SHINDENGEN

Switching Power Transistor

HFX Series

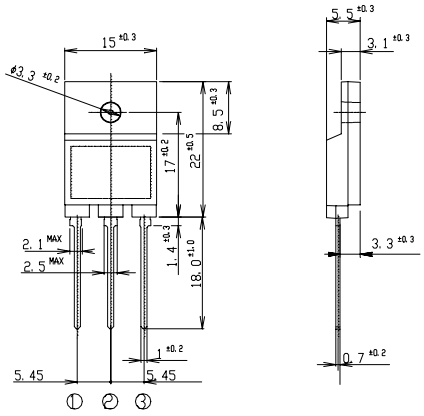
2SC4584
(TP6W80HFX)

6A NPN

OUTLINE DIMENSIONS

Case : ITO-3P

Unit : mm



①: B
②: C
③: E

RATINGS

●Absolute Maximum Ratings

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	Tstg		−55～150	℃
Junction Temperature	Tj		150	℃
Collector to Base Voltage	V_{CBO}		1200	V
Collector to Emitter Voltage	V_{CEO}		800	V
Emitter to Base Voltage	V_{EBO}		7	V
Collector Current DC	I_C		6	A
Collector Current Peak	I_{CP}		12	
Base Current DC	I_B		3	A
Base Current Peak	I_{BP}		6	
Total Transistor Dissipation	P_T	Tc = 25℃	65	W
Dielectric Strength	Vdis	Terminals to case, AC 1 minute	2	kV
Mounting Torque	TOR	(Recommended torque : 0.5N･m)	0.8	N･m

●Electrical Characteristics (Tc=25℃)

Item	Symbol	Conditions	Ratings	Unit
Collector to Emitter Sustaining Voltage	$V_{CEO}(sus)$	I_C = 0.2A	Min 800	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} = 5V, I_C = 3A	Min 8	
	h_{FEL}	V_{CE} = 5V, I_C = 1mA	Min 7	
Collector to Emitter Saturation Voltage	$V_{CE}(sat)$	I_C = 3A	Max 1.0	V
Base to Emitter Saturation Voltage	$V_{BE}(sat)$	I_B = 0.6A	Max 1.5	V
Thermal Resistance	θ jc	Junction to case	Max 1.92	℃/W
Transition Frequency	f_T	V_{CE} = 10V, I_C = 0.6A	TYP 8	MHz
Turn on Time	ton	I_C = 3A	Max 0.5	μ s
Storage Time	ts	I_{B1} = 0.6A, I_{B2} = 1.2A	Max 3.5	
Fall Time	tf	R_L = 85Ω, V_{BB2} = 4V	Max 0.3	

