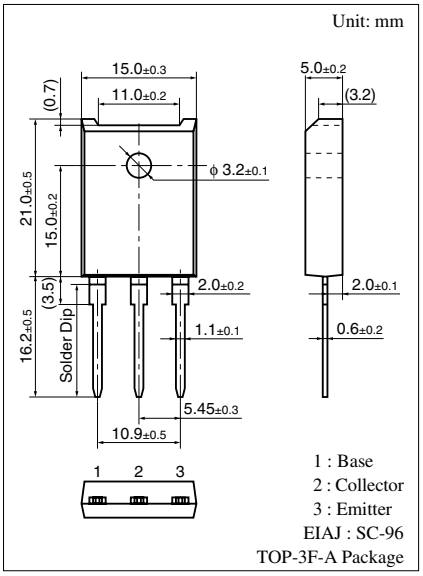
2SC3799, 2SC3799A

Silicon NPN triple diffusion planar type

For high breakdown voltage high-speed switching



■ Features

- High-speed switching
- High collector to base voltage V_{CBO}
- Low collector to emitter saturation voltage $V_{CE(sat)}$
- Full-pack package which can be installed to the heat sink with one screw

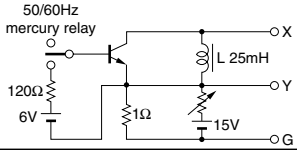
■ Absolute Maximum Ratings $T_C = 25°C$

Parameter		Symbol	Rating	Unit
Collector to base voltage	2SC3799	V_{CBO}	800	V
	2SC3799A		900	
Collector to emitter voltage	2SC3799	V_{CES}	800	V
	2SC3799A		900	
Collector to emitter voltage		V_{CEO}	500	V
Emitter to base voltage		V_{EBO}	8	V
Peak collector current		I_{CP}	15	A
Collector current		I_C	7	A
Base current		I_B	4	A
Collector power dissipation	$T_C = 25°C$	P_C	100	W
	$T_a = 25°C$		3	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

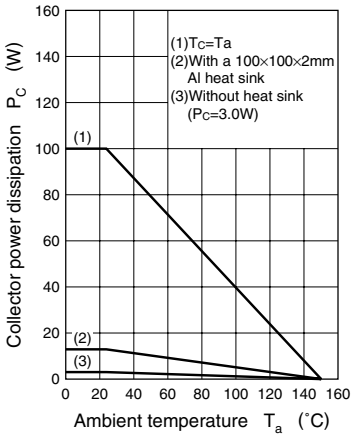
■ Electrical Characteristics $T_C = 25°C$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	2SC3799	I_{CBO}	V_{CB} = 800 V, I_E = 0			100	μA
	2SC3799A		V_{CB} = 900 V, I_E = 0			100	
Emitter cutoff current		I_{EBO}	V_{EB} = 5 V, I_C = 0			100	μA
Collector to emitter voltage *		$V_{CEO(sus)}$	I_C = 0.2 A, L = 25 mH	500			V
Forward current transfer ratio		h_{FE1}	V_{CE} = 5 V, I_C = 0.1 A	15			
		h_{FE2}	V_{CE} = 5 V, I_C = 5 A	8			
Collector to emitter saturation voltage		$V_{CE(sat)}$	I_C = 5 A, I_B = 1 A			1	V
Base to emitter saturation voltage		$V_{BE(sat)}$	I_C = 5 A, I_B = 1 A			1.5	V
Transition frequency		f_T	V_{CE} = 10 V, I_C = 0.5 A, f = 1 MHz		8		MHz
Turn-on time	2SC3799	t_{on}	I_C = 5 A, I_{B1} = 1 A, I_{B2} = −1 A,			1	μs
	2SC3799A		V_{CC} = 200 V			1.2	
Storage time		t_{stg}				3	μs
Fall time	2SC3799	t_f				1	μs
	2SC3799A					1.2	

