SHINDENGEN

Switching Power Transistor

FS Series

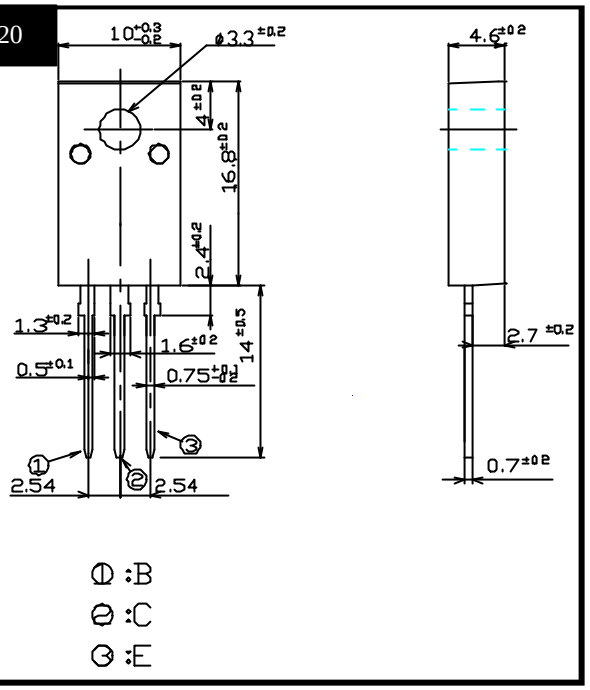
2SC4833
(TP5V40FS)

5A NPN

OUTLINE DIMENSIONS

Case : ITO-220

Unit : mm



RATINGS

●Absolute Maximum Ratings

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	Tstg		-55～150	°C
Junction Temperature	Tj		150	°C
Collector to Base Voltage	V_{CBO}		500	V
Collector to Emitter Voltage	V_{CEO}		400	V
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	Tc = 25°C	35	W
Dielectric Strength	Vdis	Terminals to case, AC 1 minute	2	kV
Mounting Torque	TOR	(Recommended torque : 0.3N·m)	0.5	N·m

●Electrical Characteristics (Tc=25°C)

Item	Symbol	Conditions	Ratings	Unit
Collector to Emitter Sustaining Voltage	V_{CEO}(sus)	I_C = 0.1A	Min 400	V
Collector Cutoff Current	I_{CBO}	At rated Voltage	Max 0.1	mA
	I_{CEO}		Max 0.1	
Emitter Cutoff Current	I_{EBO}	At rated Voltage	Max 0.1	mA
DC Current Gain	h_{FE}	V_{CE} = 2V, I_C = 2.5A	10～25	
	h_{FEL}	V_{CE} = 2V, I_C = 1mA	Min 10	
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	θjc	Junction to case	Max 3.57	°C/W
Transition Frequency	f_T	V_{CE} = 10V, I_C = 0.5A	TYP 13	MHz
Turn on Time	ton	I_C = 2.5A	Max 0.3	μs
Storage Time	ts	I_{B1} = 0.5A, I_{B2} = 1A	Max 1.3	
Fall Time	tf	R_L = 60Ω, V_{BB2} = 4V	Max 0.1	

