

2SC3975

Silicon NPN triple diffusion planar type

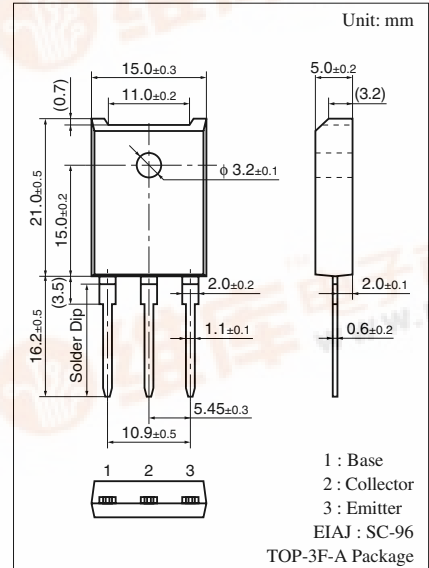
For high breakdown voltage high-speed switching

■ 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

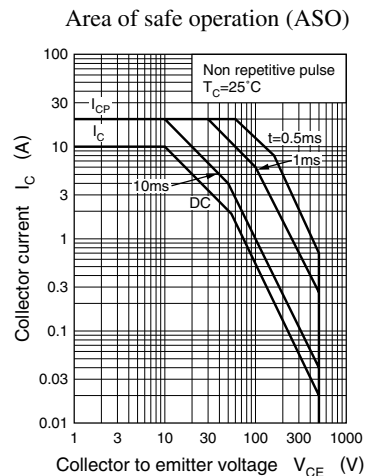
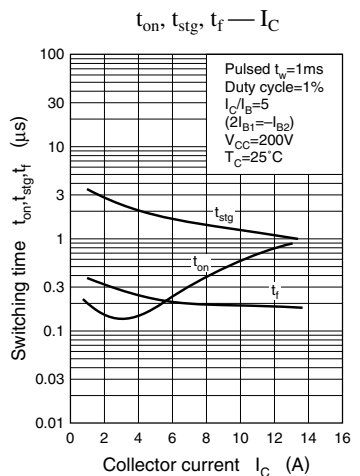
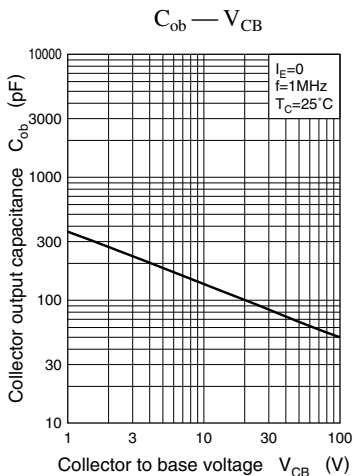
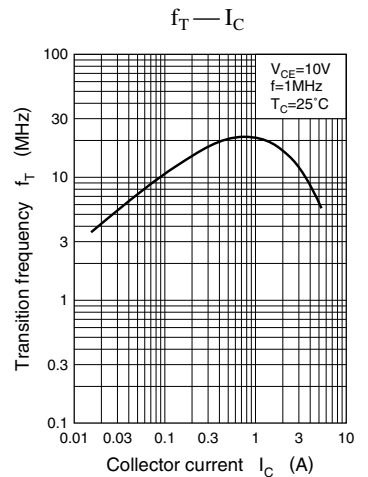
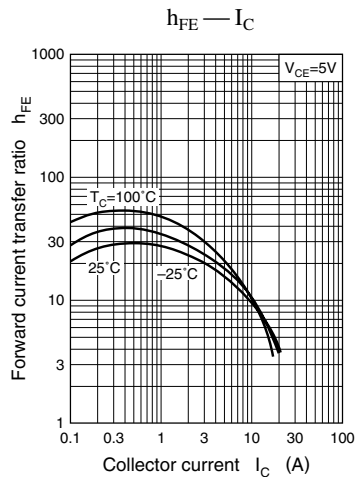
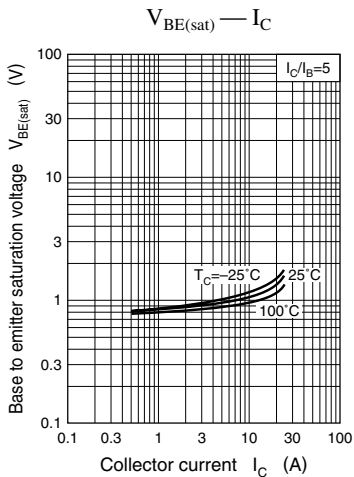
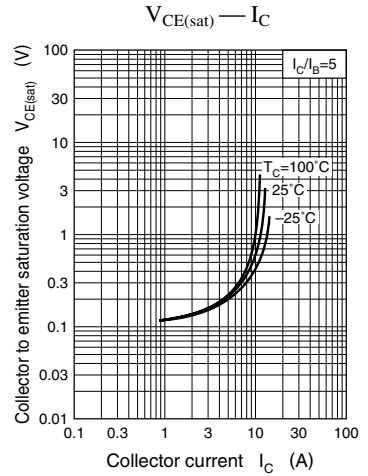
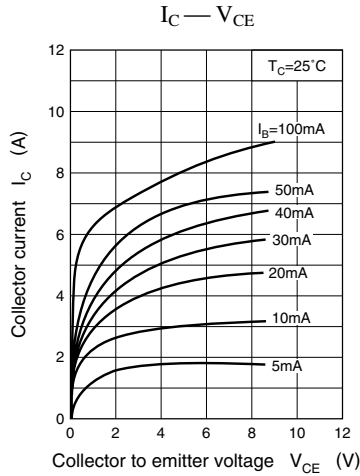
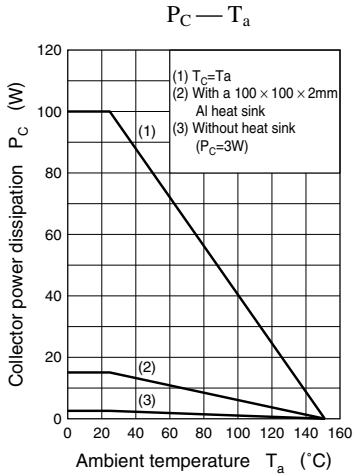
■ Absolute Maximum Ratings $T_C = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit	
Collector to base voltage	V_{CBO}	800	V	
Collector to emitter voltage	V_{CES}	800	V	
	V_{CEO}	500	V	
Emitter to base voltage	V_{EBO}	8	V	
Peak collector current	I_{CP}	20	A	
Collector current	I_C	10	A	
Base current	I_B	5	A	
Collector power dissipation	P_C	$T_C = 25^\circ\text{C}$	100	W
		$T_a = 25^\circ\text{C}$	3	
Junction temperature	T_j	150	$^\circ\text{C}$	
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$	

