

2SC3979, 2SC3979A

Silicon NPN triple diffusion planar type

For high breakdown voltage high-speed switching

■ Features

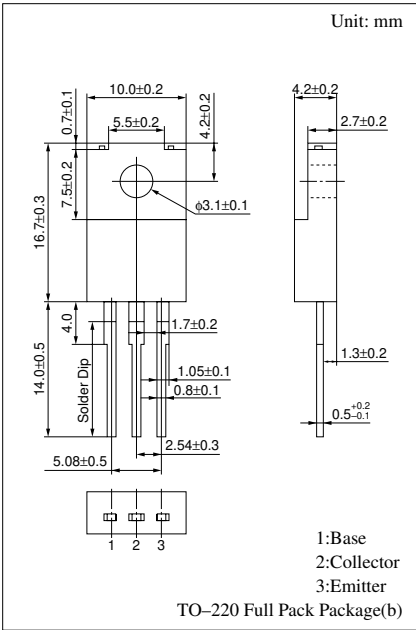
- High-speed switching
- High collector to base voltage V_{CBO}
- Wide area of safe operation (ASO)
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Full-pack package which can be installed to the heat sink with one screw

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

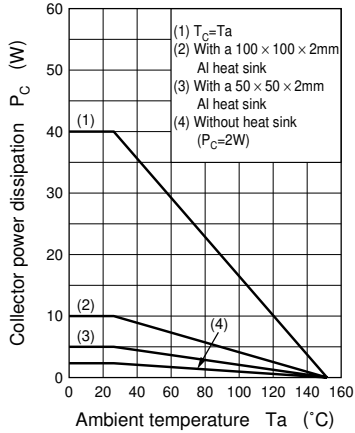
Parameter		Symbol	Ratings	Unit
Collector to base voltage	2SC3979	V_{CBO}	900	V
	2SC3979A		1000	
Collector to emitter voltage	2SC3979	V_{CES}	900	V
	2SC3979A		1000	
Collector to emitter voltage		V_{CEO}	800	V
Emitter to base voltage		V_{EBO}	7	V
Peak collector current		I_{CP}	5	A
Collector current		I_C	3	A
Base current		I_B	1	A
Collector power dissipation	$T_C=25^{\circ}C$	P_C	40	W
	$T_a=25^{\circ}C$		2	
Junction temperature		T_j	150	$^{\circ}C$
Storage temperature		T_{stg}	-55 to +150	$^{\circ}C$

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

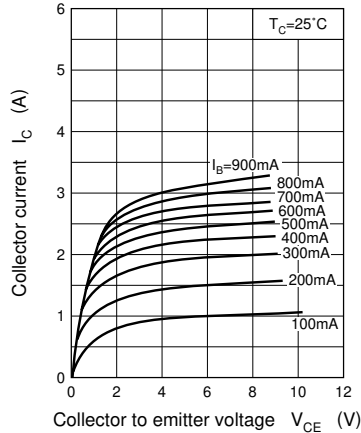
Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 900V, I_E = 0$			50	μA
		$V_{CB} = 1000V, I_E = 0$			50	
Emitter cutoff current	I_{EBO}	$V_{EB} = 7V, I_C = 0$			50	μA
Collector to emitter voltage	V_{CEO}	$I_C = 10mA, I_B = 0$	800			V
Forward current transfer ratio	h_{FE1}	$V_{CE} = 5V, I_C = 0.1A$	8			
	h_{FE2}	$V_{CE} = 5V, I_C = 0.8A$	6			
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 0.8A, I_B = 0.16A$			1.5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 0.8A, I_B = 0.16A$			1.5	V
Transition frequency	f_T	$V_{CE} = 5V, I_C = 0.15A, f = 1MHz$		10		MHz
Turn-on time	t_{on}	$I_C = 0.8A, I_{B1} = 0.16A, I_{B2} = -0.32A, V_{CC} = 250V$			0.7	μs
Storage time	t_{stg}				2.5	μs
Fall time	t_f				0.3	μs



