

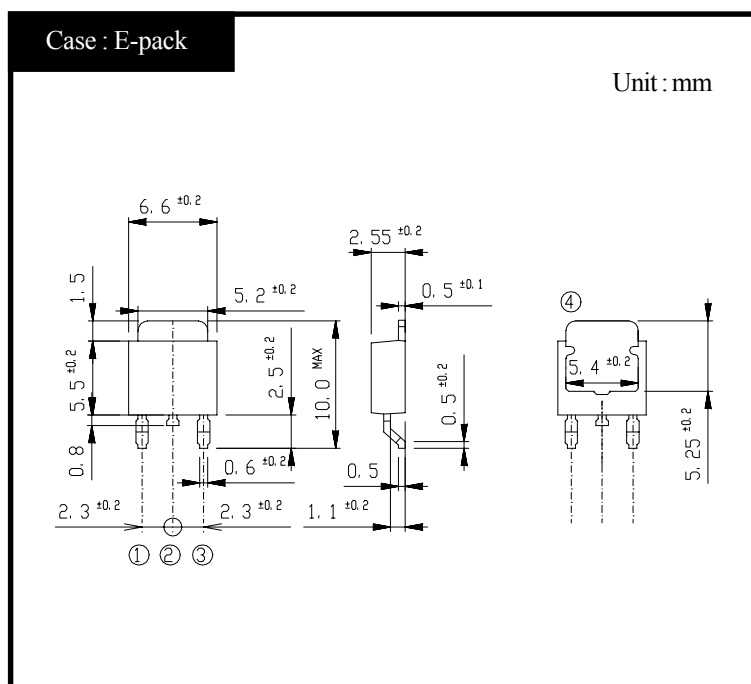
Switching Power Transistor

HSV Series

2SC4978 (TE3S8)

