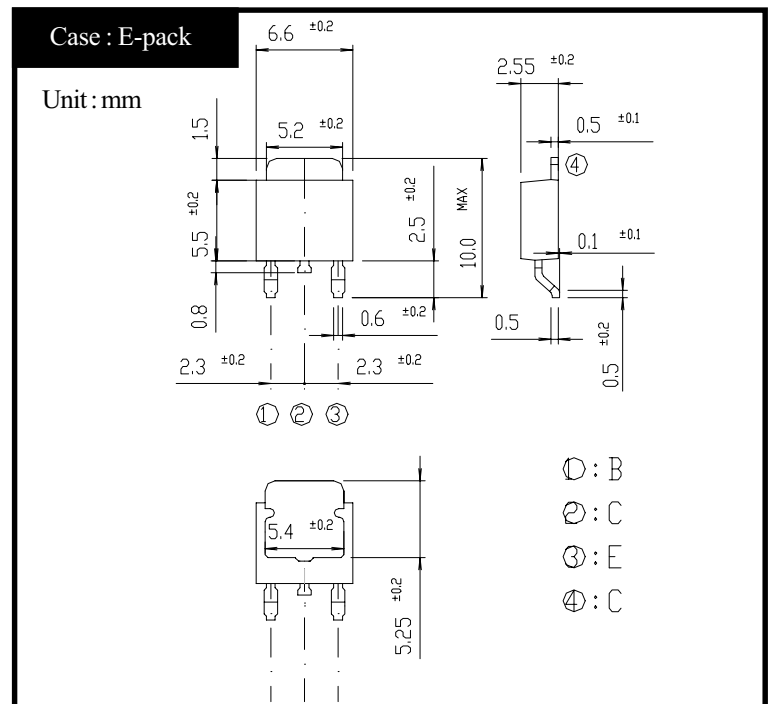


**2SC4978**  
**(TE3S8)**

**3A NPN**

### OUTLINE DIMENSIONS



### RATINGS

#### ● Absolute Maximum Ratings

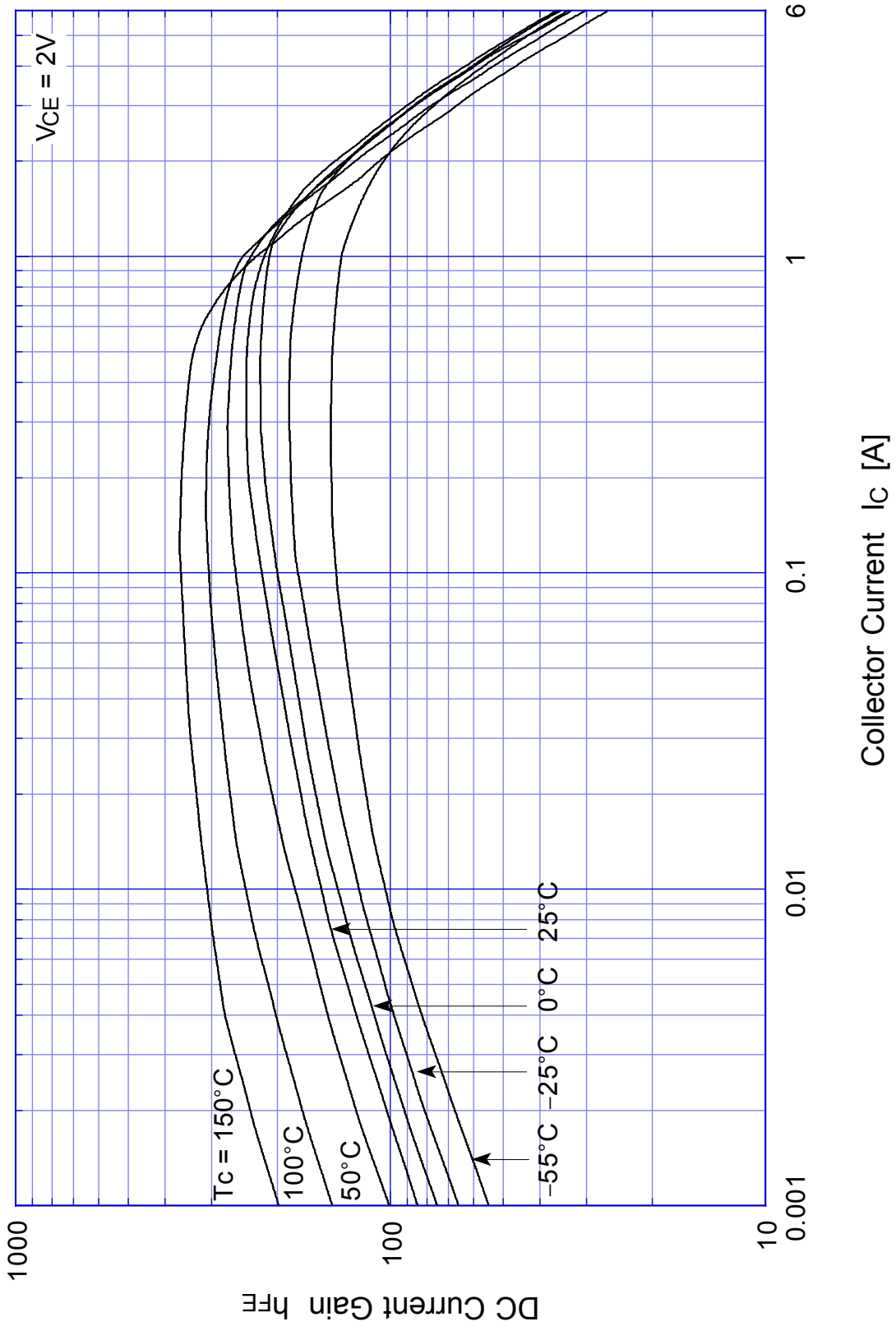
Item	Symbol	Conditions	Ratings	Unit
Storage Temperature	$T_{stg}$		-55~150	°C
Junction Temperature	$T_j$		150	°C
Collector to Base Voltage	$V_{CBO}$		100	V
Collector to Emitter Voltage	$V_{CEO}$		80	V
Emitter to Base Voltage	$V_{EBO}$		7	V
Collector Current DC	$I_C$		3	A
Collector Current Peak	$I_{CP}$		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 ( $T_c=25^\circ\text{C}$ )

