SHINDENGEN

Switching Power Transistor

FX Series

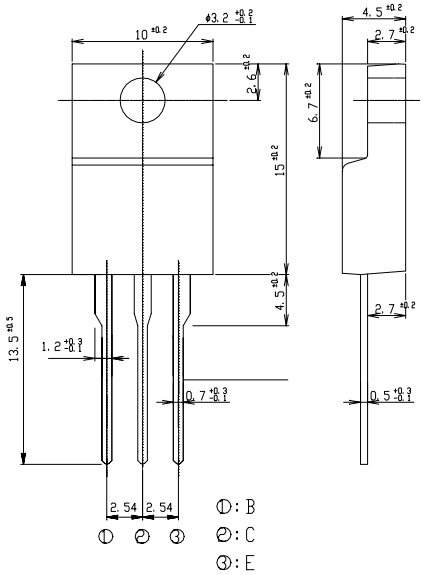
2SC5241

5A NPN

OUTLINE DIMENSIONS

Case : FTO-220

Unit : mm



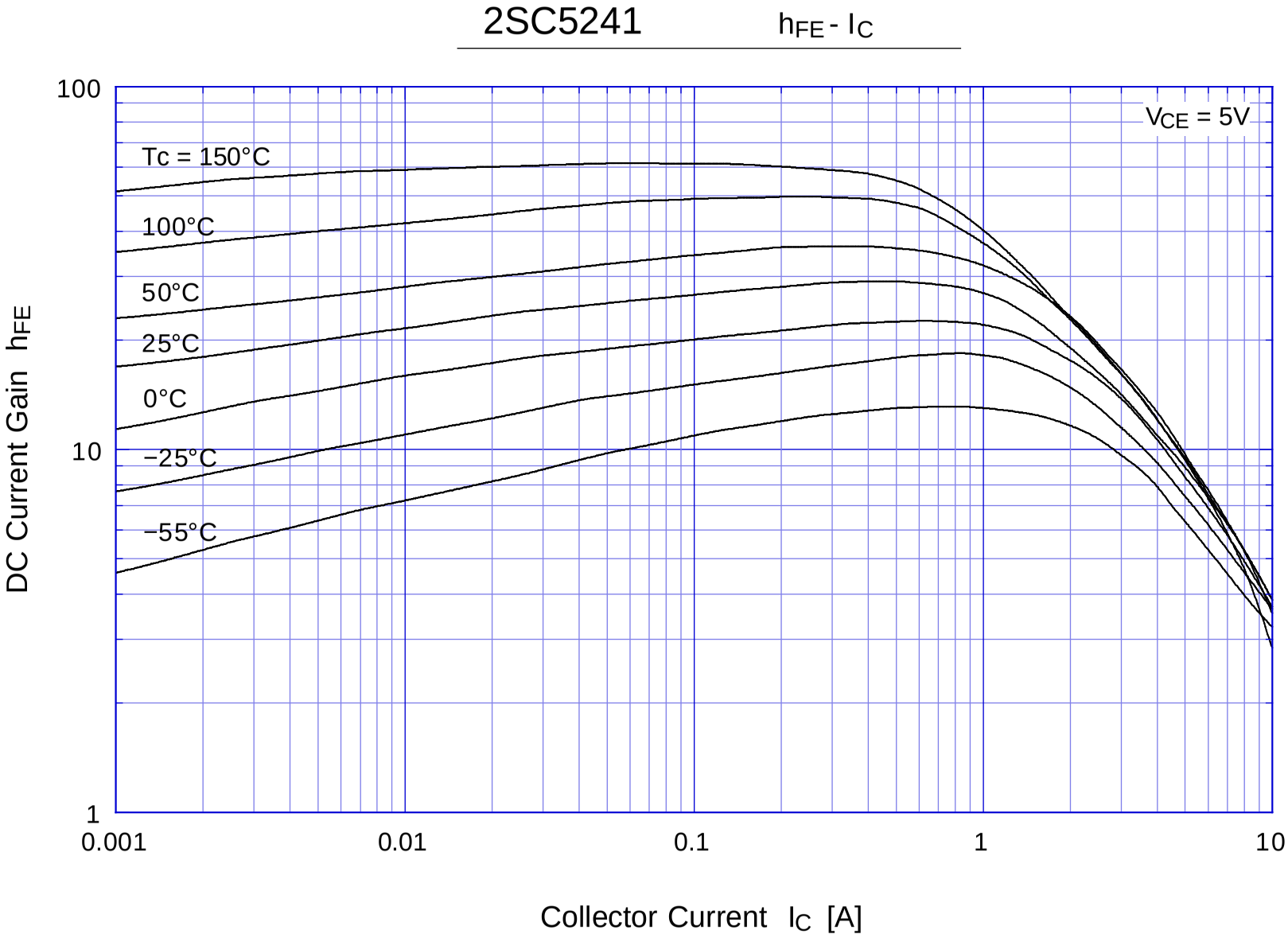
RATINGS

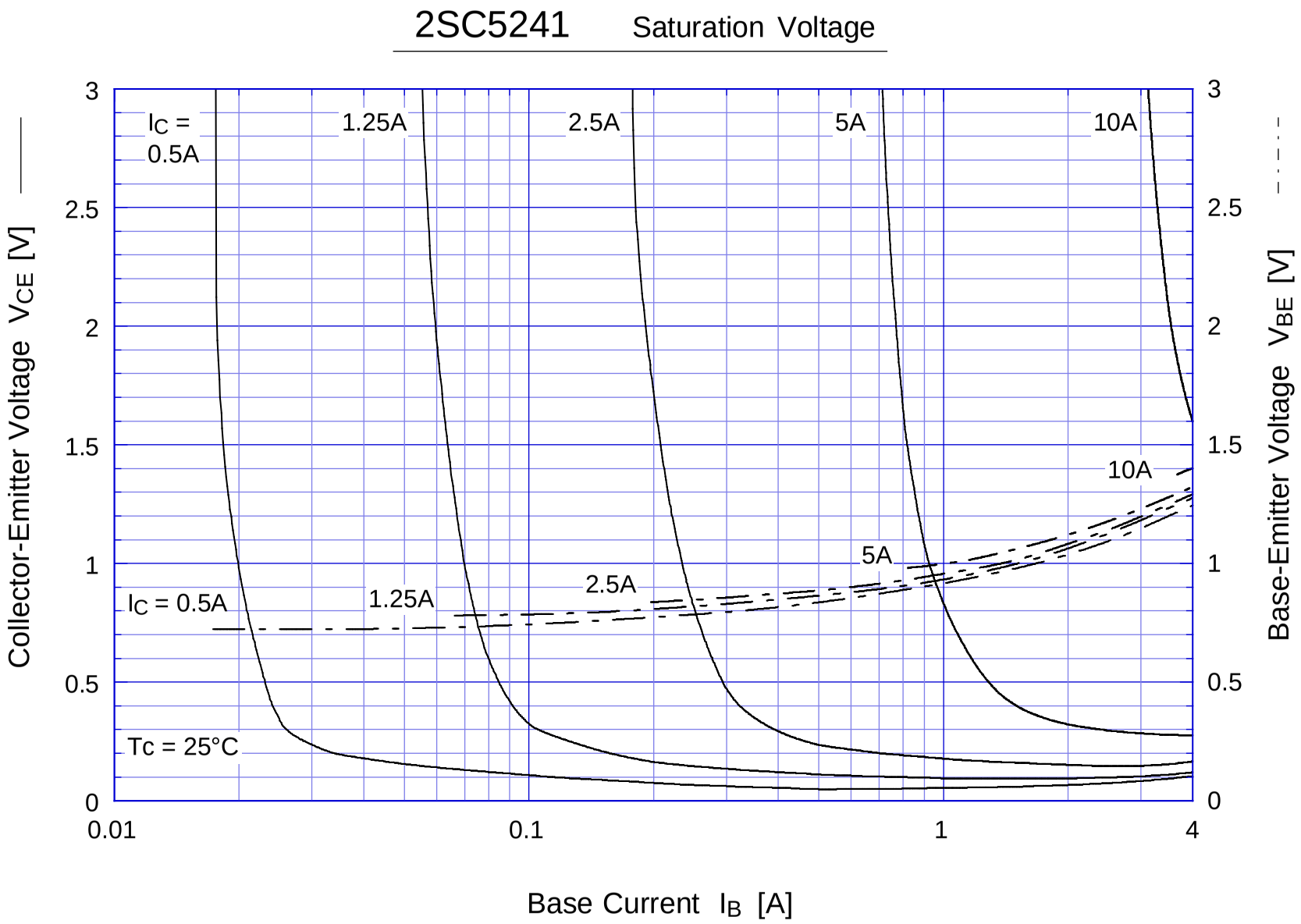
●Absolute Maximum Ratings

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	Tstg		−55～150	℃
Junction Temperature	Tj		150	℃
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	Vdis	Terminals to case, AC 1 minute	2	kV
Mounting Torque	TOR	(Recommended torque)	0.5(0.3)	N･m