3A NPN

OUTLINE DIMENSIONS



RATINGS

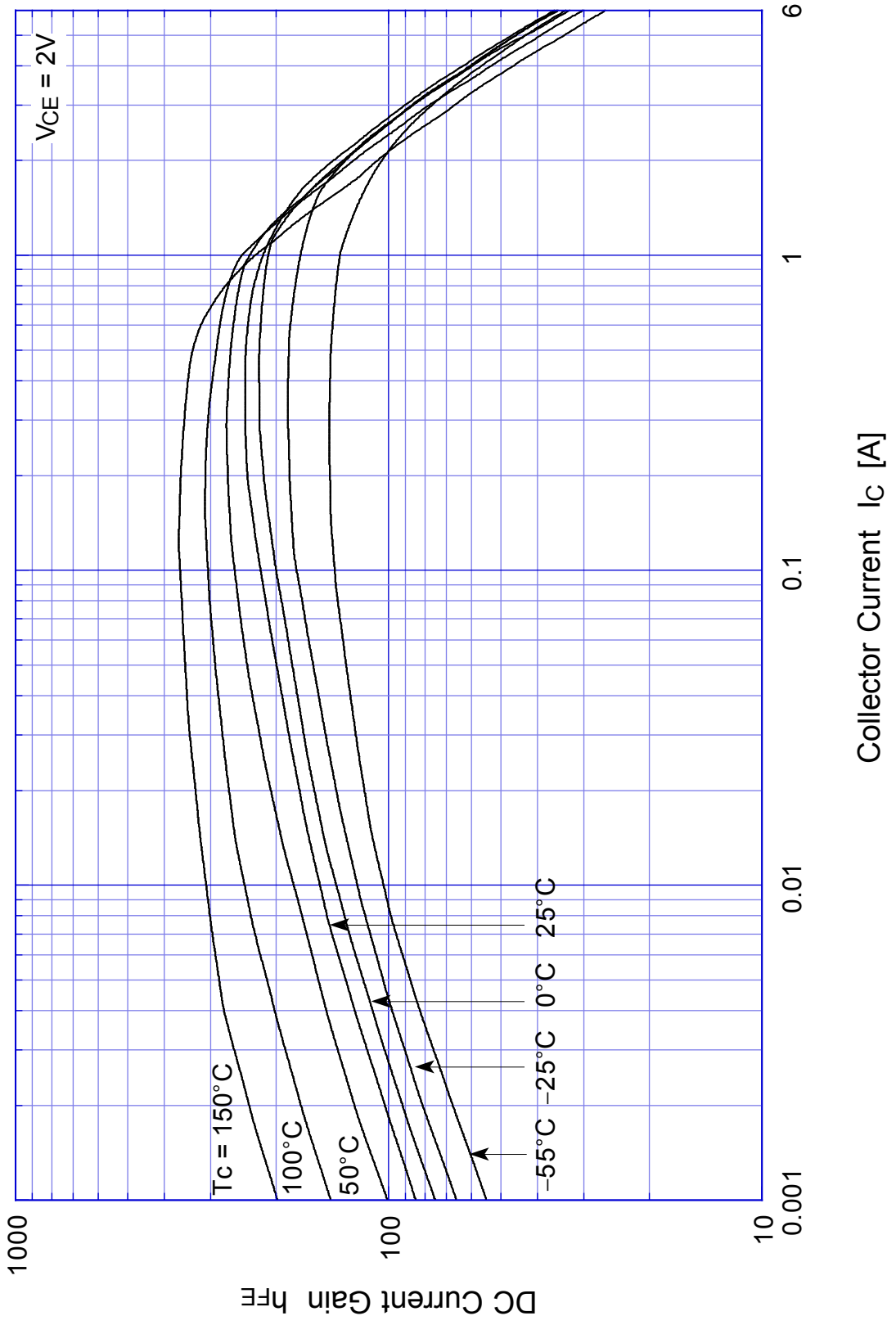
● Absolute Maximum Ratings

Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	T_{stg}		-55~150	°C
Junction Temperature	T_j		150	°C
Collector to Base Voltage	V_{CBO}		100	V
Collector to Emitter Voltage	V_{CEO}		80	V
Emitter to Base Voltage	V_{EBO}		7	V
Collector Current DC	I_C		3	A
Collector Current Peak	I_{CP}		6	A
Base Current DC	I_B		1	A
Base Current Peak	I_{BP}		1.5	A
Total Transistor Dissipation	P_T	$T_c = 25^\circ\text{C}$	10	W