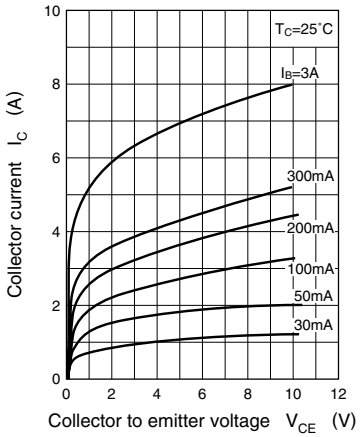
Note) *: $V_{CEO(sus)}$ Test circuit



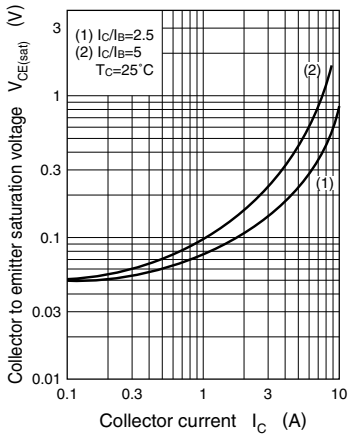
P_C — T_a



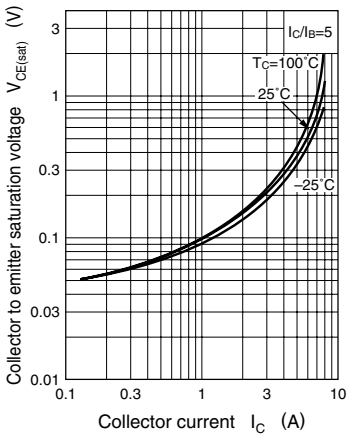
I_C — V_{CE}



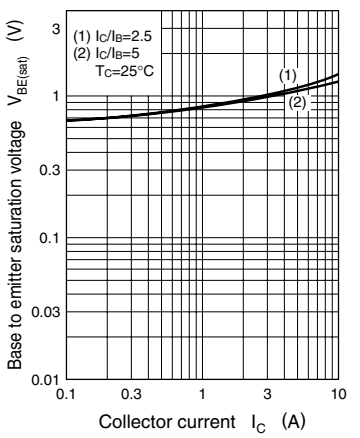
$V_{CE(sat)}$ — I_C



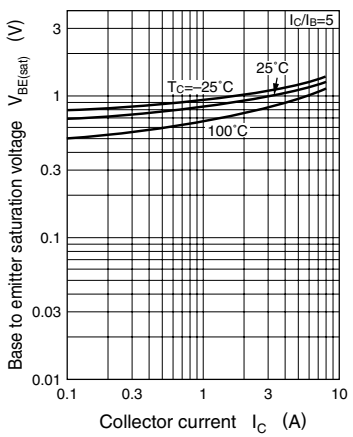
$V_{CE(sat)}$ — I_C



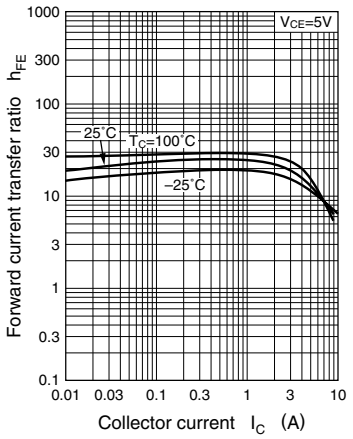
$V_{BE(sat)}$ — I_C



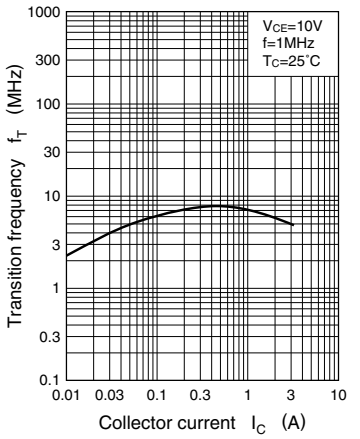
$V_{BE(sat)}$ — I_C



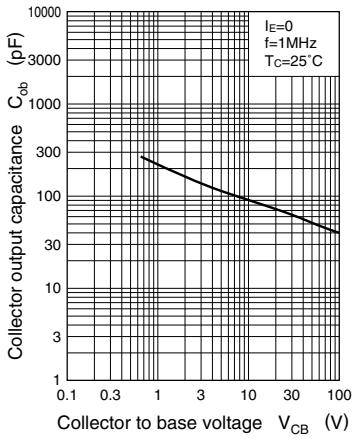
