

# 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

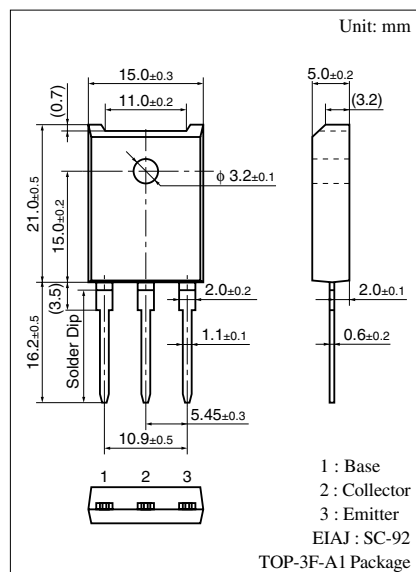
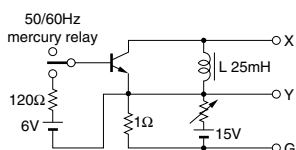
## ■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

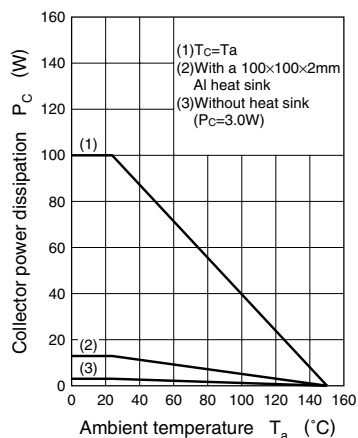
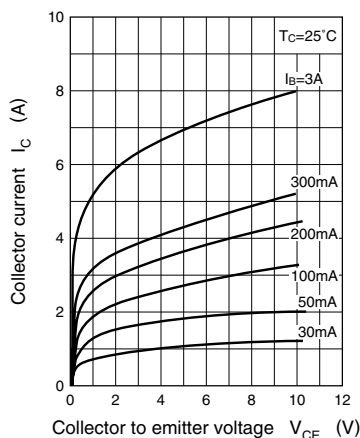
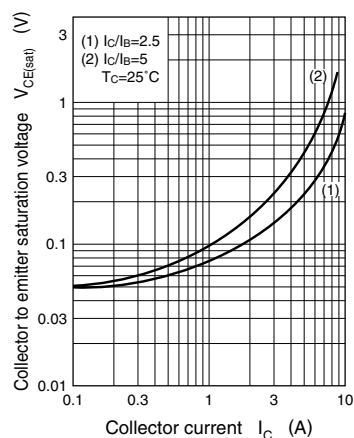
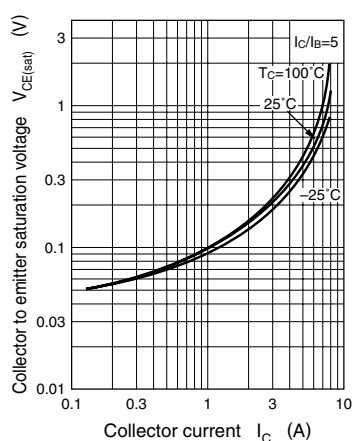
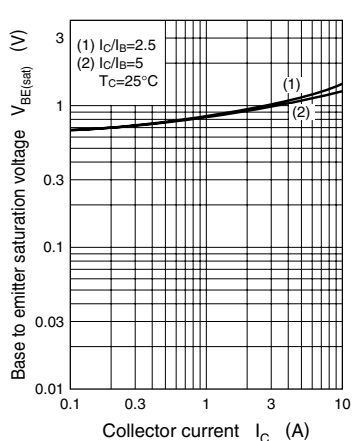
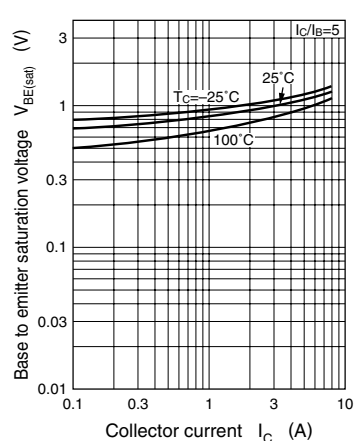
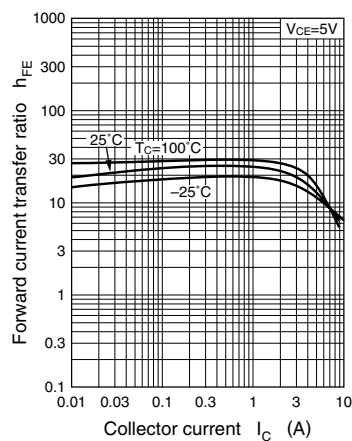
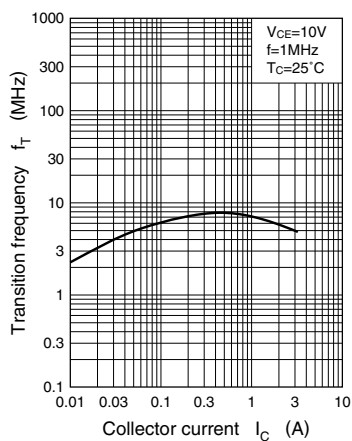
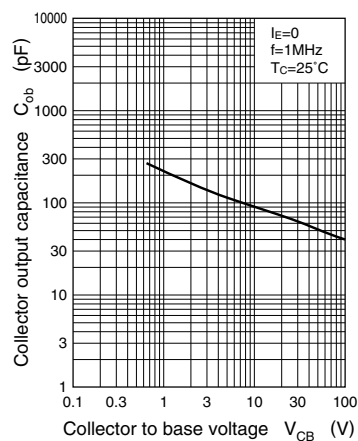
Parameter		Symbol	Rating	Unit
Collector to base voltage	2SC3799	$V_{CBO}$	800	V
	2SC3799A		900	
Collector to emitter voltage	2SC3799	$V_{CES}$	800	V
	2SC3799A		900	
Collector to emitter voltage		$V_{CEO}$	500	V
Emitter to base voltage		$V_{EBO}$	8	V
Peak collector current		$I_{CP}$	15	A
Collector current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