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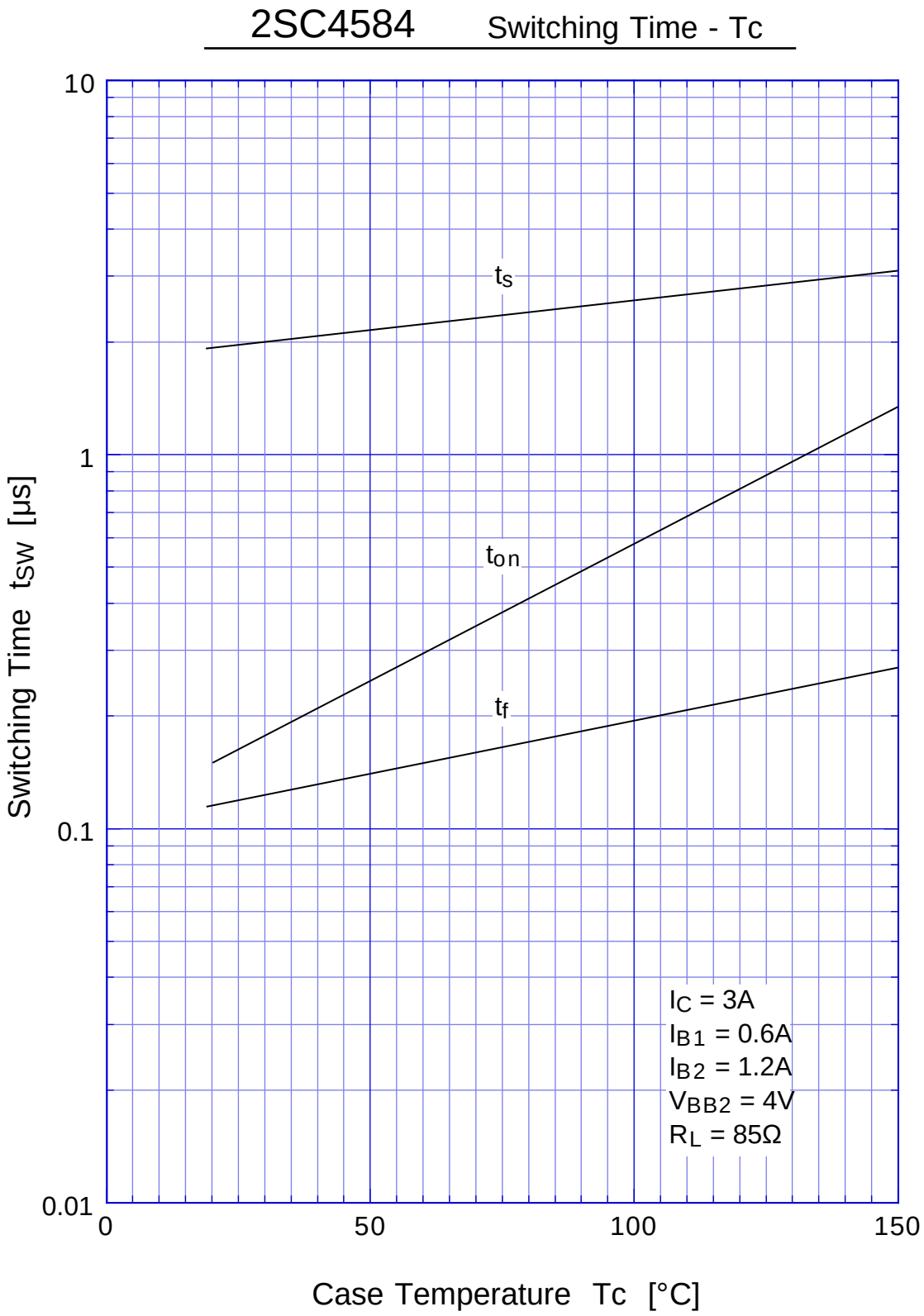
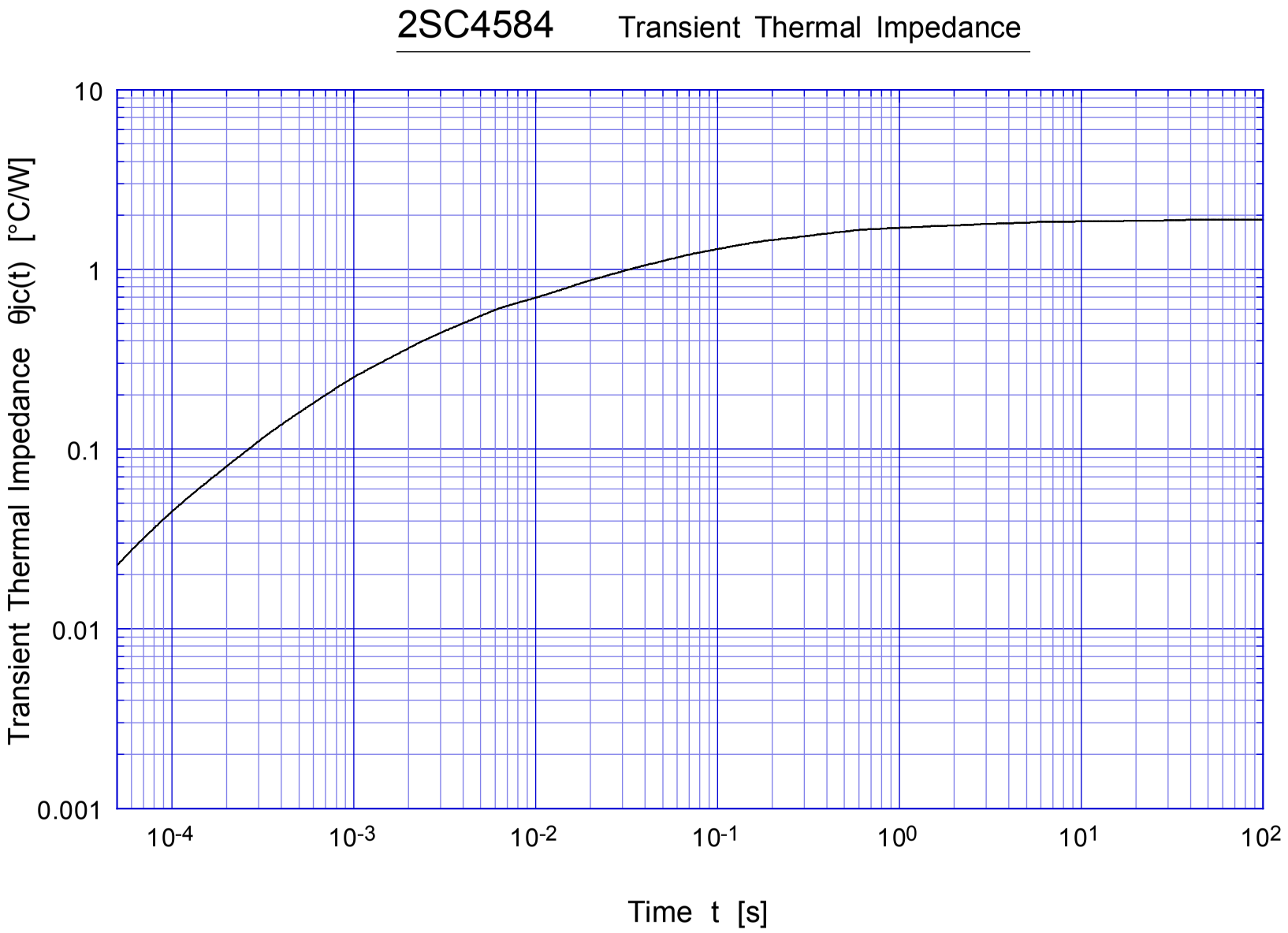
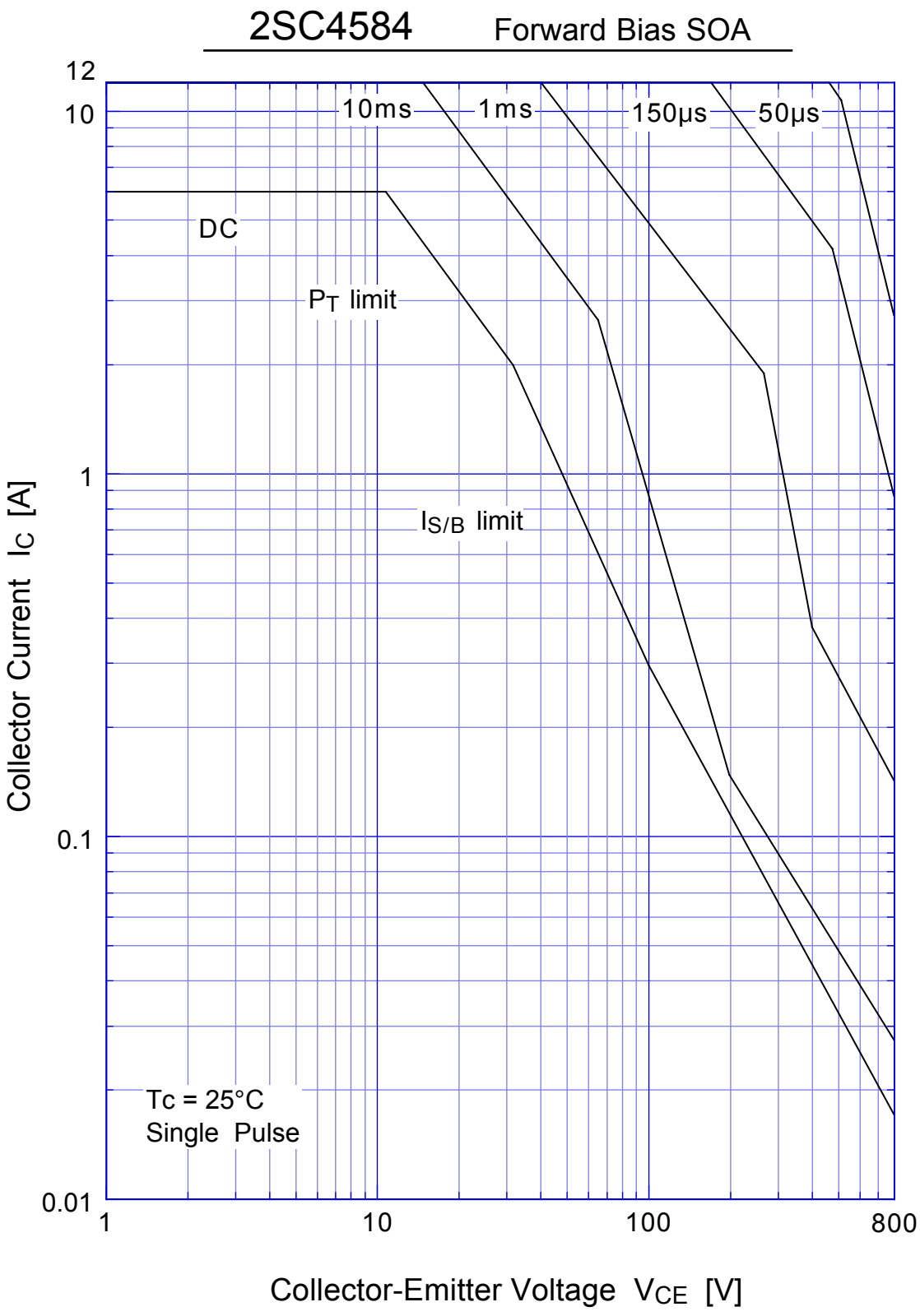
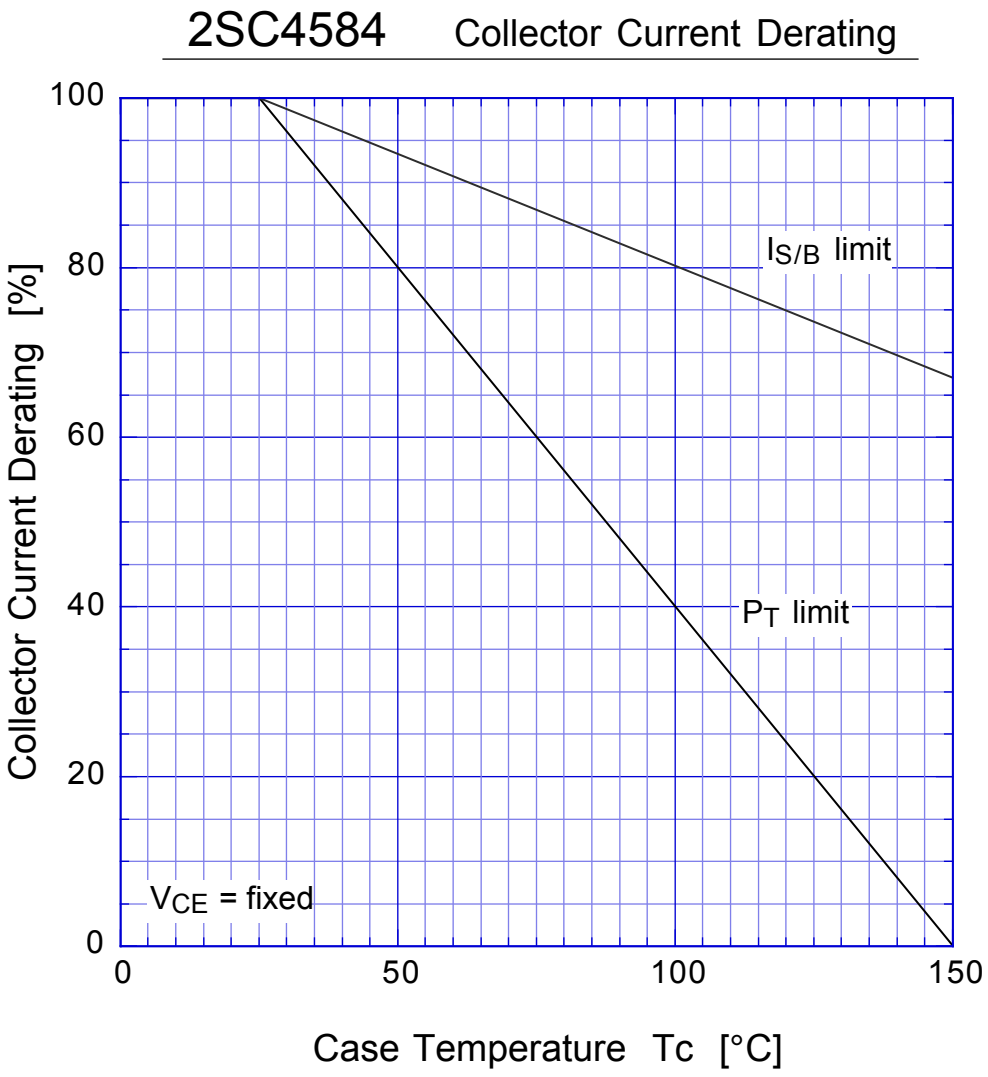
