

2SD2139

Silicon NPN triple diffusion planar type

For high-speed switching and high current amplification ratio

■ Features

- High forward current transfer ratio h_{FE}
- Satisfactory linearity of forward current transfer ratio h_{FE}
- Allowing supply with the radial taping

■ 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	3	A
Peak collector current	I_{CP}	6	A
Base current	I_B	1	A
Collector power dissipation	P_C	15	W
	$T_a = 25^\circ\text{C}$	2.0	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

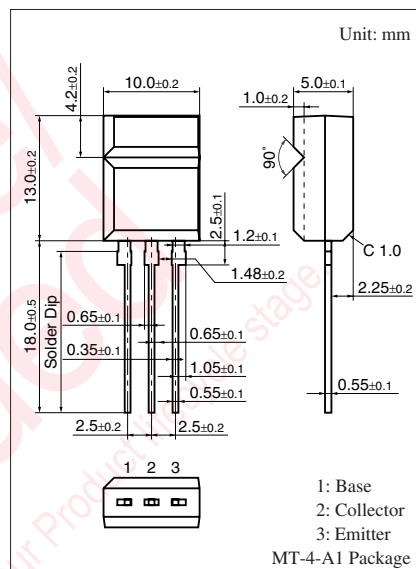
■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

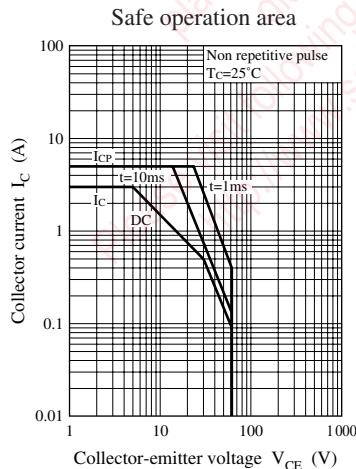
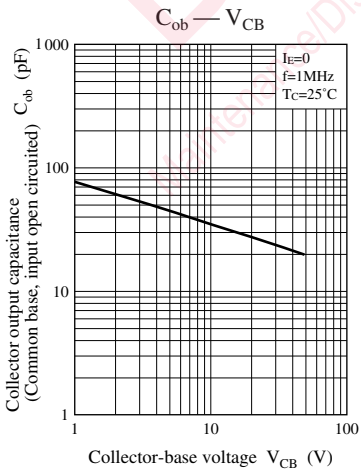
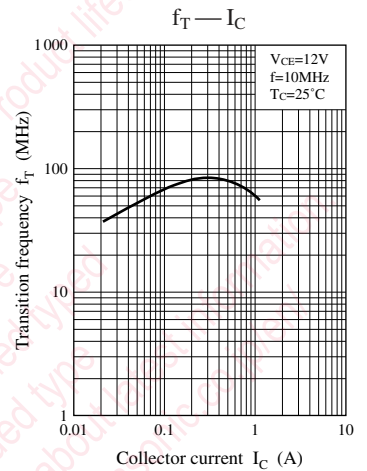
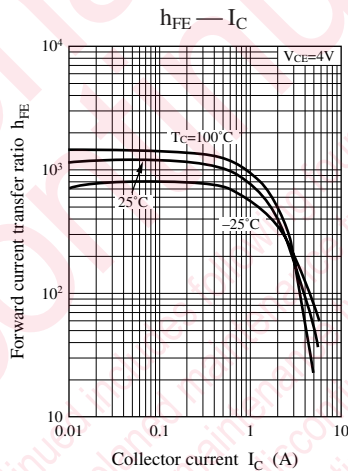
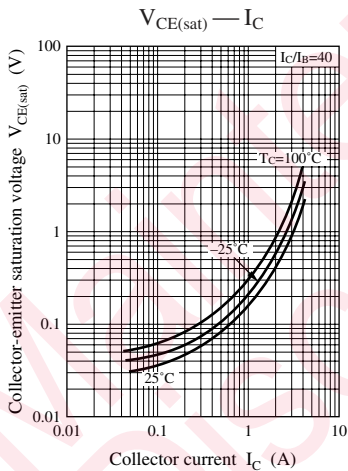
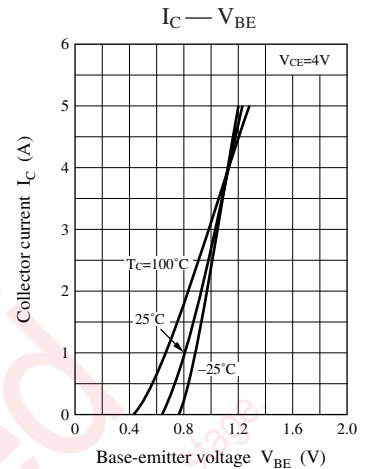
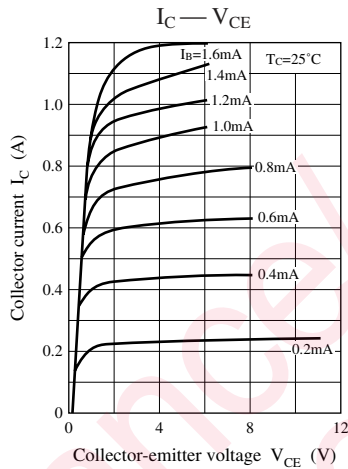