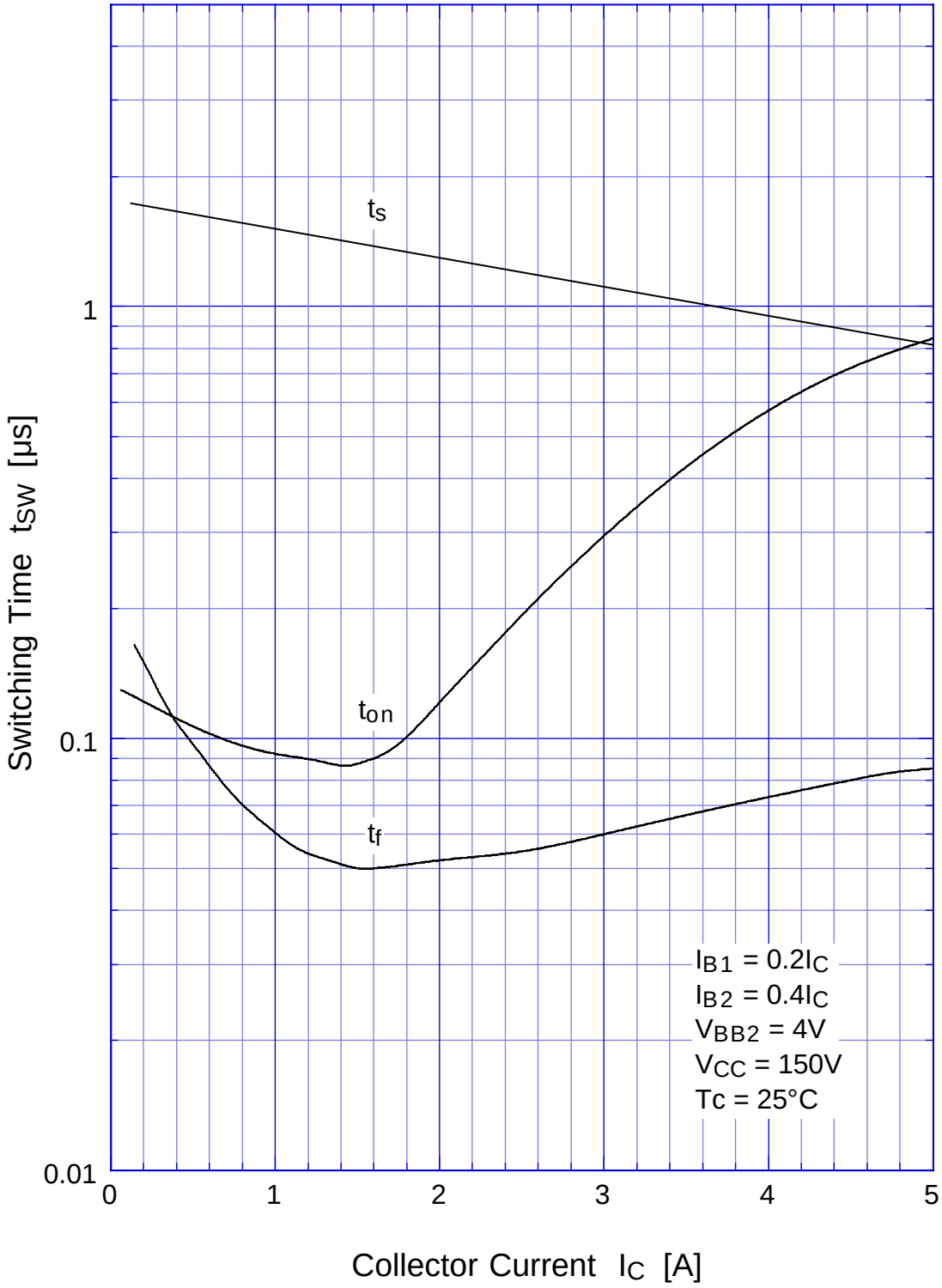
●Electrical Characteristics (Tc=25℃)

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	θ jc	Junction to case	Max 4.16	℃/W
Transition Frequency	f_T	V_{CE} = 10V, I_C = 0.5A	STD 20	MHz
Turn on Time	ton	I_C = 2.5A	Max 0.5	μ s
Storage Time	ts	I_{B1} = 0.5A, I_{B2} = 1A	Max 2.0	
Fall Time	tf	R_L = 60Ω, V_{BB2} = 4V	Max 0.2	