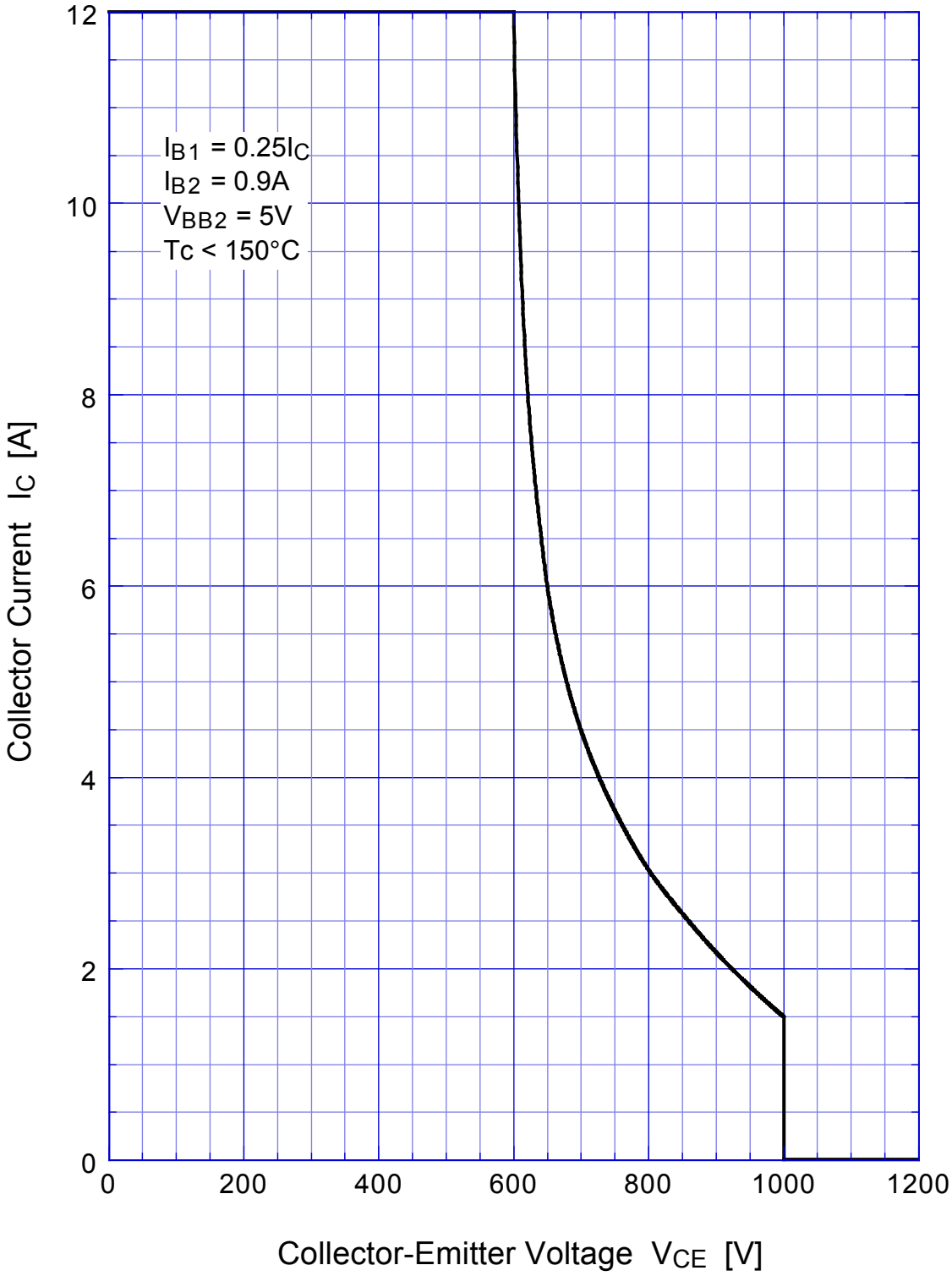

2SC4584
Switching Time - Tc
10
1
0.1
0.01
0
50
100
150
Switching Time tSW [µs]
Case Temperature Tc [°C]
ts
ton
tf
IC = 3A
IB1 = 0.6A
IB2 = 1.2A
VBB2 = 4V
RL = 85Ω


2SC4584 Transient Thermal Impedance
Transient Thermal Impedance θjc(t) [°C/W]
10
1
0.1
0.01
0.001
10-4
10-3
10-2
10-1
100
101
102
Time t [s]


2SC4584
Forward Bias SOA
12
10
1
0.1
0.01
1
10
100
800
10ms
1ms
150µs
50µs
DC
PT limit
IS/B limit
Tc = 25°C
Single Pulse
Collector Current IC [A]
Collector-Emitter Voltage VCE [V]


2SC4584 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

2SC4584 Reverse Bias SOA