

2SD2000

Silicon NPN triple diffusion planar type

For power switching

■ Features

- High-speed switching
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Large collector power dissipation P_C
- 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-base voltage (Emitter open)	V_{CBO}	80	V
Collector-emitter voltage (Base open)	V_{CEO}	60	V
Emitter-base voltage (Collector open)	V_{EBO}	6	V
Collector current	I_C	4	A
Peak collector current	I_{CP}	8	A
Base current	I_B	1	A
Collector power dissipation	P_C	35	W
	$T_a = 25^\circ\text{C}$	2.0	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

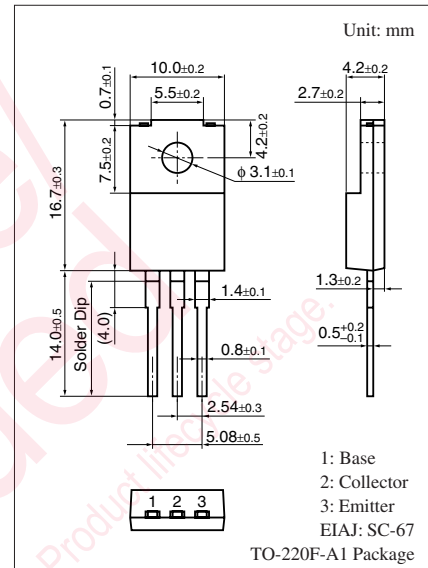
■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