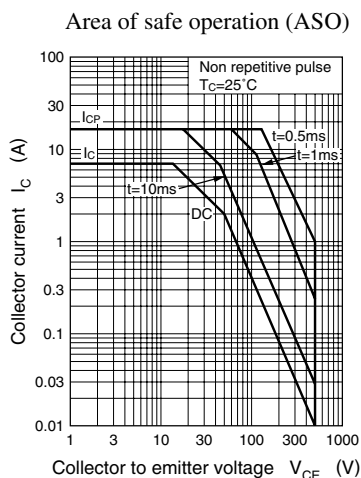
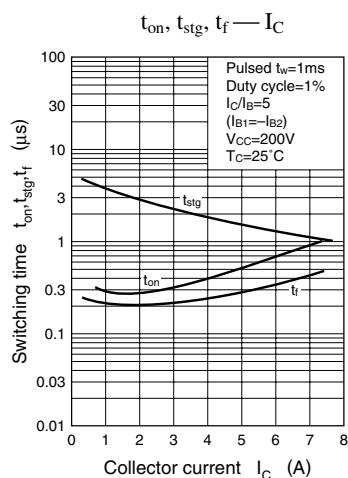
## ■ Electrical Characteristics $T_C = 25^\circ\text{C}$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	2SC3799	I <sub>CBO</sub>	V <sub>CB</sub> = 800 V, I <sub>E</sub> = 0			100	μA
	2SC3799A		V <sub>CB</sub> = 900 V, I <sub>E</sub> = 0			100	
Emitter cutoff current		I <sub>EBO</sub>	V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0			100	μA
Collector to emitter voltage *		V <sub>CEO(sus)</sub>	I <sub>C</sub> = 0.2 A, L = 25 mH	500			V
Forward current transfer ratio		h <sub>FE1</sub>	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 0.1 A	15			
		h <sub>FE2</sub>	V <sub>CE</sub> = 5 V, I <sub>C</sub> = 5 A	8			
Collector to emitter saturation voltage		V <sub>CE(sat)</sub>	I <sub>C</sub> = 5 A, I <sub>B</sub> = 1 A			1	V
Base to emitter saturation voltage		V <sub>BE(sat)</sub>	I <sub>C</sub> = 5 A, I <sub>B</sub> = 1 A			1.5	V
Transition frequency		f <sub>T</sub>	V <sub>CE</sub> = 10 V, I <sub>C</sub> = 0.5 A, f = 1 MHz		8		MHz
Turn-on time	2SC3799	t <sub>on</sub>	I <sub>C</sub> = 5 A, I <sub>B1</sub> = 1 A, I <sub>B2</sub> = −1 A, V <sub>CC</sub> = 200 V			1	μs
	2SC3799A					1.2	
Storage time		t <sub>stg</sub>				3	μs
Fall time	2SC3799	t <sub>f</sub>				1	μs
	2SC3799A					1.2	