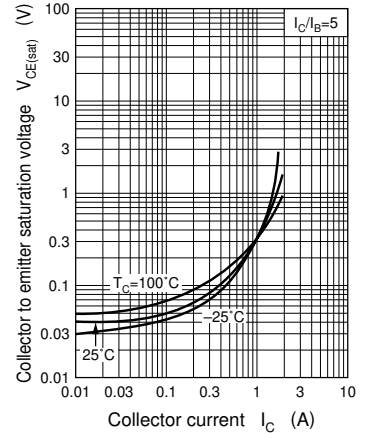
$P_C - T_a$



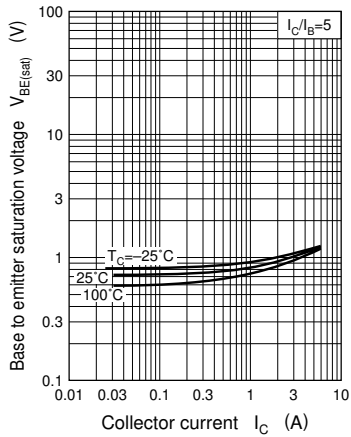
$I_C - V_{CE}$



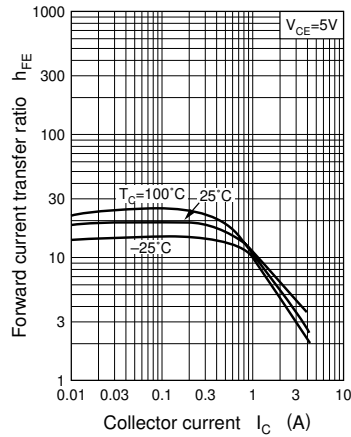
$V_{CE(sat)} - I_C$



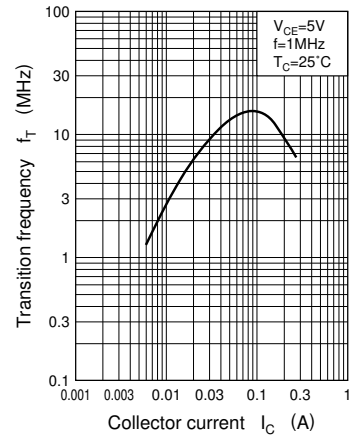
$V_{BE(sat)} - I_C$



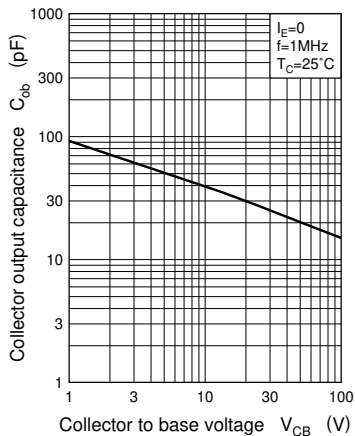
$h_{FE} - I_C$



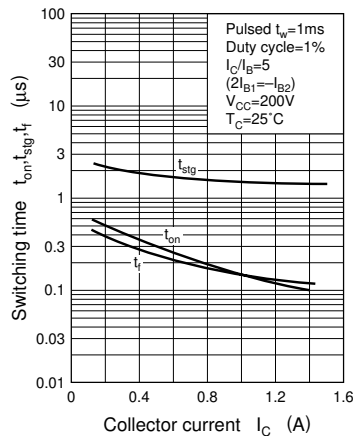
$f_T - I_C$



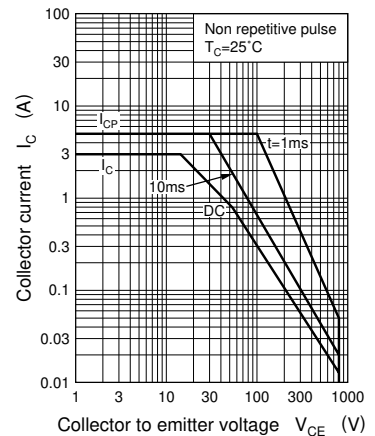
$C_{ob} - V_{CB}$



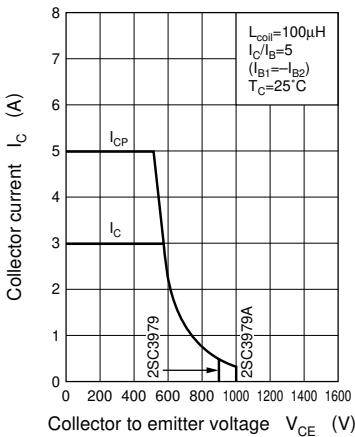
$t_{on}, t_{stg}, t_f - I_C$



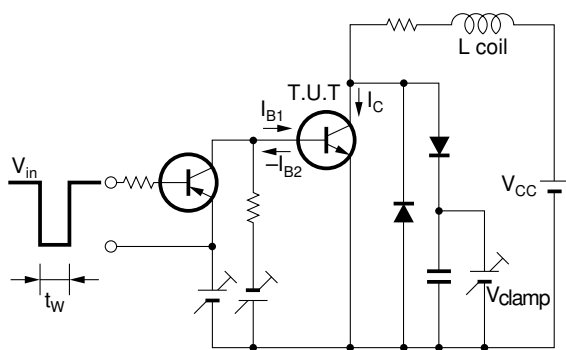
Area of safe operation (ASO)



Area of safe operation, reverse bias ASO



Reverse bias ASO measuring circuit



$R_{th(t)} - t$