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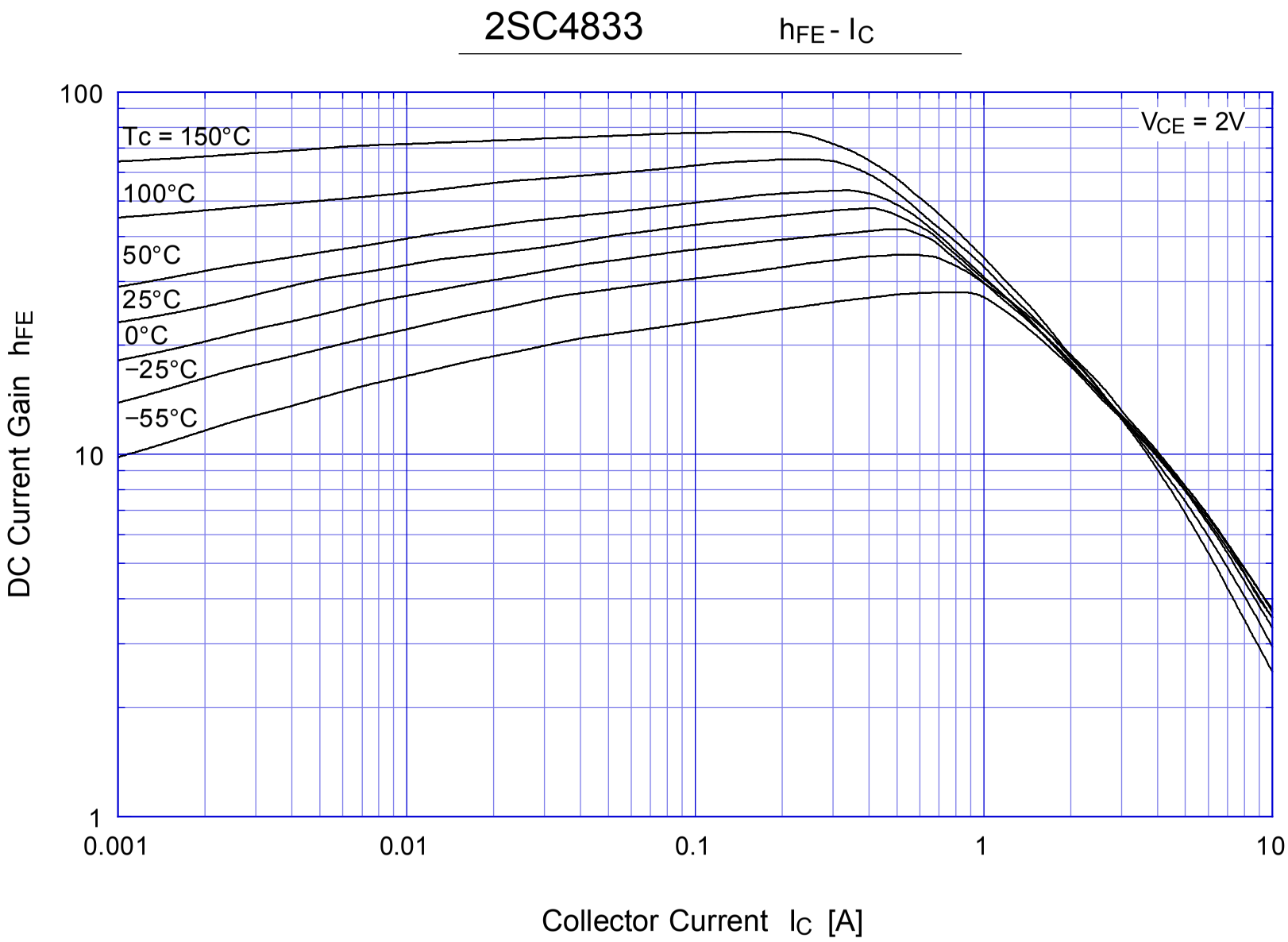
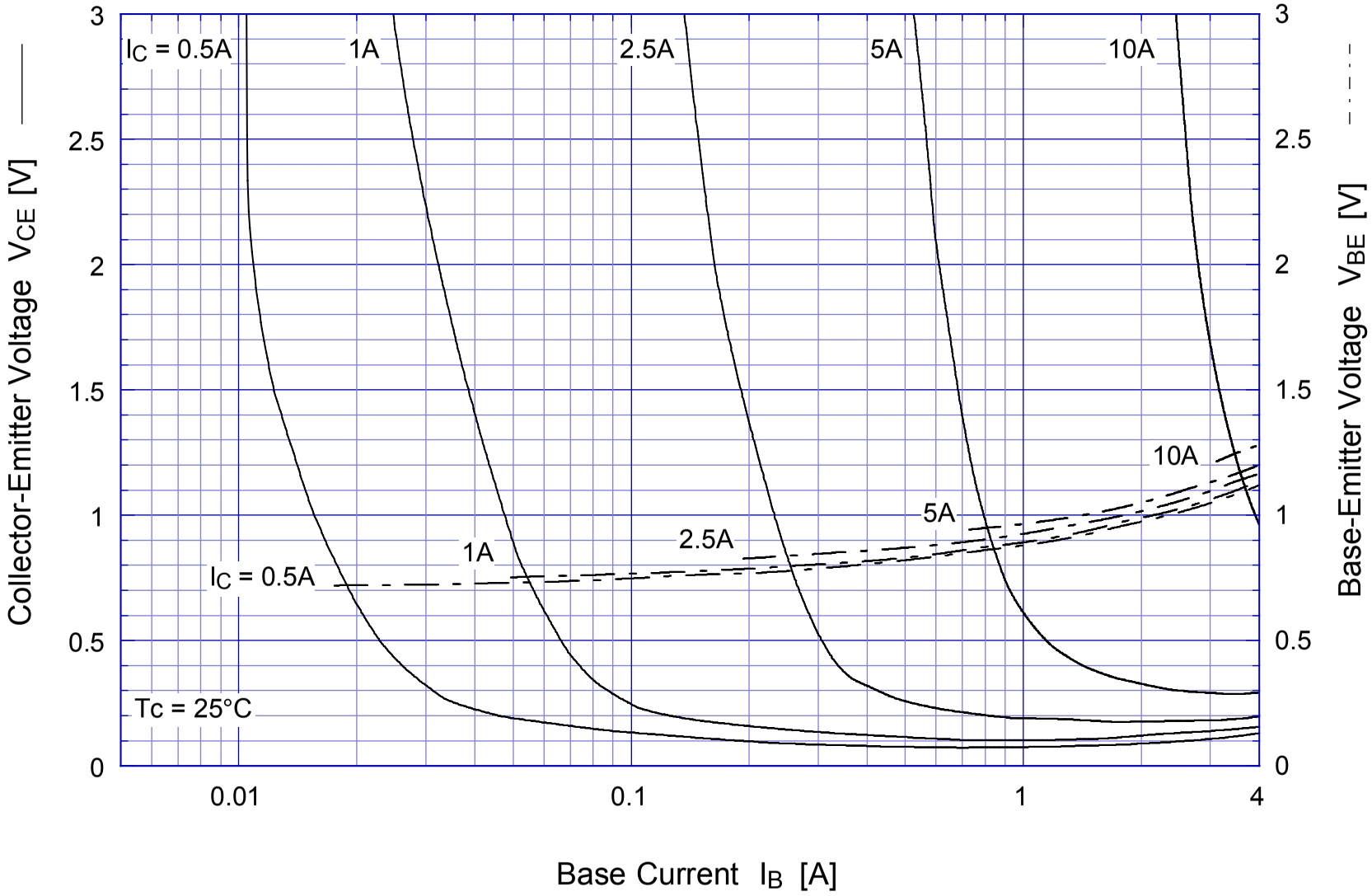