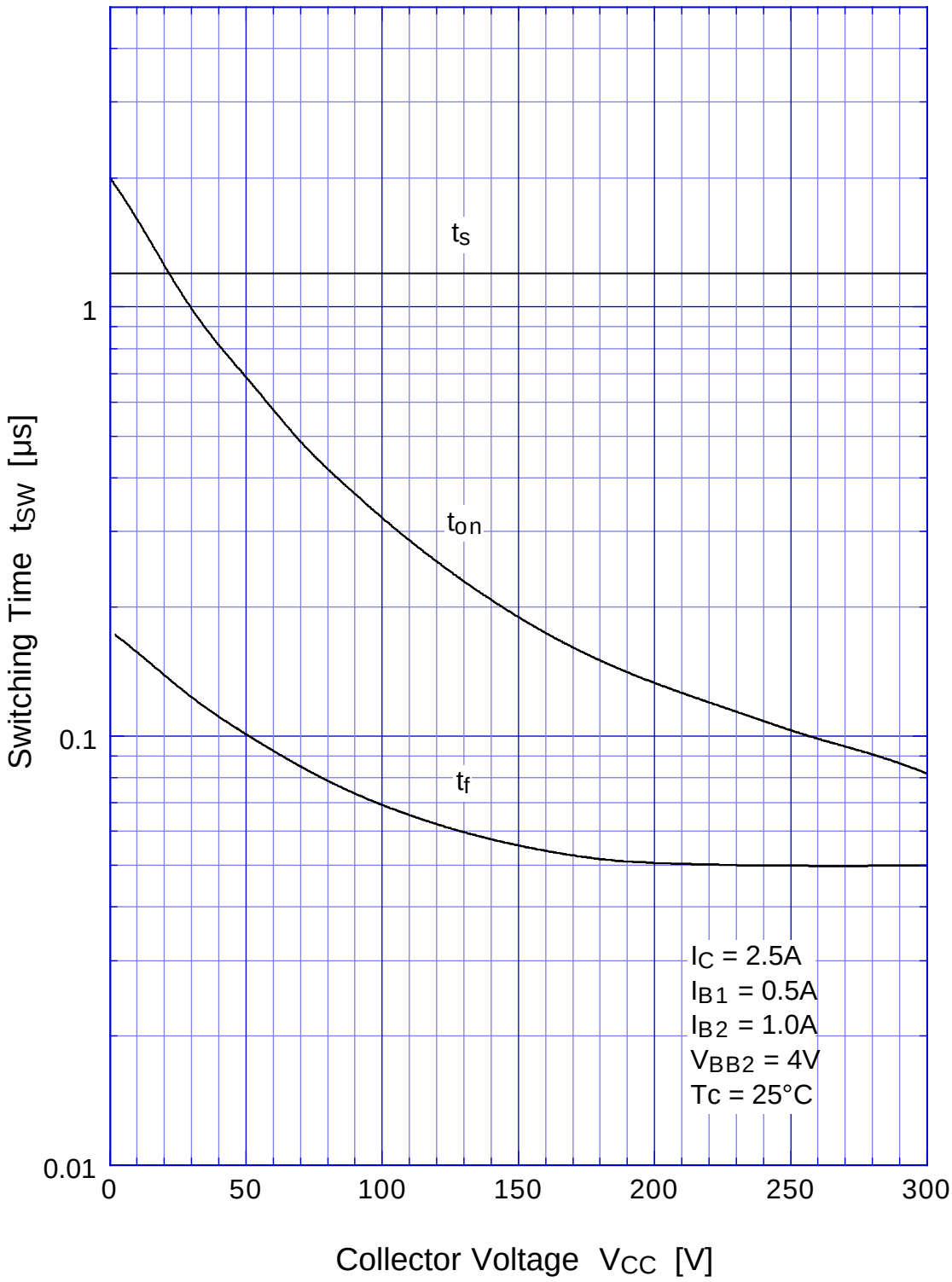

2SC5241
hFE - IC
VCE = 5V
Tc = 150°C
100°C
50°C
25°C
0°C
−25°C
−55°C
100
10
1
0.001
0.01
0.1
1
10
DC Current Gain hFE
Collector Current IC [A]


2SC5241 Saturation Voltage
Collector-Emitter Voltage V_{CE} [V]
Base-Emitter Voltage V_{BE} [V]
Base Current I_B [A]
I_C = 0.5A
1.25A
2.5A
5A
10A
I_C = 0.5A
1.25A
2.5A
5A
10A
Tc = 25°C
0
0.5
1
1.5
2
2.5
3
0.01
0.1
1
4

