching Time - $I_C$ (At High Temperature)

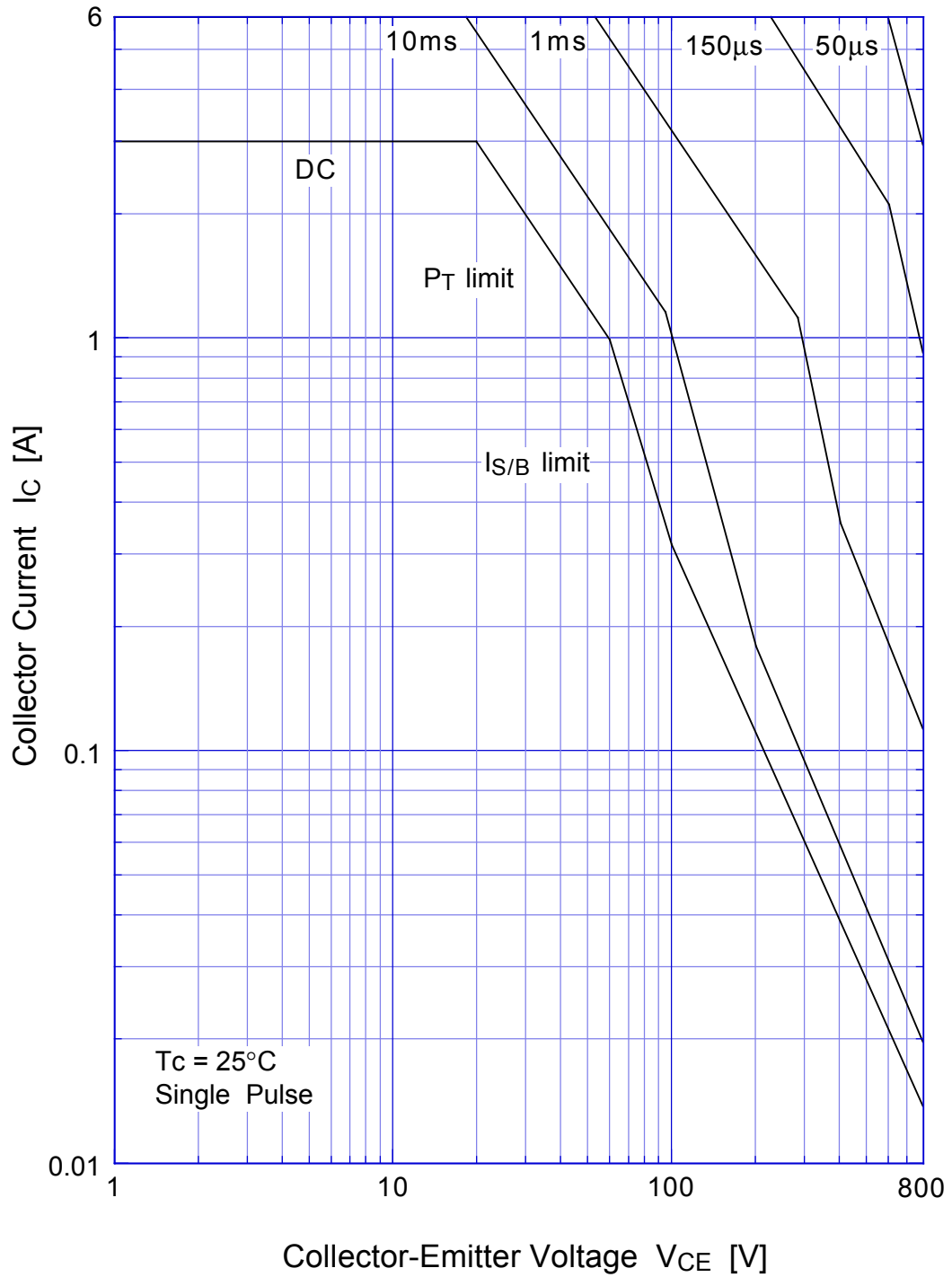




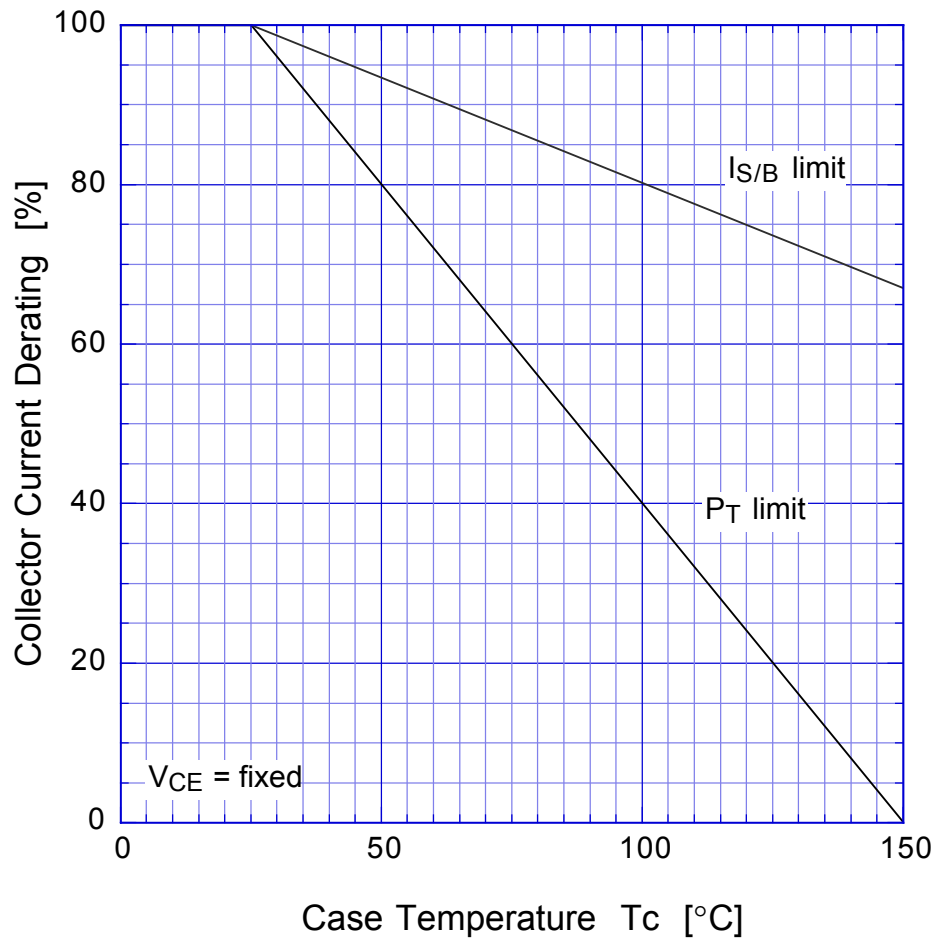
2SC4233 Transient Thermal Impedance



# 2SC4233 Forward Bias SOA



## 2SC4233 Collector Current Derating



# 2SC4233

## Reverse Bias SOA