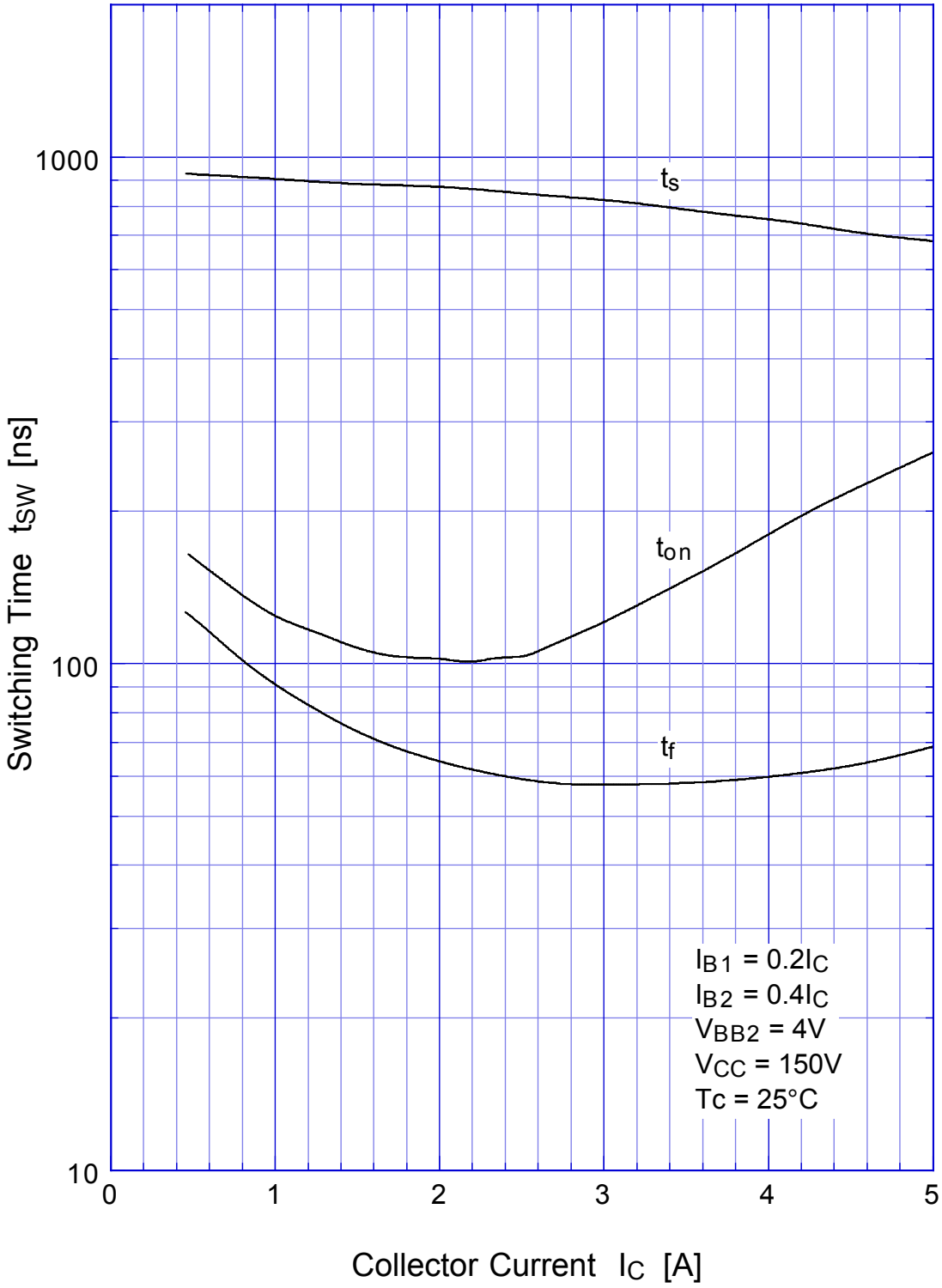

