

2SC4096

Silicon NPN triple diffusion planar type

For high breakdown voltage high-speed switching

■ Features

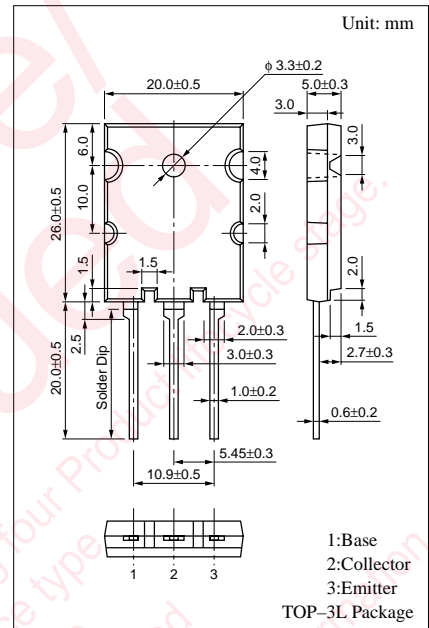
- High-speed switching
- High collector to base voltage V_{CBO}
- Wide area of safe operation (ASO)
- Satisfactory linearity of forward current transfer ratio h_{FE}

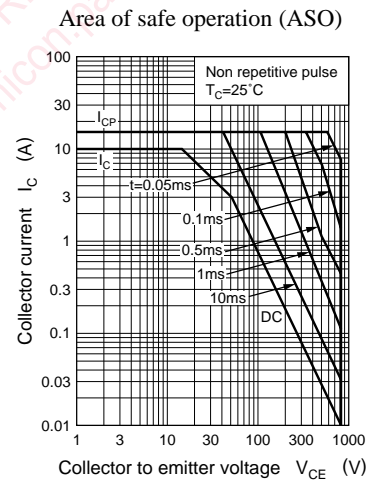
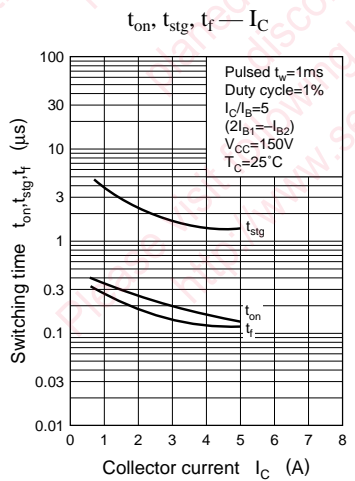
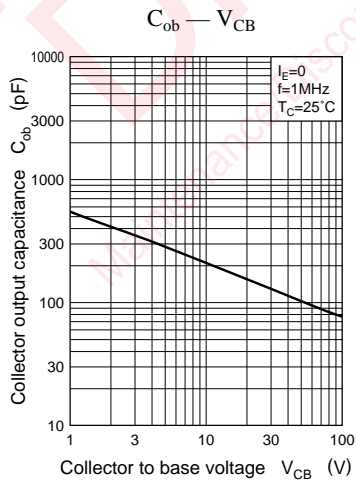
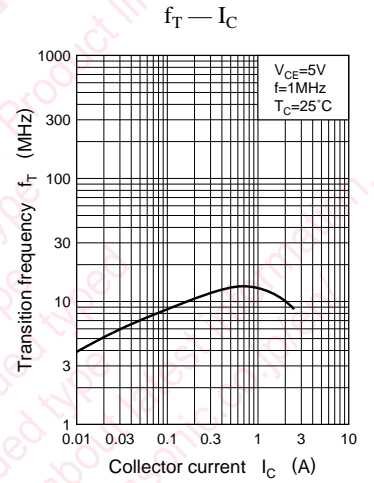
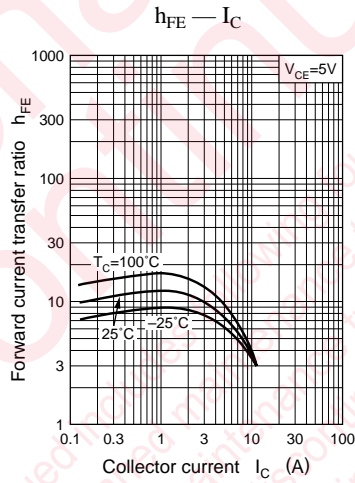
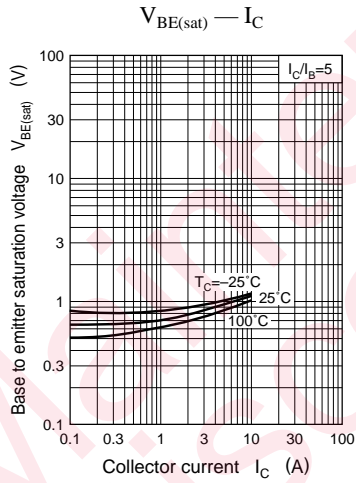
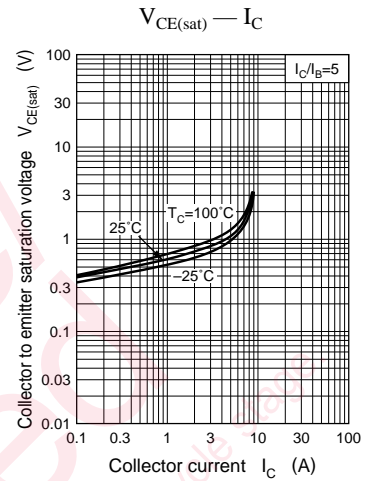
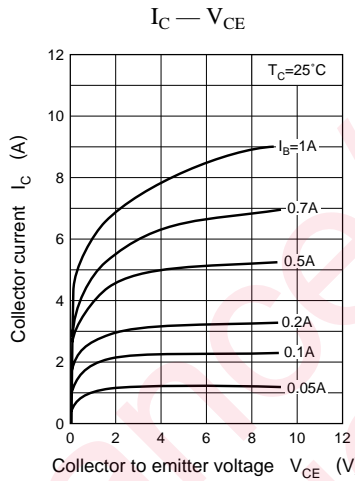
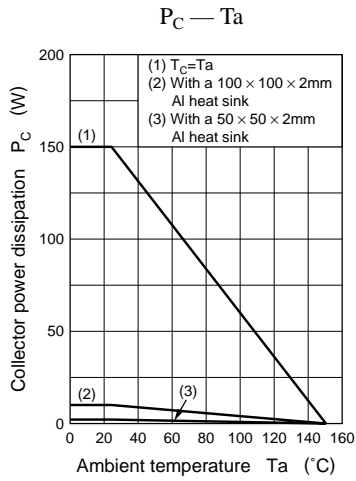
■ Absolute Maximum Ratings ($T_C=25^\circ\text{C}$)