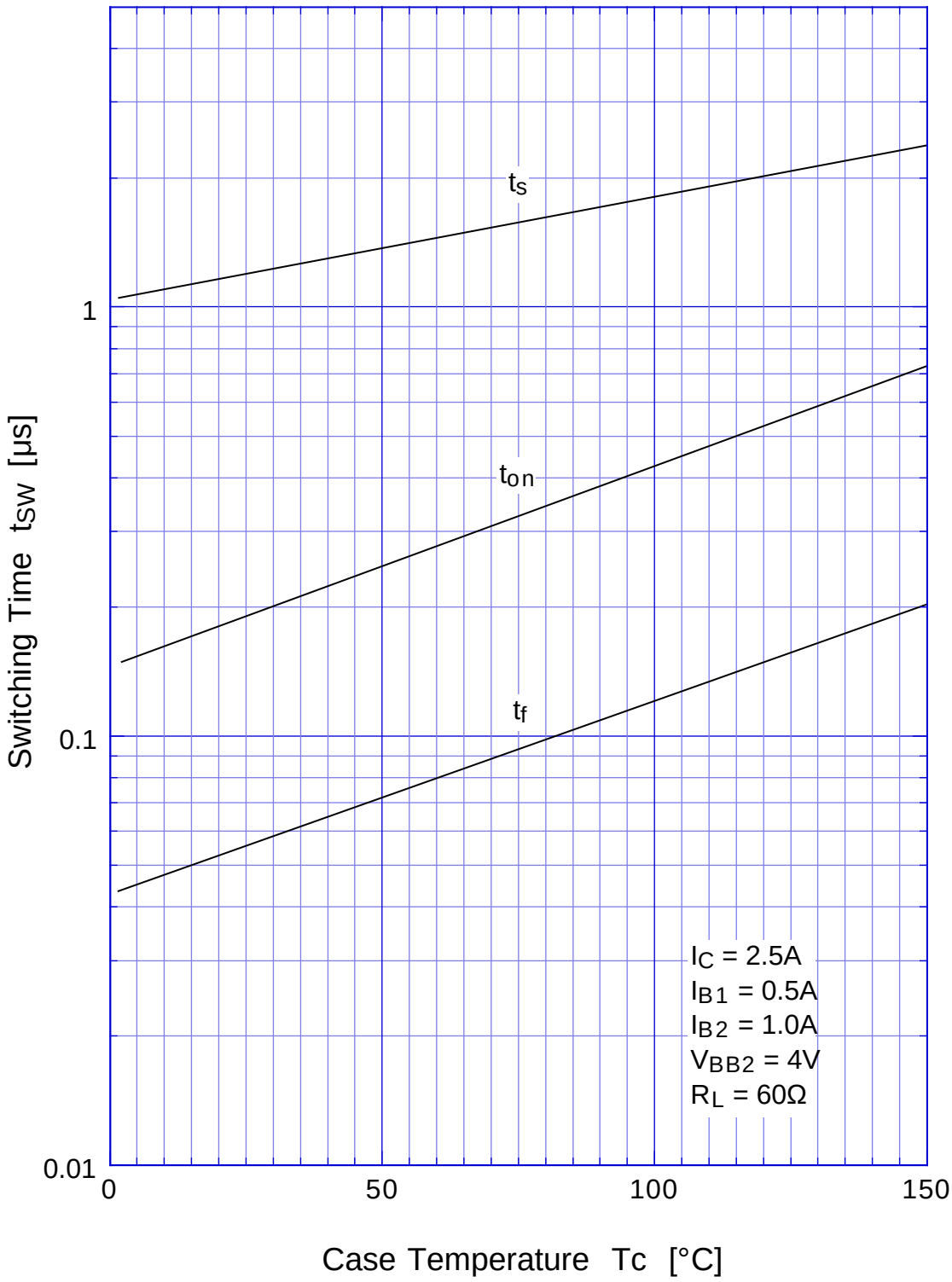
2SC5241 Switching Time - I_C



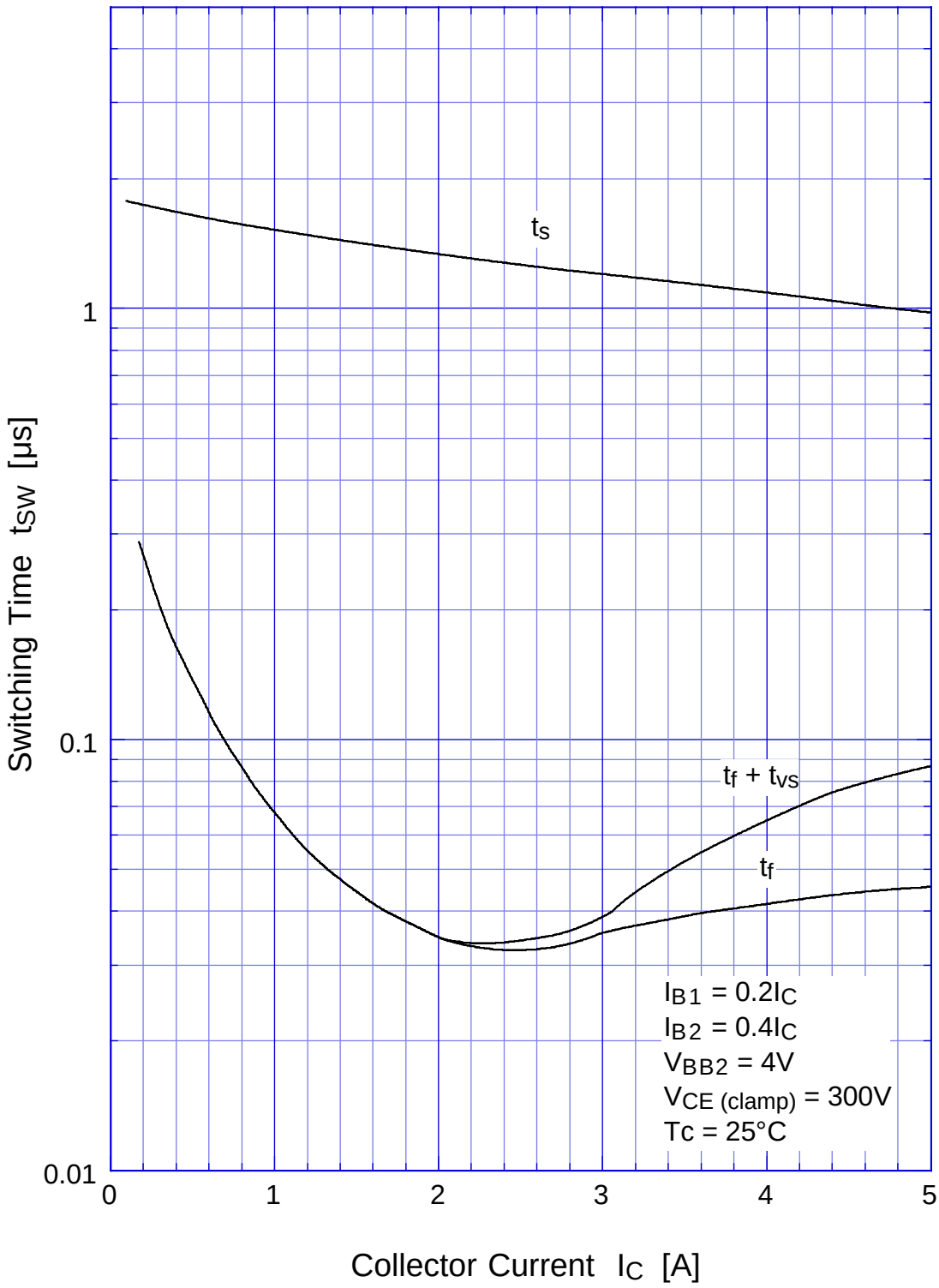
2SC5241 Switching Time - V_{CC}



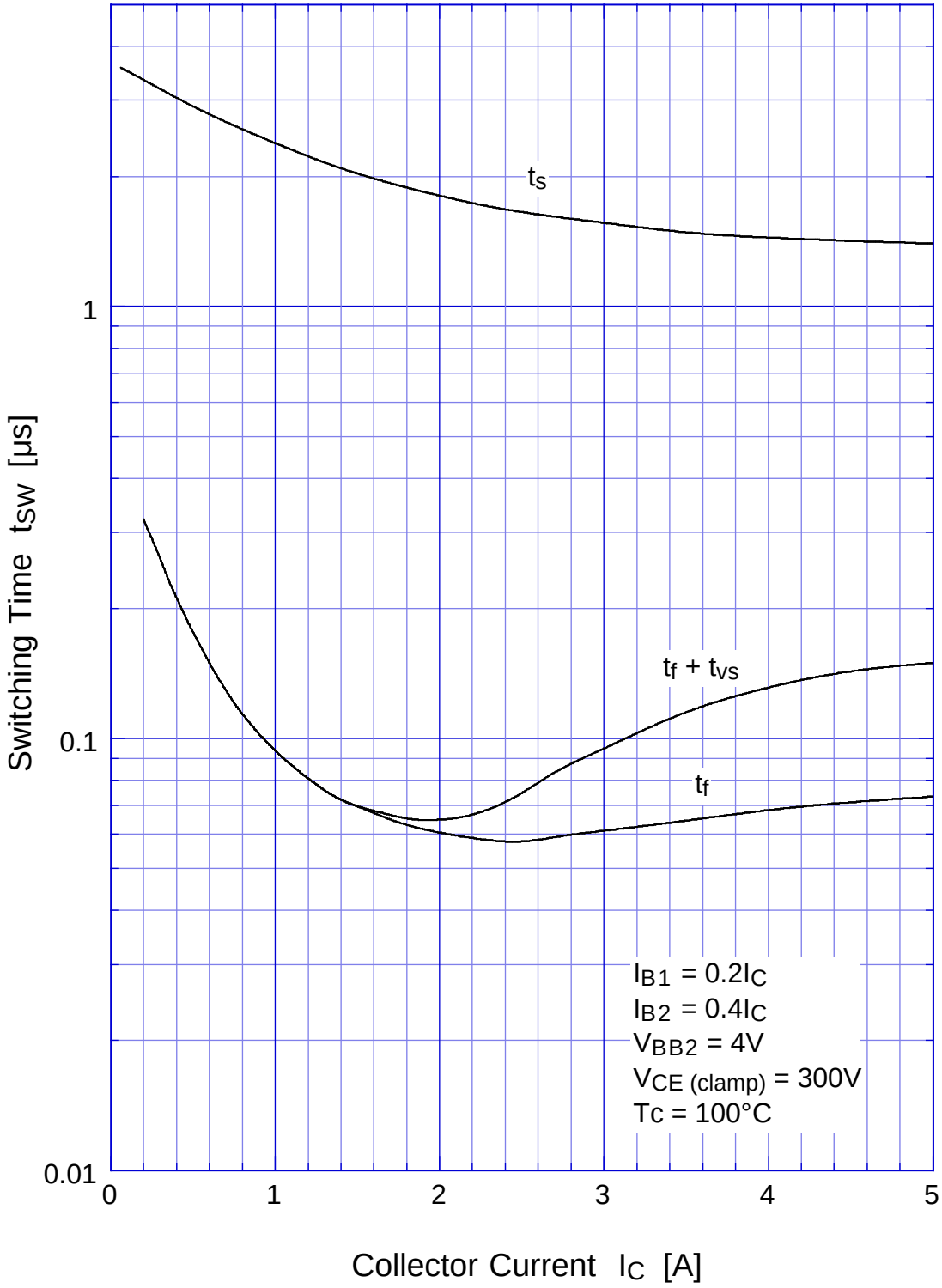