2SC4833
hFE - IC
VCE = 2V
Tc = 150°C
100°C
50°C
25°C
0°C
−25°C
−55°C
100
10
1
0.001
0.01
0.1
1
10
DC Current Gain hFE
Collector Current IC [A]

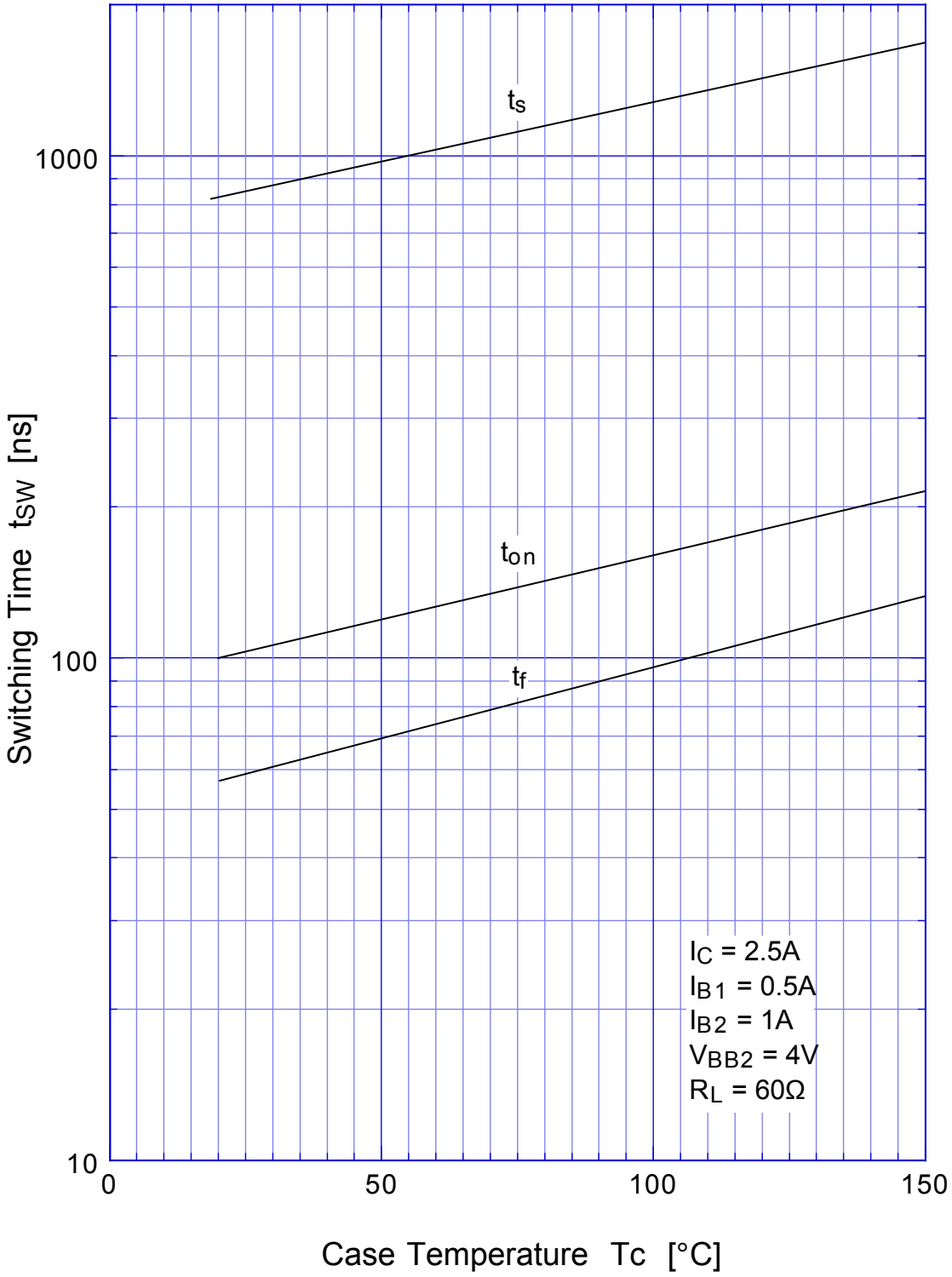
2SC4833 Saturation Voltage