Parameter	Symbol	Ratings	Unit
Collector to base voltage	V_{CBO}	1400	V
Collector to emitter voltage	V_{CEO}	800	V
Emitter to base voltage	V_{EBO}	7	V
Peak collector current	I_{CP}	15	A
Collector current	I_C	10	A
Base current	I_B	5	A
Collector power dissipation	P_C	150 3.5	W
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

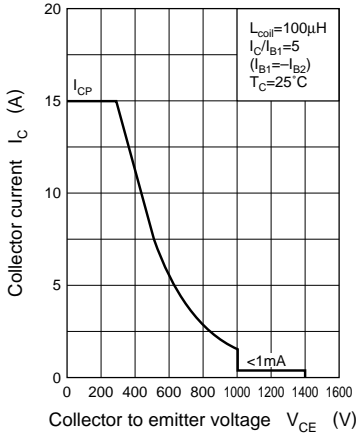
■ Electrical Characteristics ($T_C=25^\circ\text{C}$)

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 1400\text{V}, I_E = 0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 7\text{V}, I_C = 0$			100	μA
Collector to emitter voltage	V_{CEO}	$I_C = 10\text{mA}, I_B = 0$	800			V
Forward current transfer ratio	h_{FE}	$V_{CE} = 5\text{V}, I_C = 5\text{A}$	5		15	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 5\text{A}, I_B = 1\text{A}$			5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 5\text{A}, I_B = 1\text{A}$			1.5	V
Transition frequency	f_T	$V_{CE} = 5\text{V}, I_C = 1\text{A}, f = 1\text{MHz}$		13		MHz
Turn-on time	t_{on}	$I_C = 5\text{A}, I_{B1} = 1\text{A}, I_{B2} = -2\text{A}, V_{CC} = 250\text{V}$		1.0		μs
Storage time	t_{stg}			3.5		μs
Fall time	t_f			0.3		μs

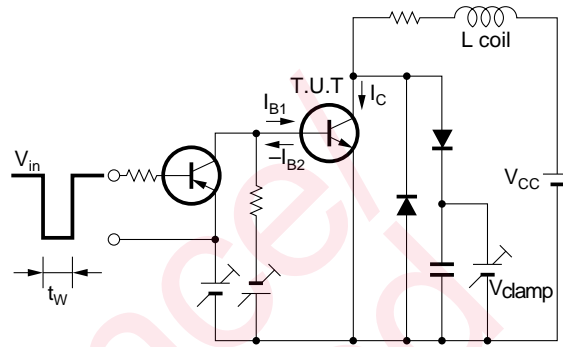




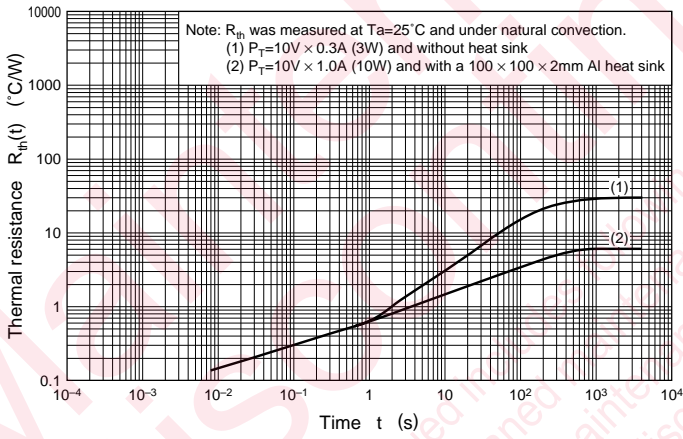
Area of safe operation, reverse bias ASO



Reverse bias ASO measuring circuit



$R_{th}(t) - t$



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