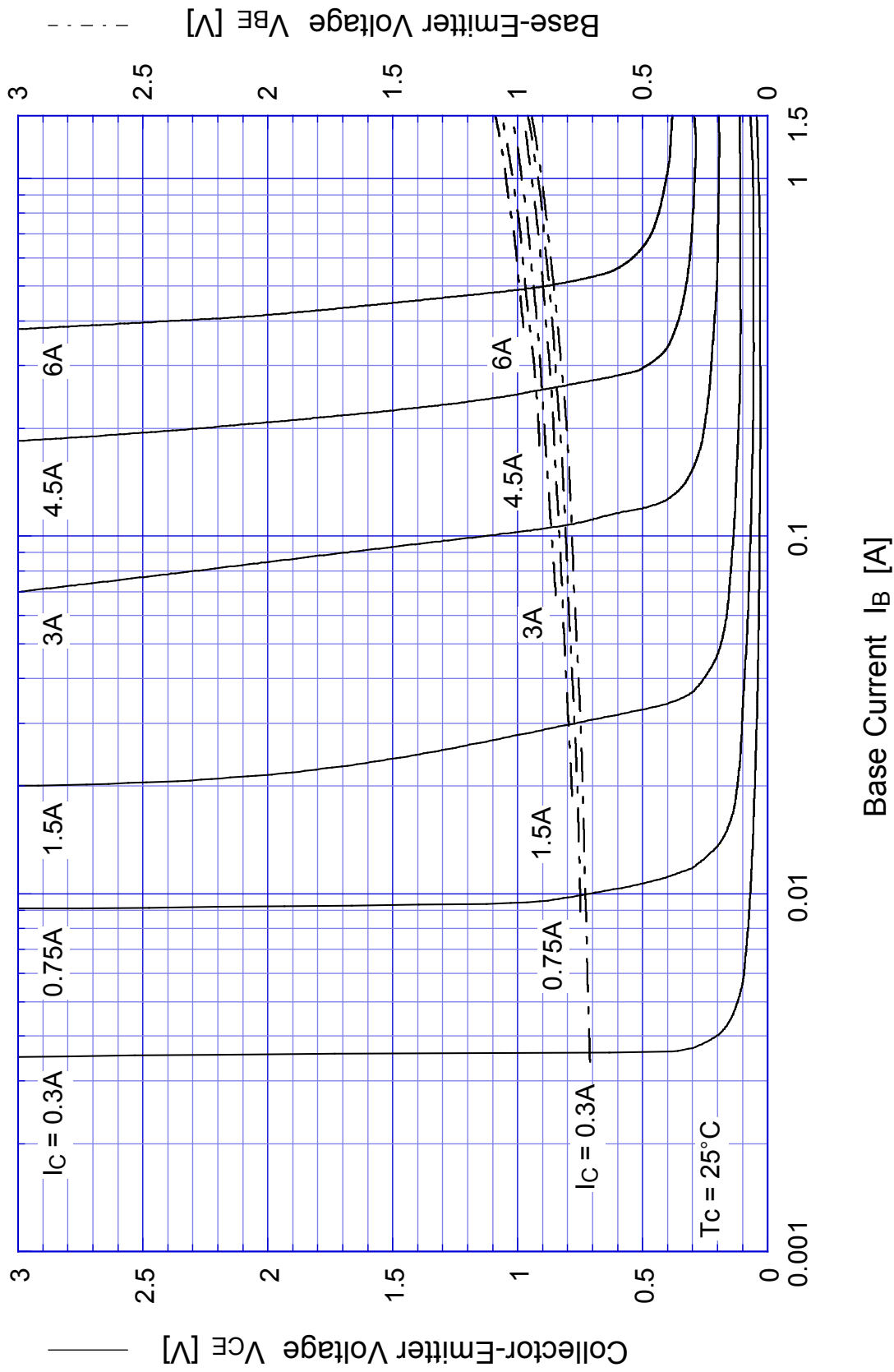
Item	Symbol	Conditions	Ratings	Unit
Collector to Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 0.05\text{A}$	Min 80	V
Collector Cutoff Current	$I_{CBO}$	At rated Voltage	Max 0.1	mA
	$I_{CEO}$		Max 0.1	
Emitter Cutoff Current	$I_{EBO}$	At rated Voltage	Max 0.1	mA
DC Current Gain	$h_{FE}$	$V_{CE} = 2\text{V}, I_C = 1.5\text{A}$	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	$\theta_{jc}$	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	$\mu\text{s}$
Storage Time	$t_s$		Max 1.5	
Fall Time	$t_f$		Max 0.2	