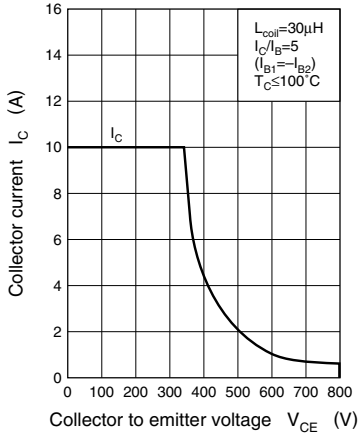


■ Electrical Characteristics $T_C = 25^\circ\text{C}$

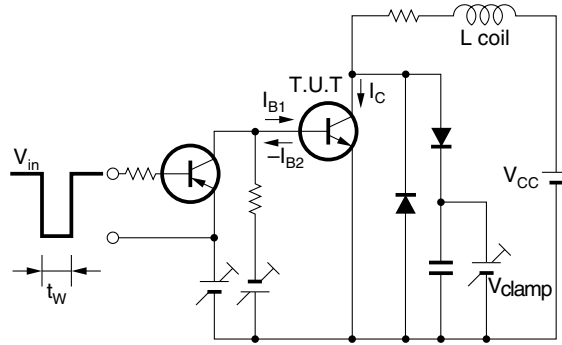
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	I_{CBO}	$V_{CB} = 800\text{ V}, I_E = 0$			100	μA
Emitter cutoff current	I_{EBO}	$V_{EB} = 5\text{ V}, I_C = 0$			100	μA
Collector to emitter voltage	V_{CEO}	$I_C = 10\text{ mA}, I_B = 0$	500			V
Forward current transfer ratio	h_{FE1}	$V_{CE} = 5\text{ V}, I_C = 0.1\text{ A}$	15			
	h_{FE2}	$V_{CE} = 5\text{ V}, I_C = 6\text{ A}$	8			
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 6\text{ A}, I_B = 1.2\text{ A}$			1.0	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 6\text{ A}, I_B = 1.2\text{ A}$			1.5	V
Transition frequency	f_T	$V_{CE} = 10\text{ V}, I_C = 0.5\text{ A}, f = 1\text{ MHz}$		20		MHz
Turn-on time	t_{on}	$I_C = 6\text{ A}, I_{B1} = 1.2\text{ A}, I_{B2} = -2.4\text{ A}$			1.0	μs
Storage time	t_{stg}	$V_{CC} = 200\text{ V}$			3.0	μs
Fall time	t_f				0.3	μs



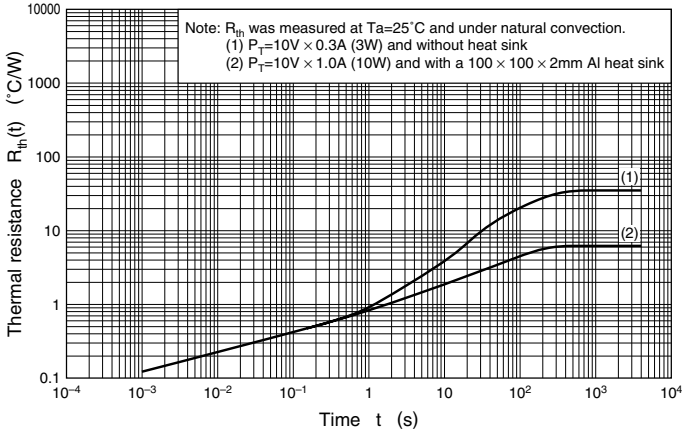
Area of safe operation, reverse bias ASO



Reverse bias ASO measuring circuit



$R_{th(t)} - t$



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