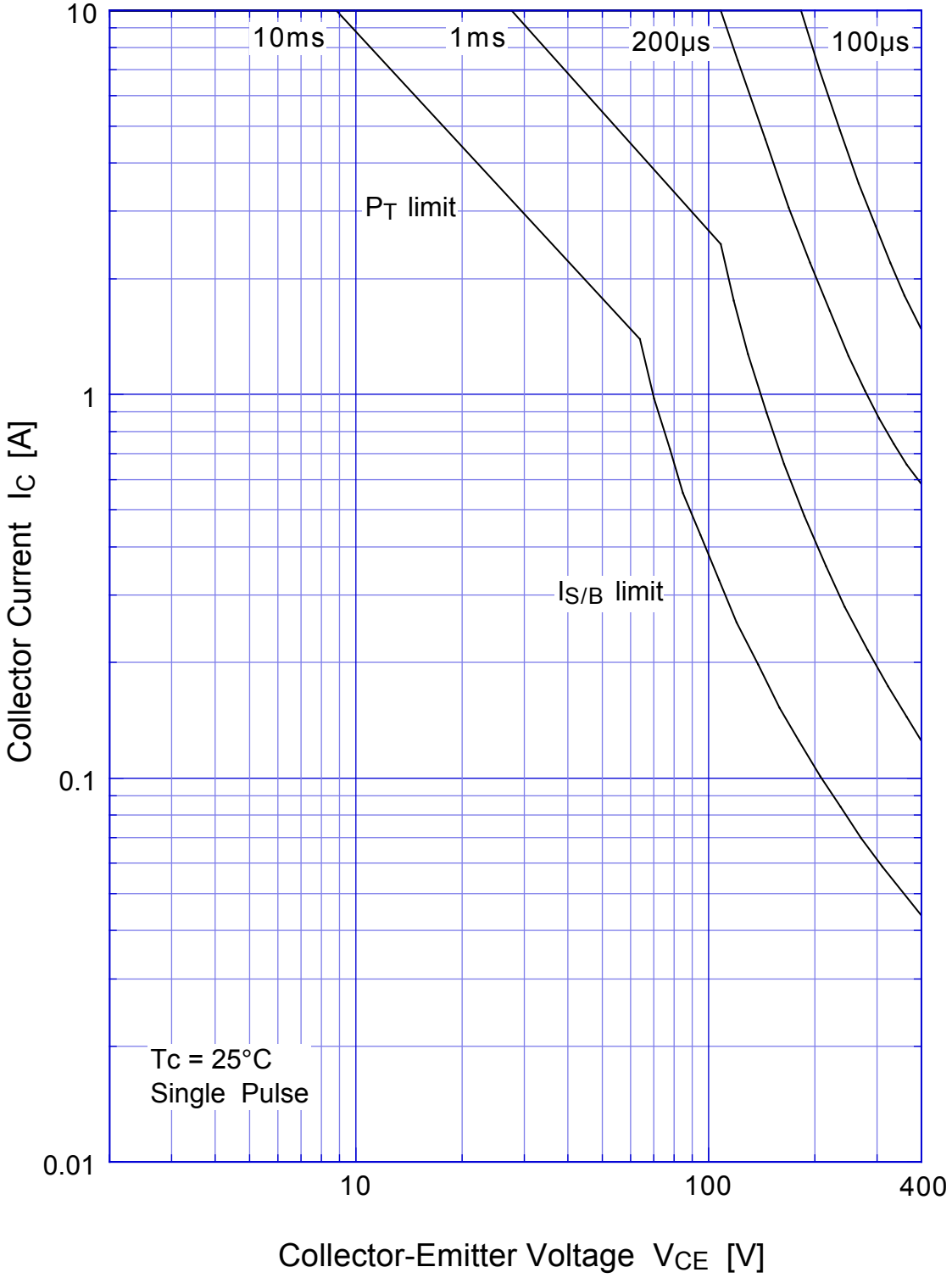
2SC4833 Switching Time - I_C

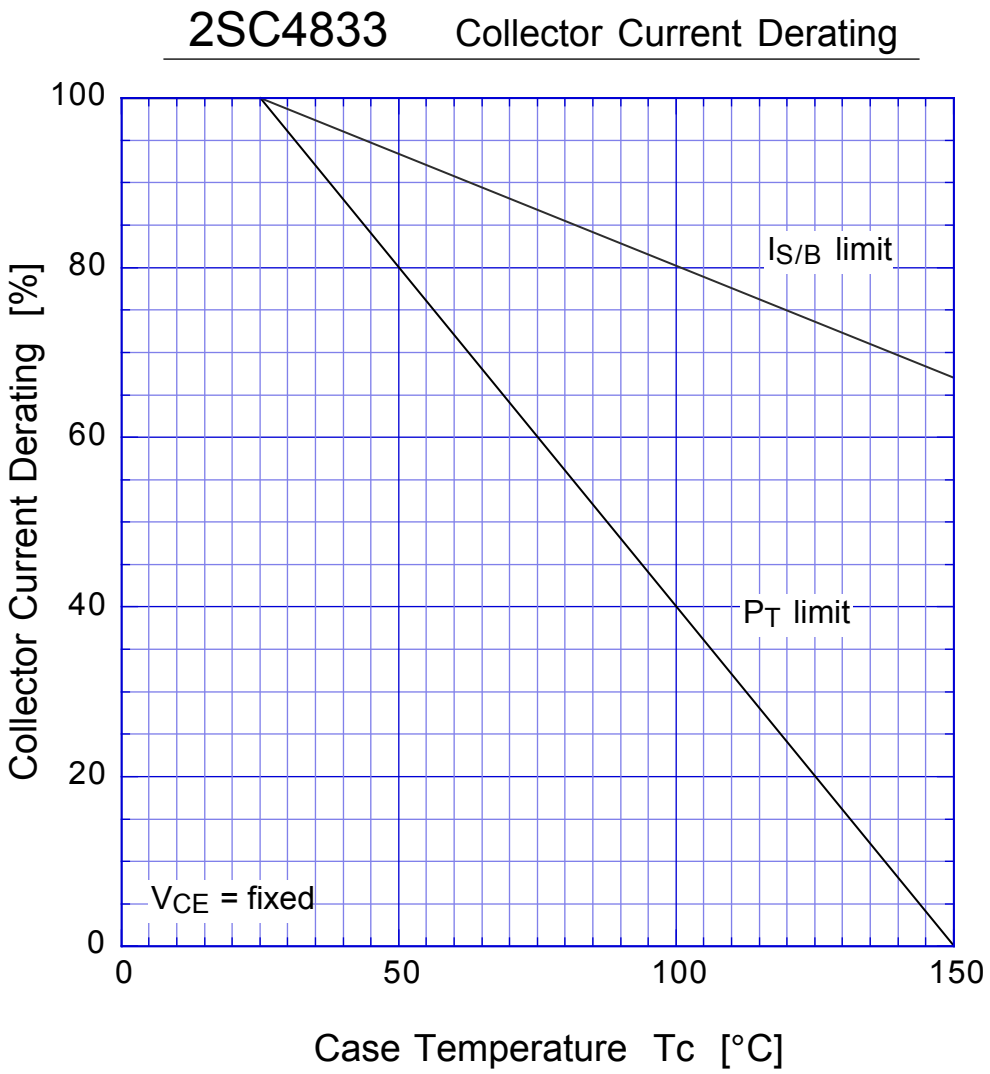


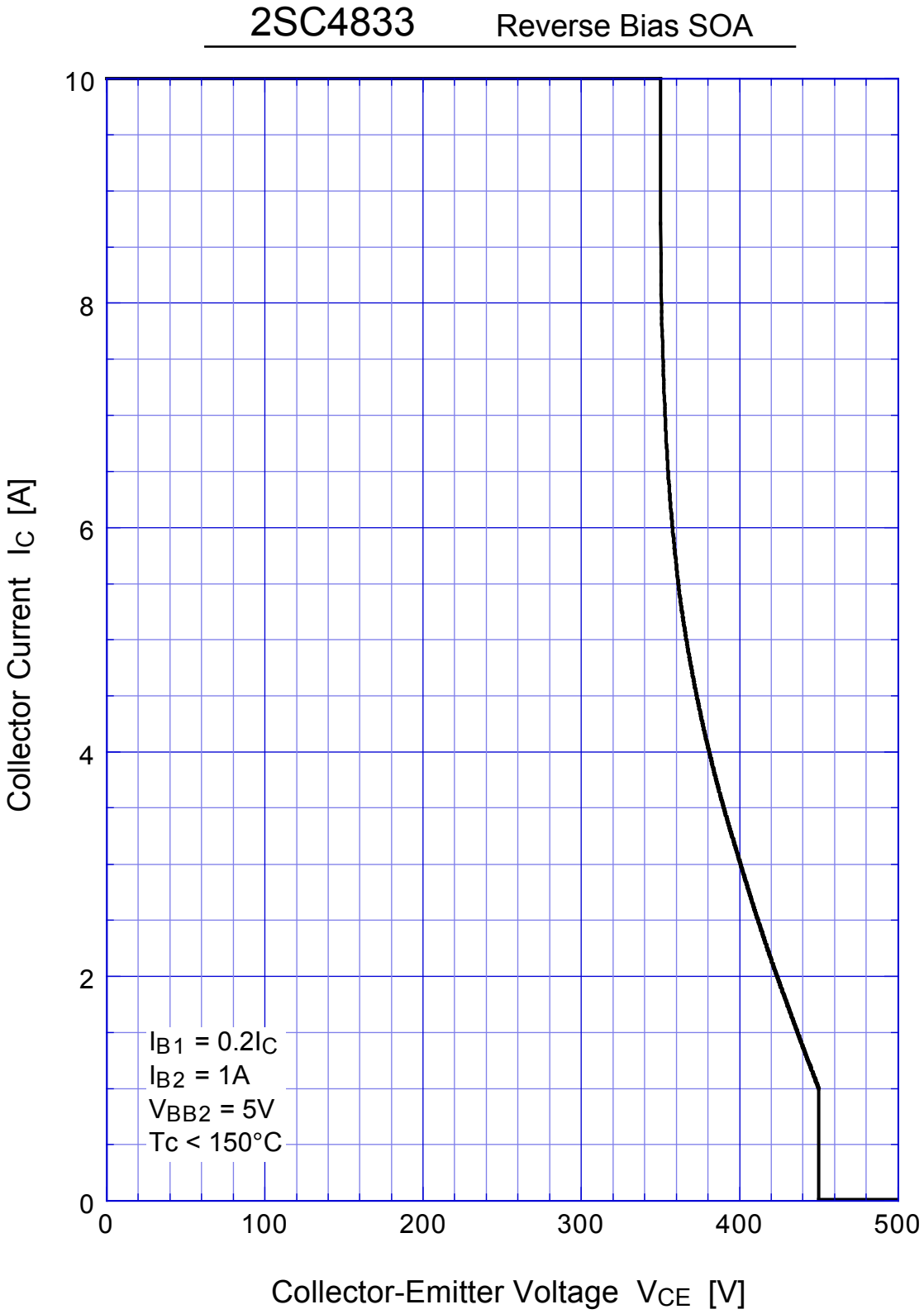
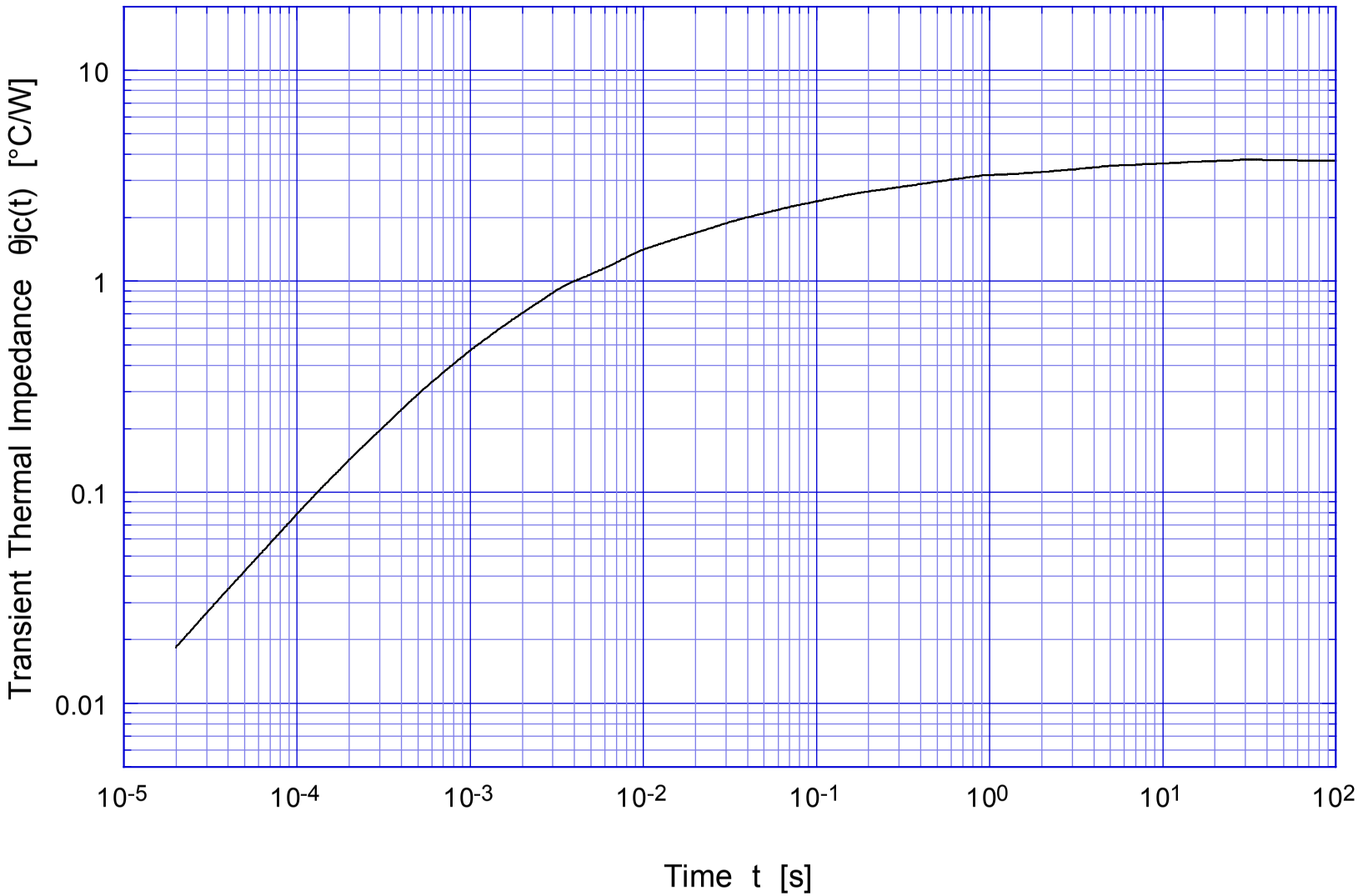
2SC4833 Switching Time - Tc



2SC4833 Forward Bias SOA




2SC4833 Collector Current Derating
100
80
60
40
20
0
Collector Current Derating [%]
0
50
100
150
Case Temperature Tc [°C]
IS/B limit
PT limit
VCE = fixed


2SC4833
Reverse Bias SOA
10
8
6
4
2
0
0
100
200
300
400
500
Collector Current IC [A]
Collector-Emitter Voltage VCE [V]
IB1 = 0.2IC
IB2 = 1A
VBB2 = 5V
Tc < 150°C

2SC4833 Transient Thermal Impedance