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$h_{FE} - I_C$

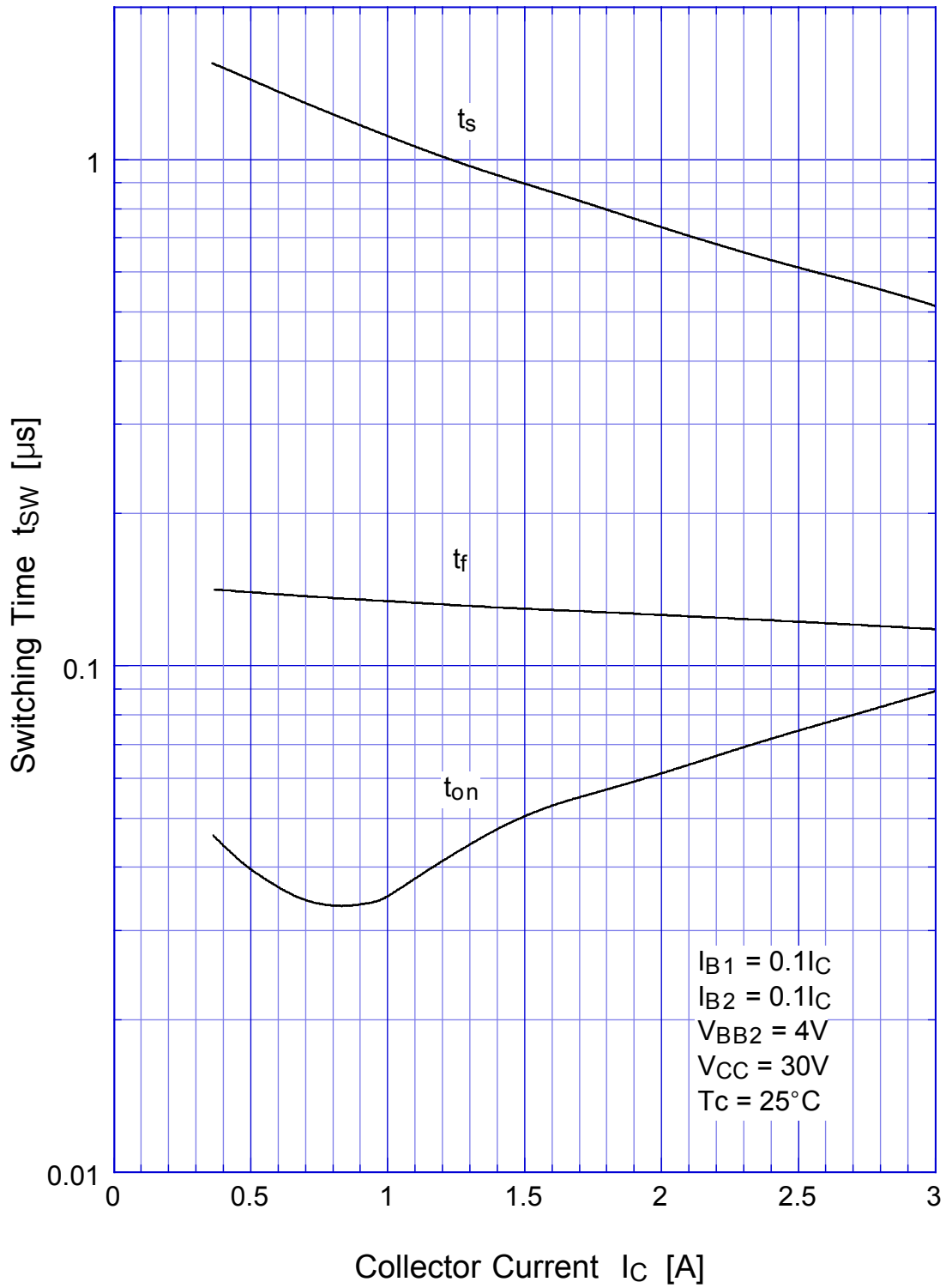