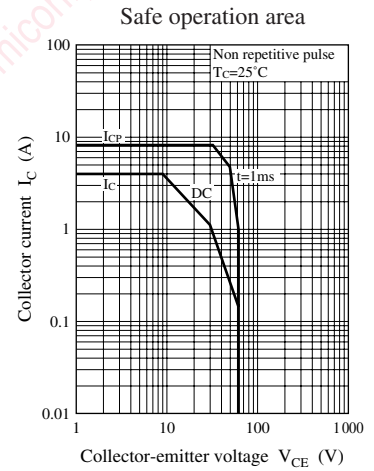
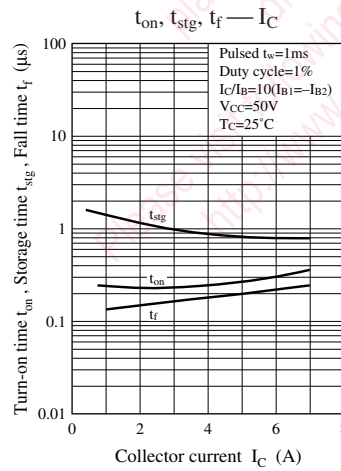
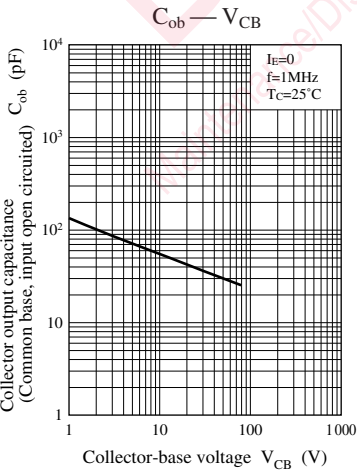
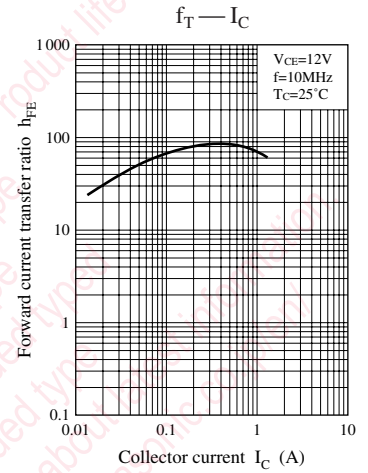
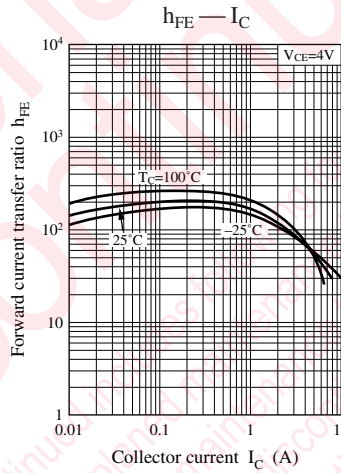
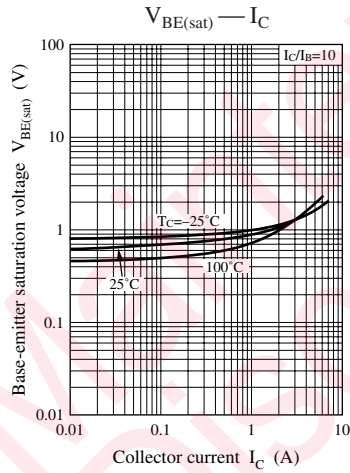
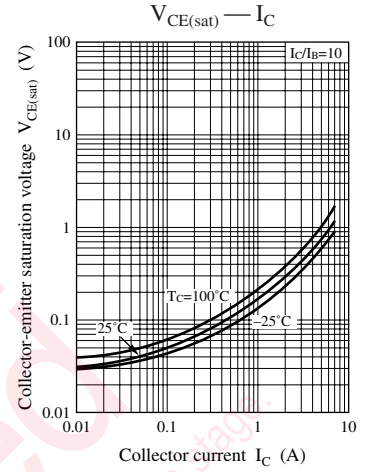
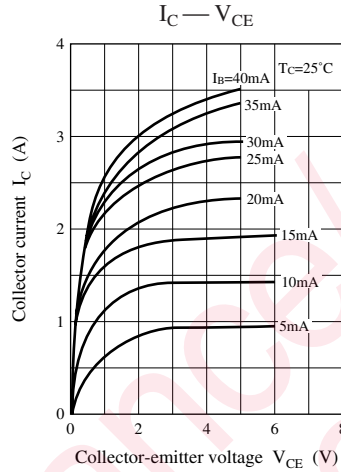
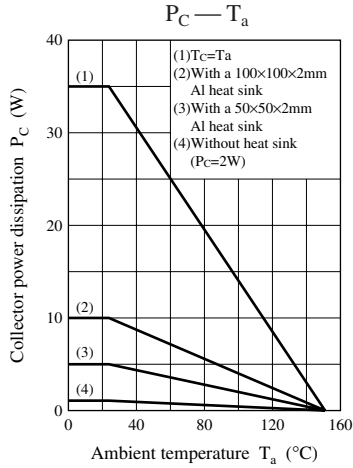
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 25\text{ mA}, I_B = 0$	60			V
Base-emitter voltage	V_{BE}	$V_{CE} = 4\text{ V}, I_C = 4\text{ A}$			2.0	V
Collector-base cut-off current (Emitter open)	I_{CBO}	$V_{CB} = 80\text{ V}, I_E = 0$			100	μA
Emitter-base cut-off current (Collector open)	I_{EBO}	$V_{EB} = 6\text{ V}, I_C = 0$			100	μA
Forward current transfer ratio	h_{FE1}^*	$V_{CE} = 4\text{ V}, I_C = 1\text{ A}$	70		250	—
	h_{FE2}	$V_{CE} = 4\text{ V}, I_C = 4\text{ A}$	20			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 4\text{ A}, I_B = 0.4\text{ A}$			1.5	V
Transition frequency	f_T	$V_{CE} = 12\text{ V}, I_C = 0.2\text{ A}, f = 10\text{ MHz}$		80		MHz
Turn-on time	t_{on}	$I_C = 4\text{ A}, I_{B1} = 0.4\text{ A}, I_{B2} = -0.4\text{ A},$		0.3		μs
Storage time	t_{stg}	$V_{CC} = 50\text{ V}$		1.0		μs
Fall time	t_f			0.2		μs

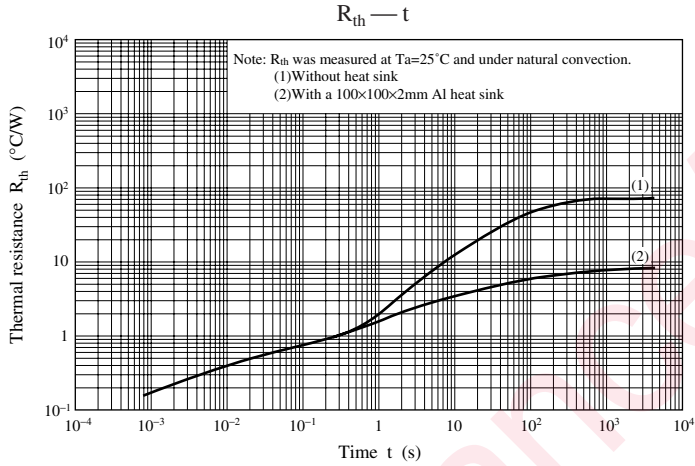
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *: Rank classification

Rank	Q	P
h_{FE1}	70 to 150	120 to 250







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