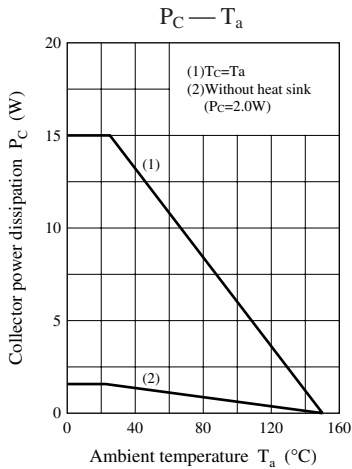
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 25 \text{ mA}, I_B = 0$	60			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 80 \text{ V}, I_E = 0$			100	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	$V_{CE} = 40 \text{ V}, I_B = 0$			100	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 6 \text{ V}, I_C = 0$			100	μA
Forward current transfer ratio *	h_{FE}	$V_{CE} = 4 \text{ V}, I_C = 0.5 \text{ A}$	500		2 500	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 2 \text{ A}, I_B = 0.05 \text{ A}$			1.0	V
Transition frequency	f_T	$V_{CE} = 12 \text{ V}, I_C = 0.2 \text{ A}, f = 10 \text{ MHz}$		50		MHz

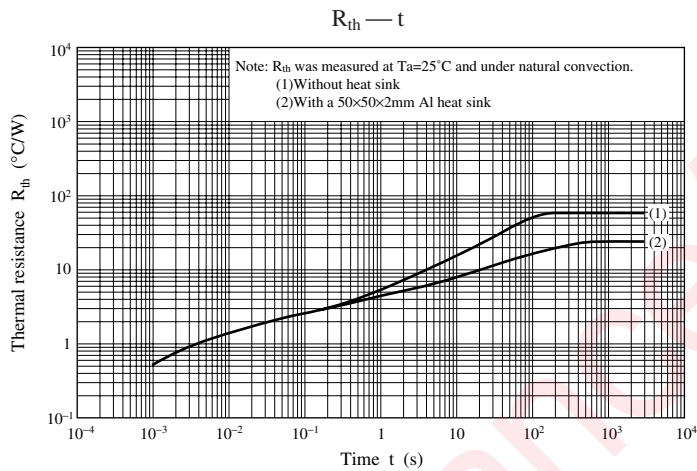
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *: Rank classification

Rank	Q	P	O
h_{FE}	500 to 1 000	800 to 1 500	1 200 to 2 500







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