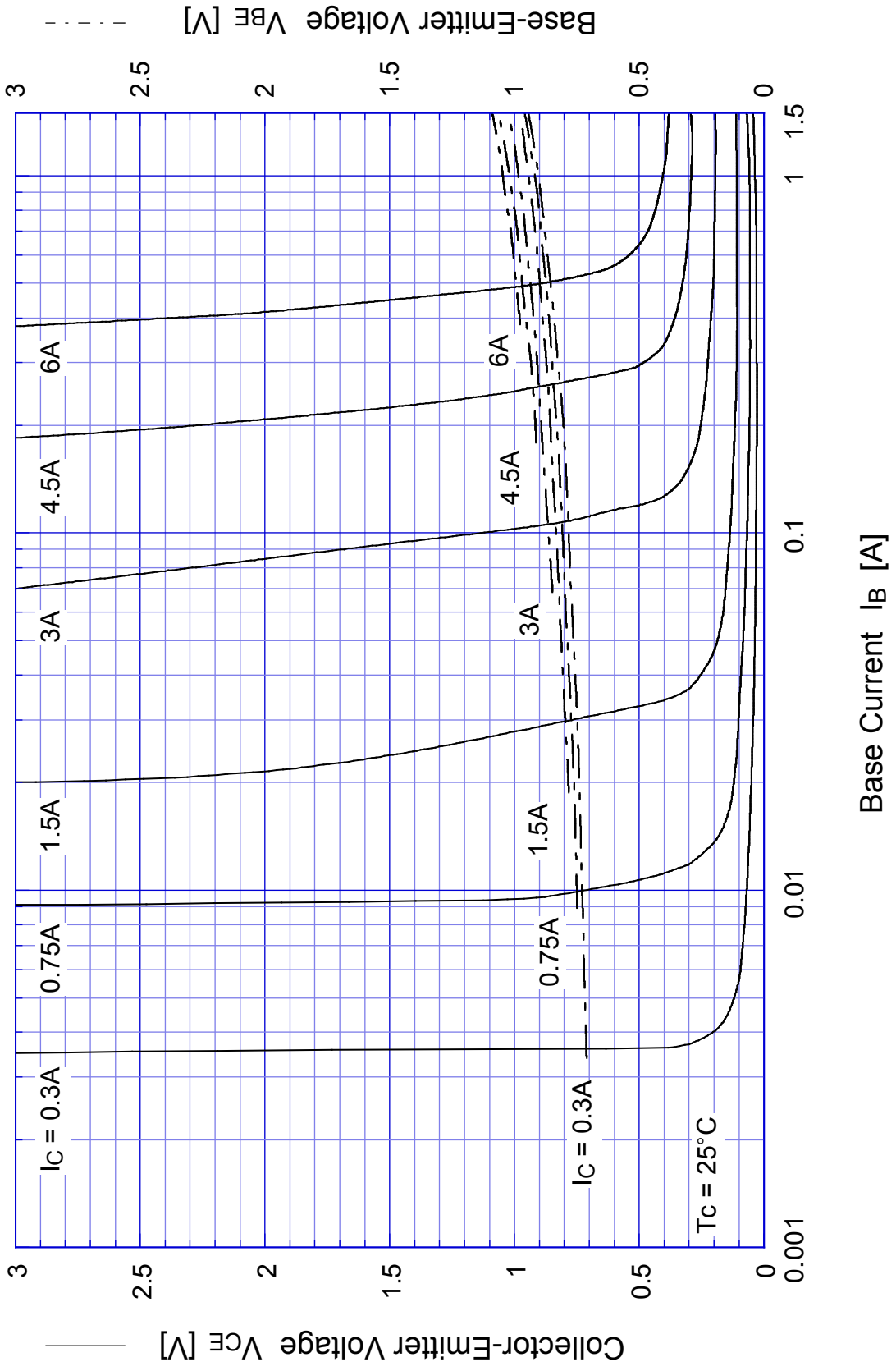
● Electrical Characteristics ($T_c=25^\circ\text{C}$)

Item	Symbol	Conditions	Ratings	Unit
Collector to Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 0.05\text{A}$	Min 80	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}	$V_{CE} = 2\text{V}, I_C = 1.5\text{A}$	Min 70	
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 1.5\text{A}$	Max 0.3	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_B = 0.08\text{A}$	Max 1.2	V
Thermal Resistance	θ_{jc}	Junction to case	Max 12.5	°C/W
Transition Frequency	f_T	$V_{CE} = 10\text{V}, I_C = 0.3\text{A}$	TYP 50	MHz
Turn on Time	t_{on}	$I_C = 1.5\text{A}$ $I_{B1} = 0.15\text{A}, I_{B2} = 0.15\text{A}$ $R_L = 20\ \Omega, V_{BB2} = 4\text{V}$	Max 0.3	μs
Storage Time	t_s		Max 1.5	
Fall Time	t_f		Max 0.2	