2SC5241 Switching Time - Tc

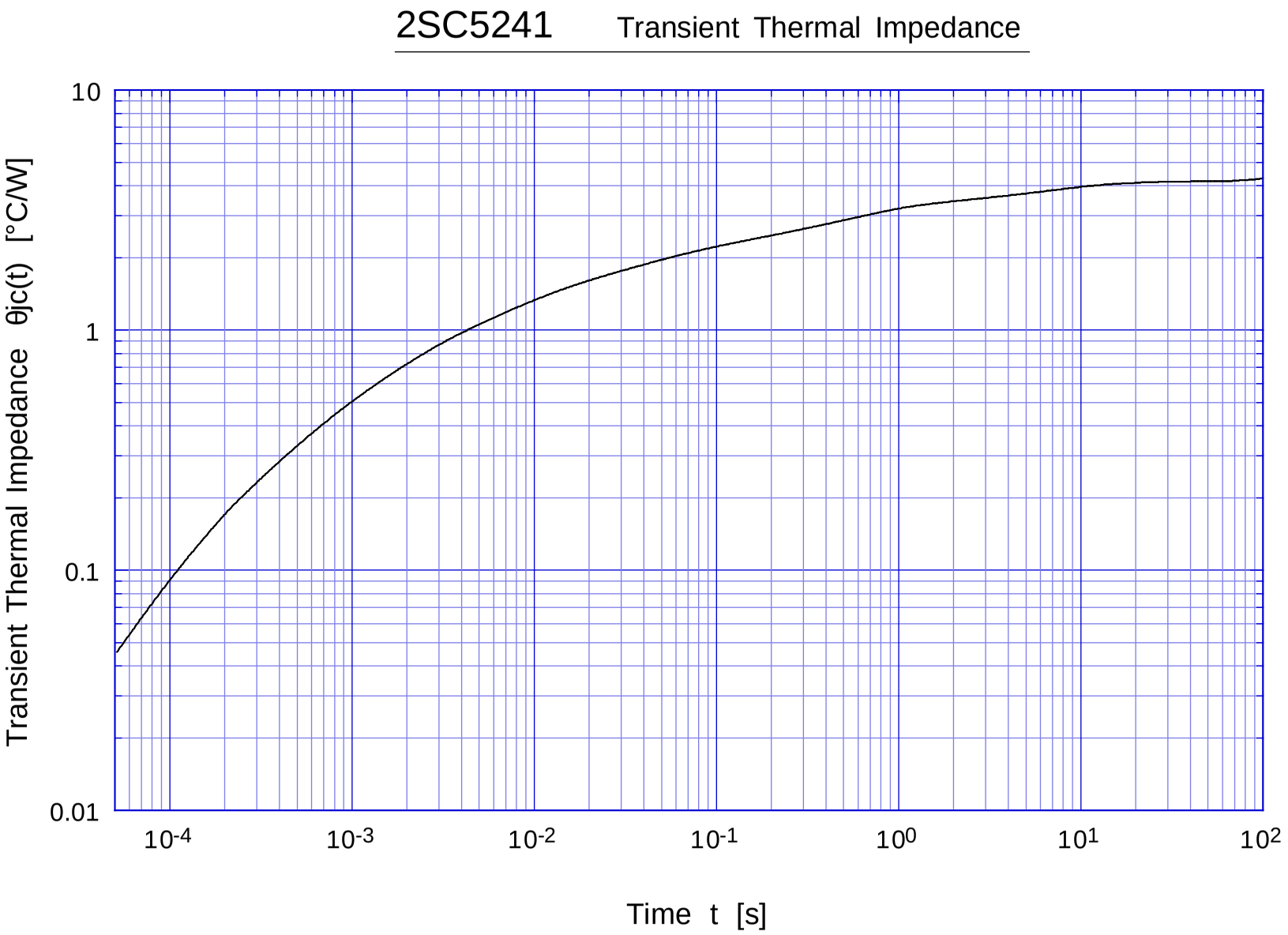


2SC5241 L-Load Switching Time - I_C

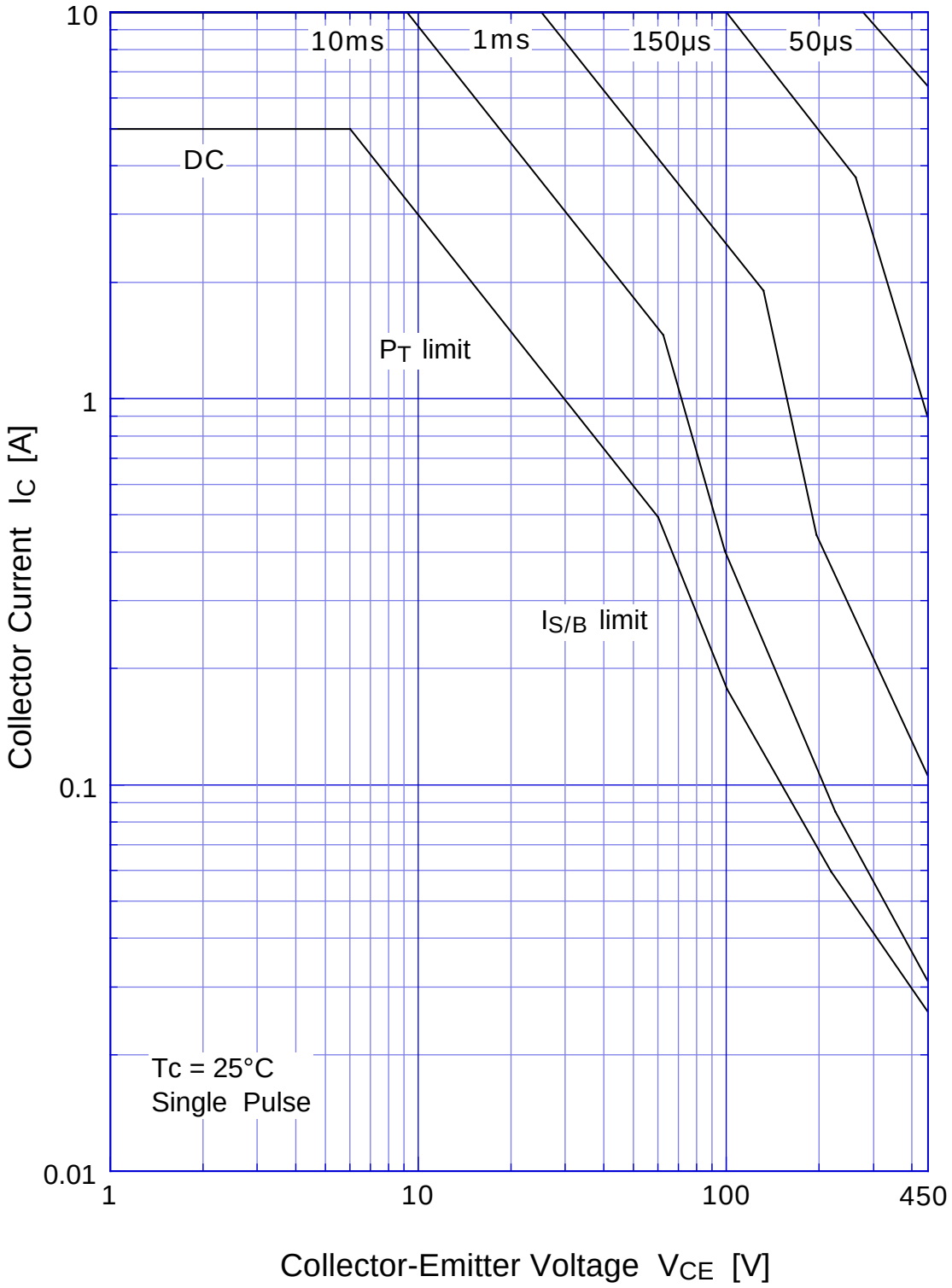


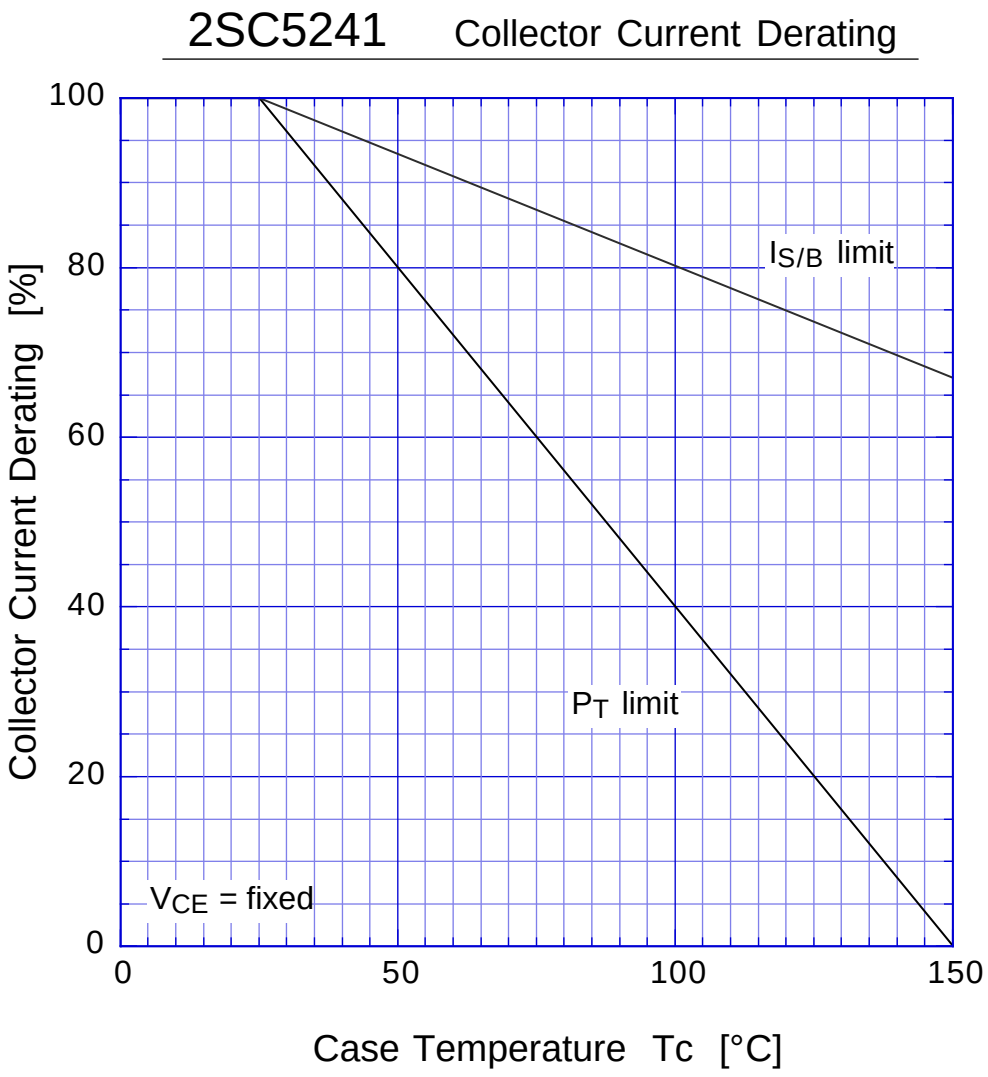
2SC5241 L-Load Switching Time - I_C (At High Temperature)




2SC5241 Transient Thermal Impedance
Transient Thermal Impedance θjc(t) [°C/W]
10
1
0.1
0.01
10-4
10-3
10-2
10-1
100
101
102
Time t [s]

2SC5241 Forward Bias SOA




2SC5241 Collector Current Derating
100
80
60
40
20
0
Collector Current Derating [%]
0
50
100
150
Case Temperature Tc [°C]
$I_{S/B}$ limit
P_T limit
V_{CE} = fixed

2SC5241 Reverse Bias SOA