# 2SC4978 Saturation Voltage



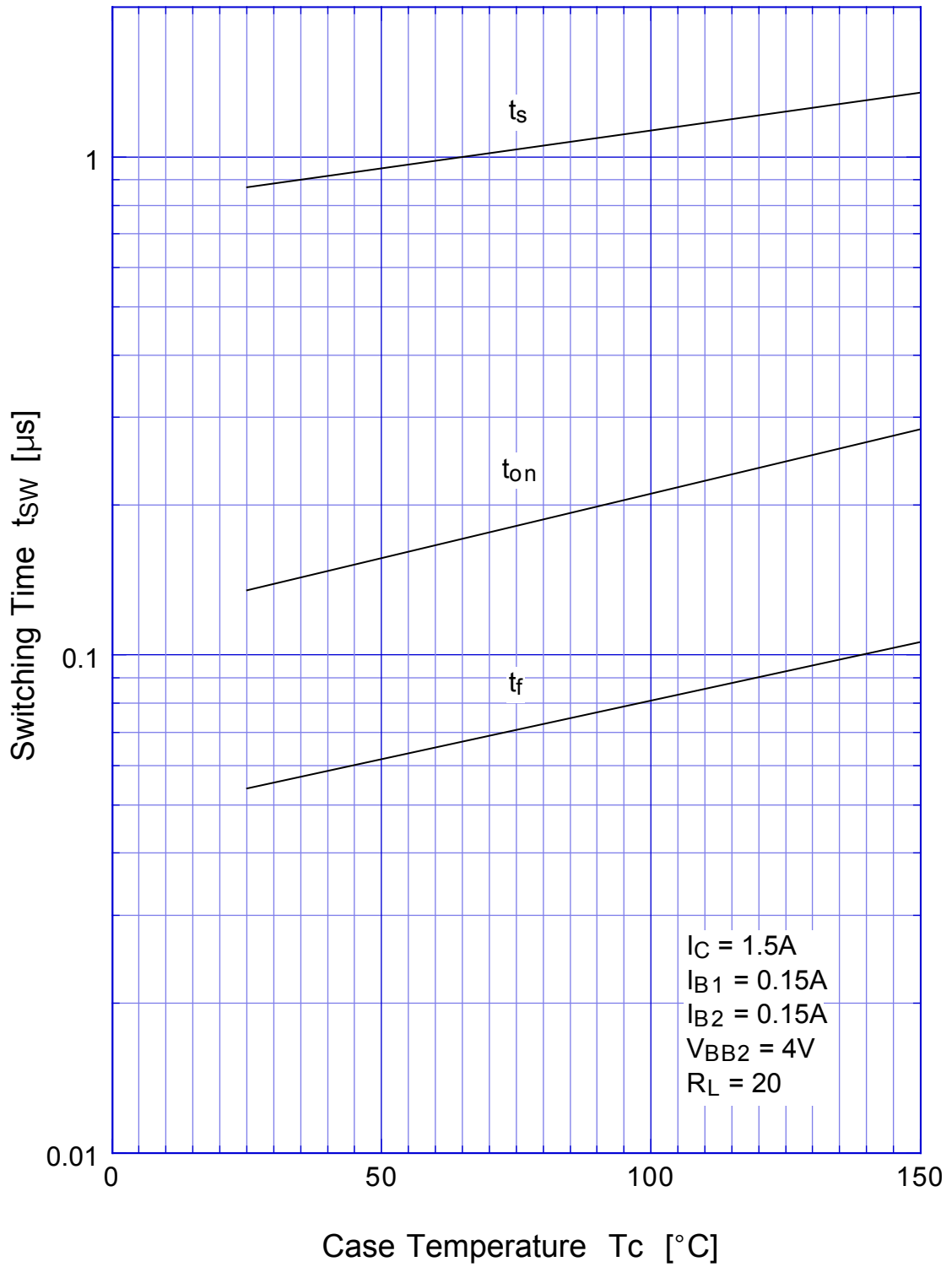
# 2SC4978

## Switching Time - $I_C$

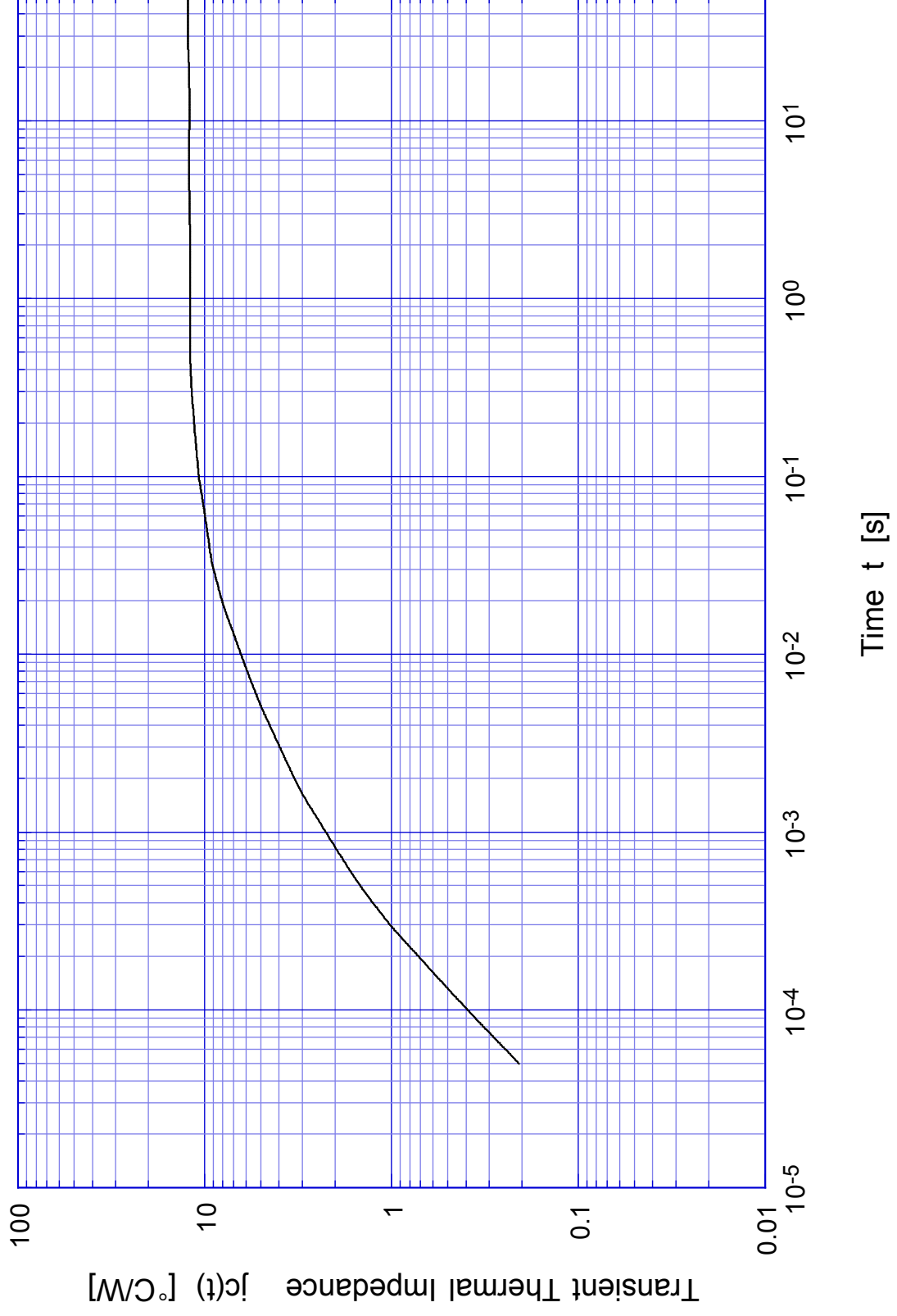