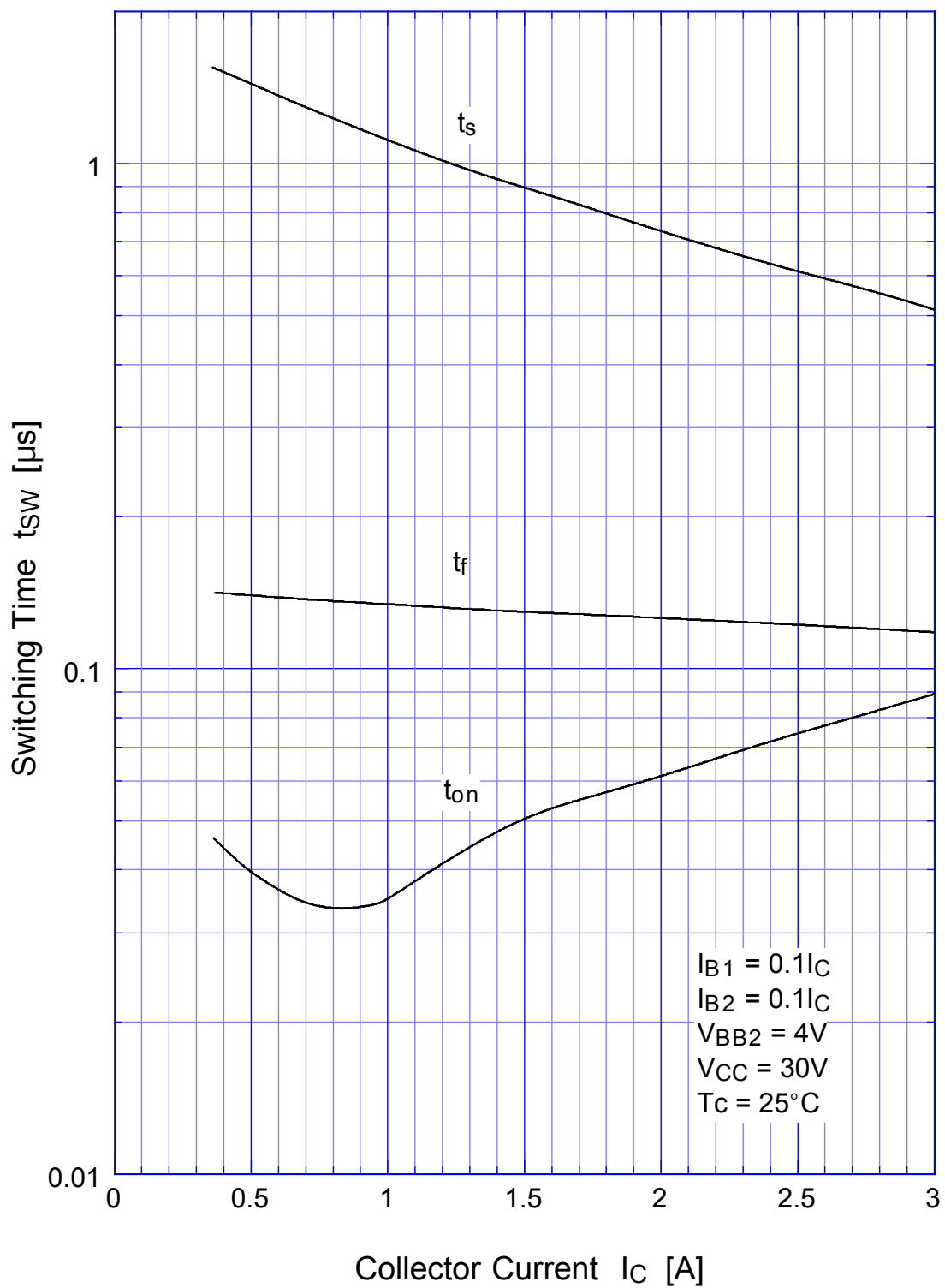
2SC4978 $h_{FE} - I_C$



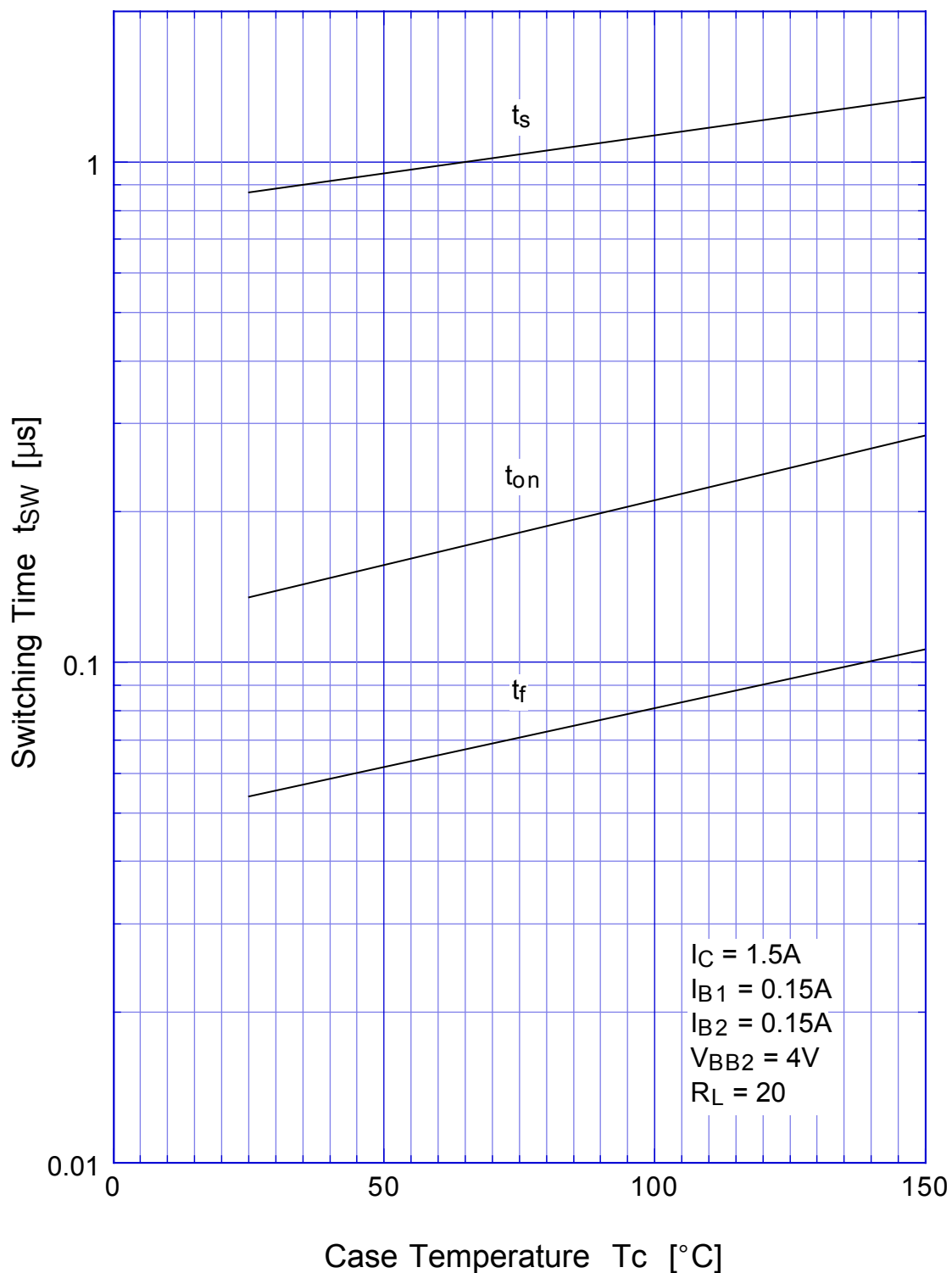