h_{FE} — I_C



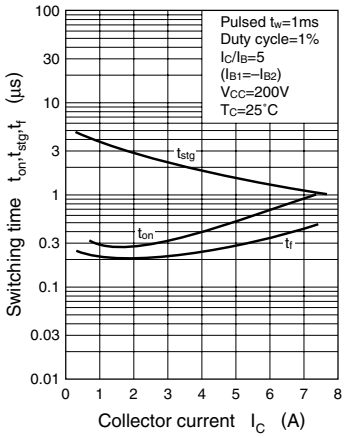
f_T — I_C



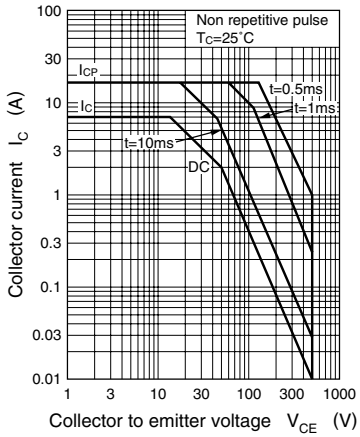
C_{ob} — V_{CB}



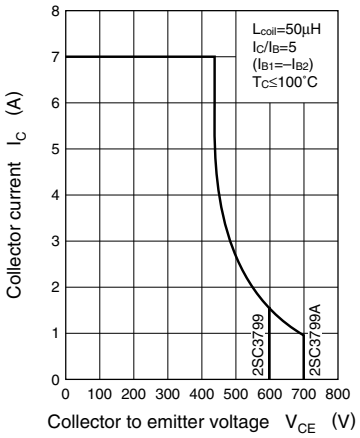
t_{on}, t_{stg}, t_f — I_C



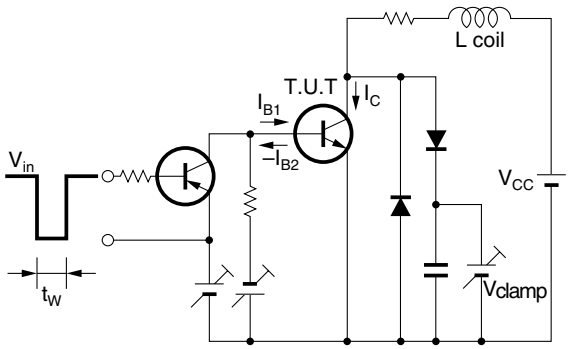
Area of safe operation (ASO)



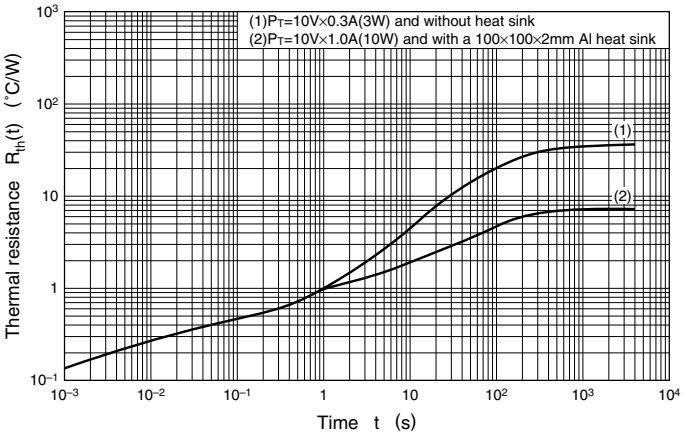
Area of safe operation, reverse bias ASO



Reverse bias ASO measuring circuit



$R_{th(t)}$ — t



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