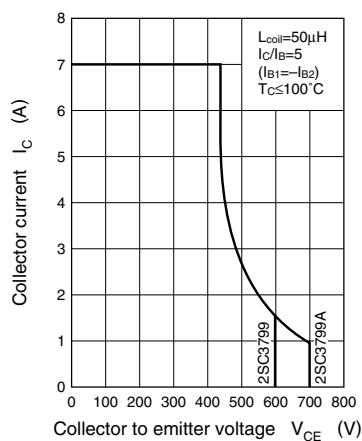
Note) \*:  $V_{CEO(sus)}$  Test circuit



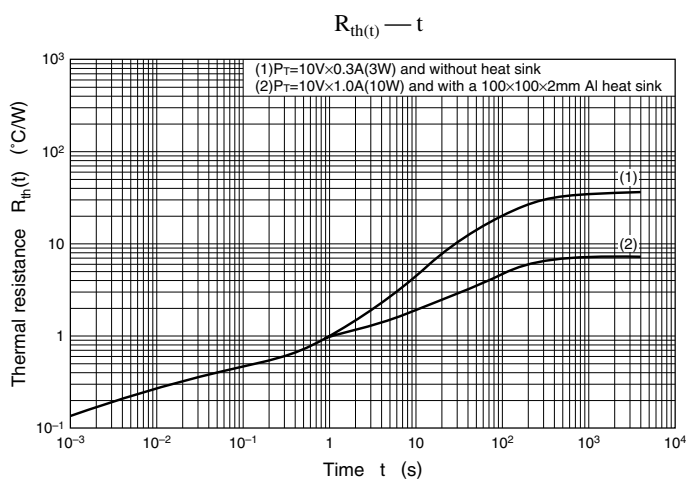
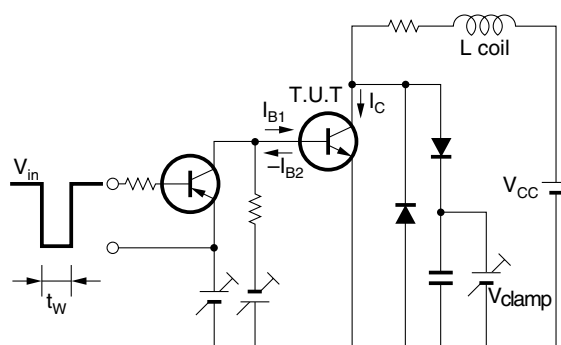
$P_C - T_a$  $I_C - V_{CE}$  $V_{CE(sat)} - I_C$  $V_{CE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $V_{BE(sat)} - I_C$  $h_{FE} - I_C$  $f_T - I_C$  $C_{ob} - V_{CB}$ 



Area of safe operation, reverse bias ASO



Reverse bias ASO measuring circuit



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