2SC4978 Saturation Voltage



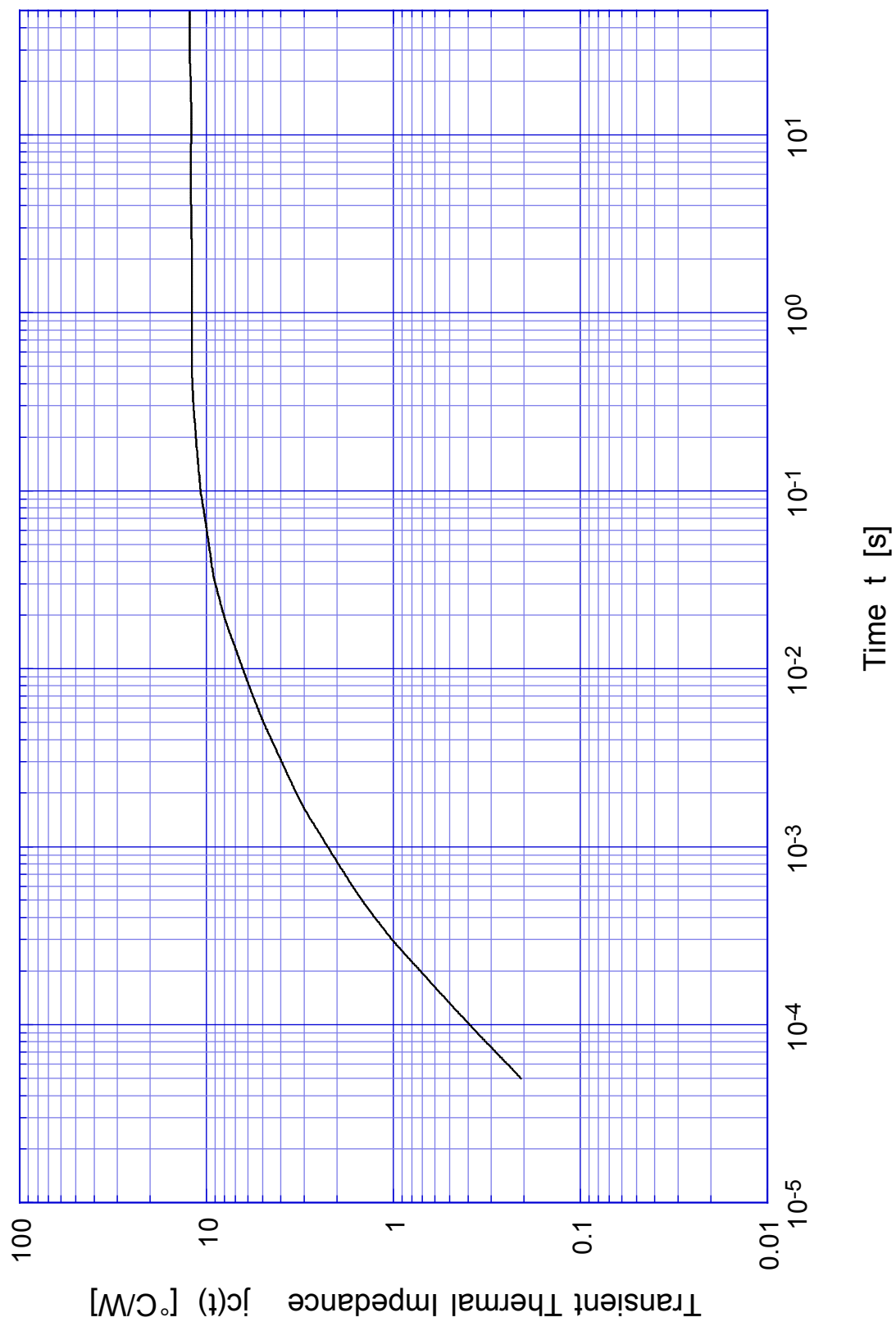