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## Switching Time - Tc

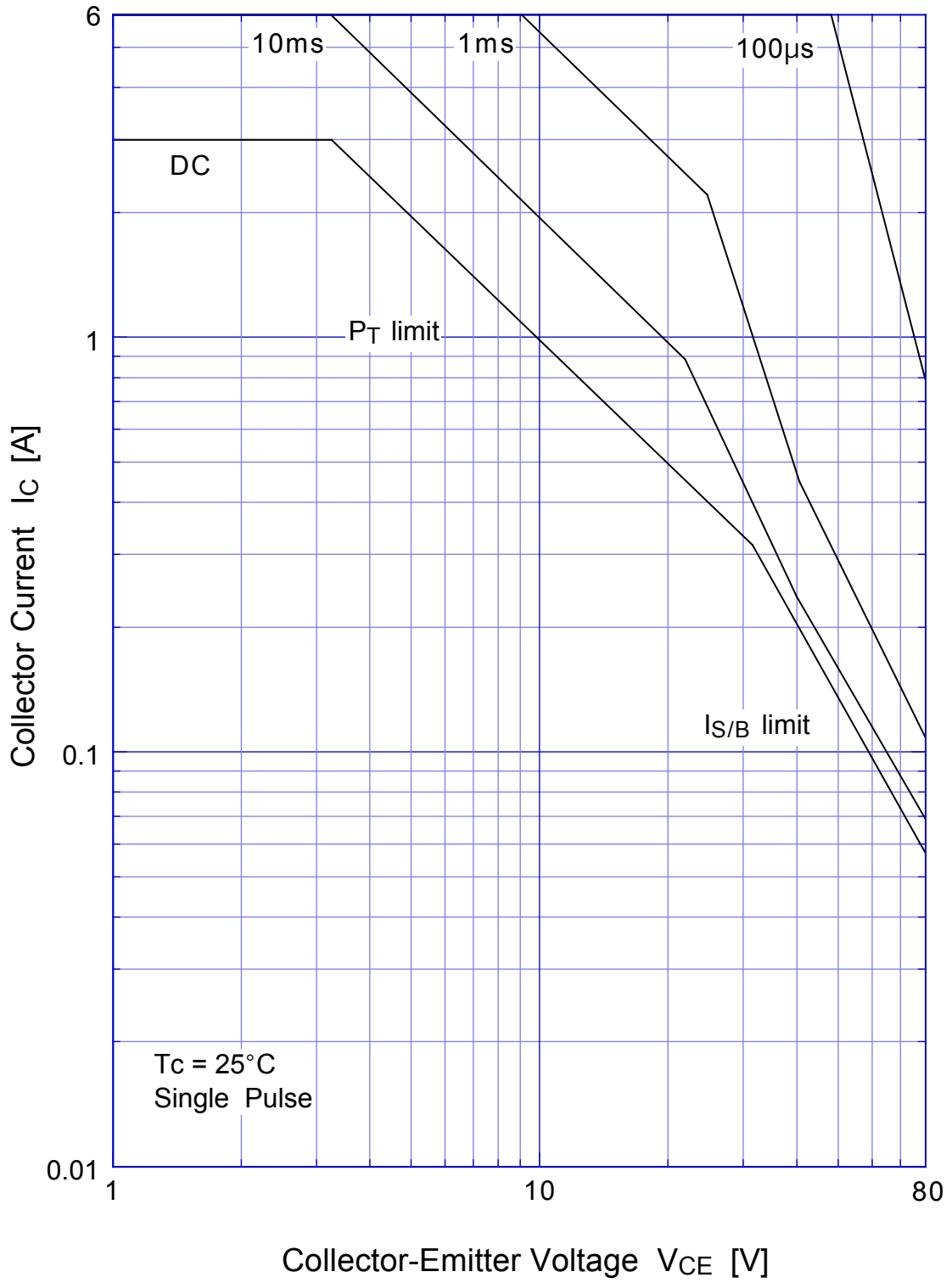


## 2SC4978 Transient Thermal Impedance



# 2SC4978

# Forward Bias SOA



## 2SC4978 Collector Current Derating