2SC4978 Switching Time - I_C



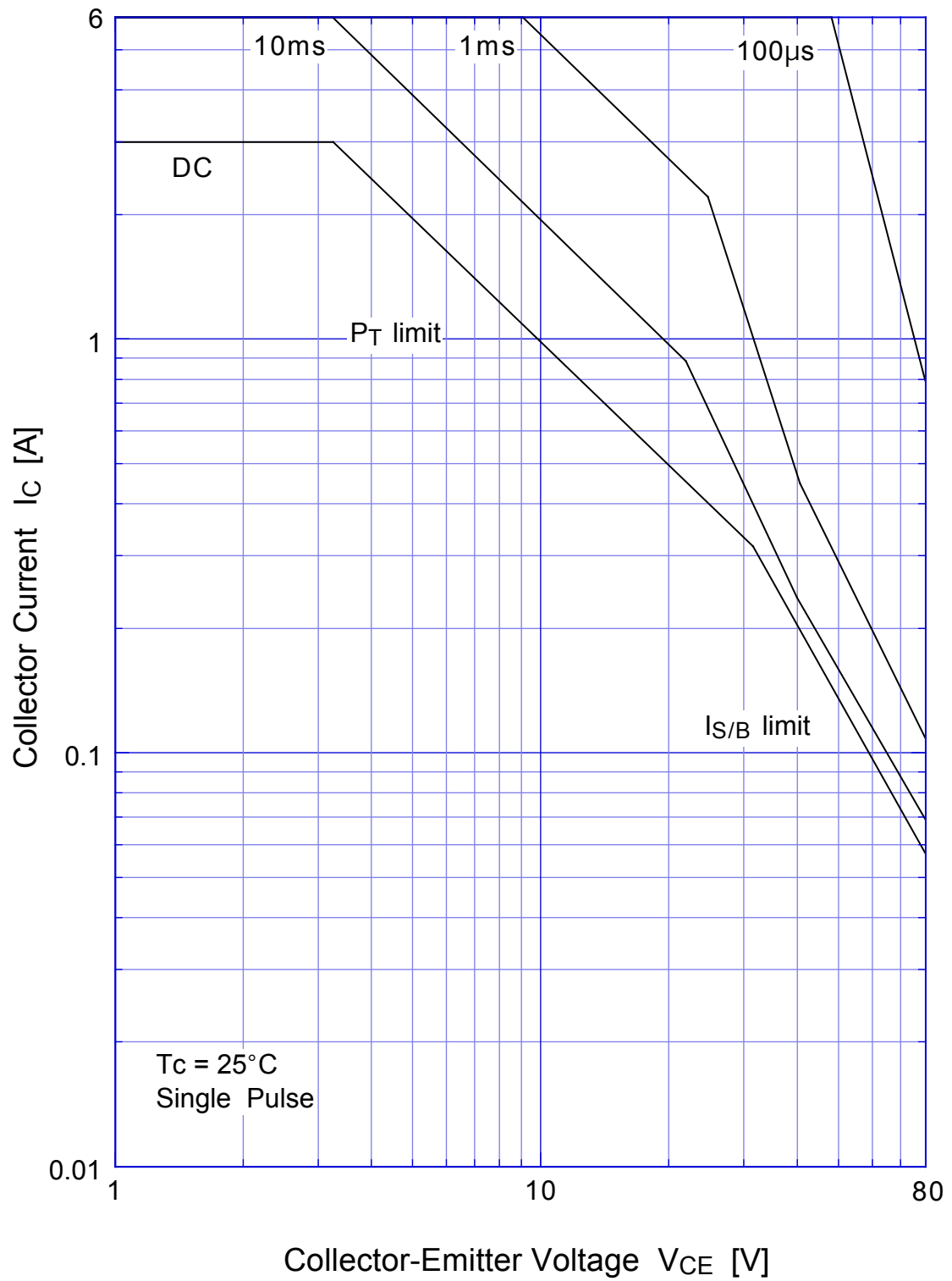
2SC4978 Switching Time - Tc



2SC4978 Transient Thermal Impedance



2SC4978 Forward Bias SOA



2SC4978 Collector Current Derating

