

2SD1633

Silicon NPN triple diffusion planar type darlington

For voltage switching

■ Features

- High-speed switching
- 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-base voltage (Emitter open)	V_{CBO}	100	V
Collector-emitter voltage (Base open)	V_{CEO}	100	V
Emitter-base voltage (Collector open)	V_{EBO}	7	V
Collector current	I_C	5	A
Peak collector current	I_{CP}	8	A
Base current	I_B	0.5	A
Collector power dissipation	P_C	30	W
	$T_a = 25^\circ\text{C}$	2.0	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

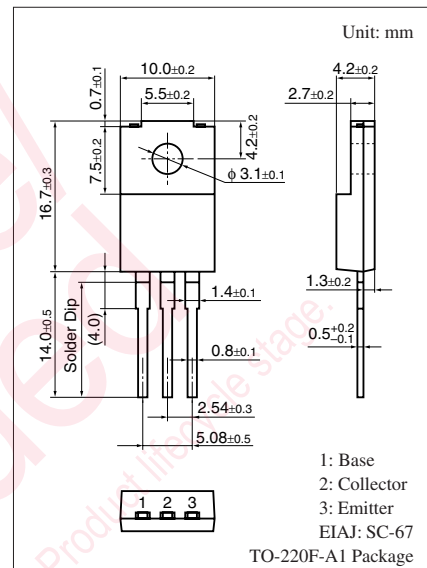
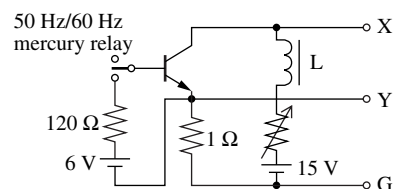
■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter sustaining voltage *2	$V_{CE0(SUS)}$	$I_C = 0.2 \text{ A}$, $L = 25 \text{ mH}$	100			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 100 \text{ V}$, $I_E = 0$			100	μA
Collector-emitter cut-off current (Base open)	I_{CEO}	$V_{CE} = 100 \text{ V}$, $I_B = 0$			100	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 7 \text{ V}$, $I_C = 0$			5	mA
Forward current transfer ratio *1	h_{FE}	$V_{CE} = 3 \text{ V}$, $I_C = 3 \text{ A}$	1 500		15 000	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 3 \text{ A}$, $I_B = 3 \text{ mA}$			1.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 3 \text{ A}$, $I_B = 3 \text{ mA}$			2.0	V
Transition frequency	f_T	$V_{CE} = 10 \text{ V}$, $I_C = 1 \text{ A}$, $f = 1 \text{ MHz}$		15		MHz
Turn-on time	t_{on}	$I_C = 3 \text{ A}$, $I_{B1} = 3 \text{ mA}$, $I_{B2} = -3 \text{ mA}$			3	μs
Storage time	t_{stg}	$V_{CC} = 50 \text{ V}$			5	μs
Fall time	t_f				3	μs

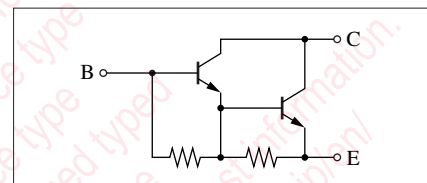
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

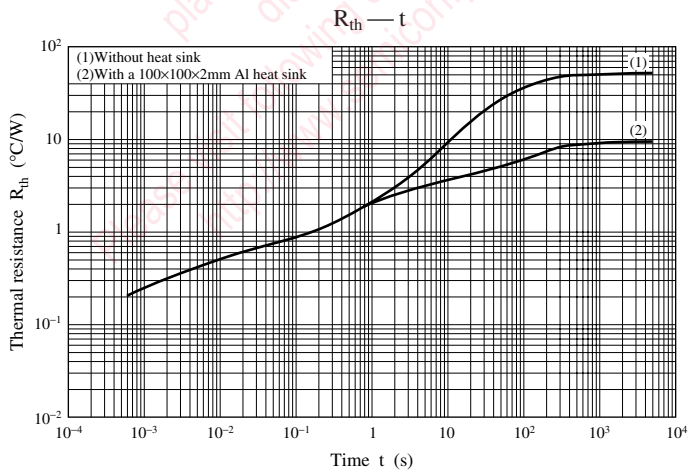
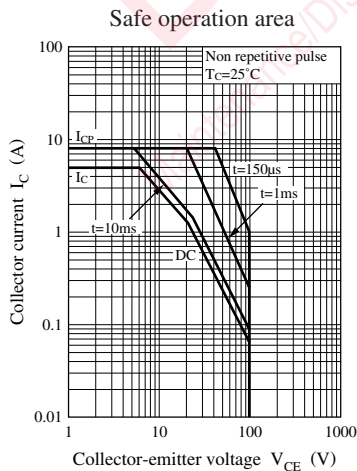
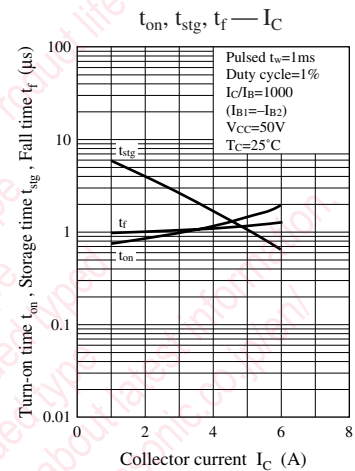
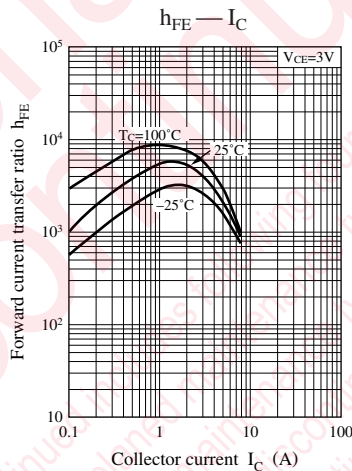
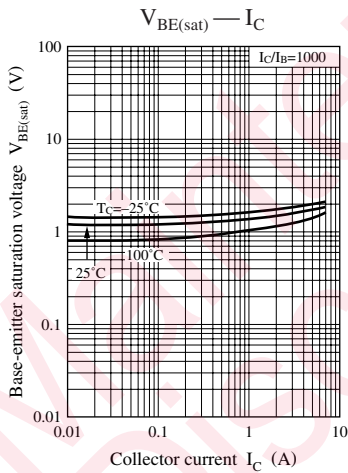
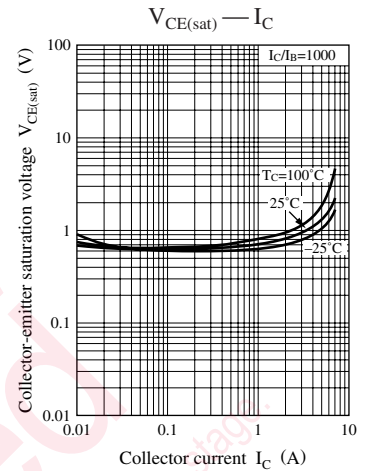
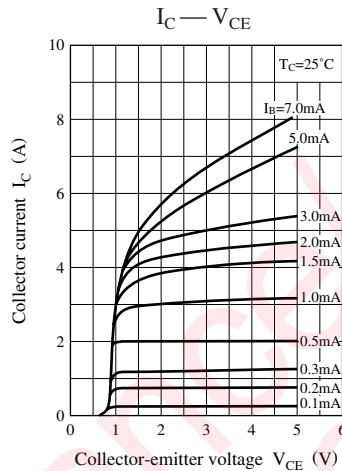
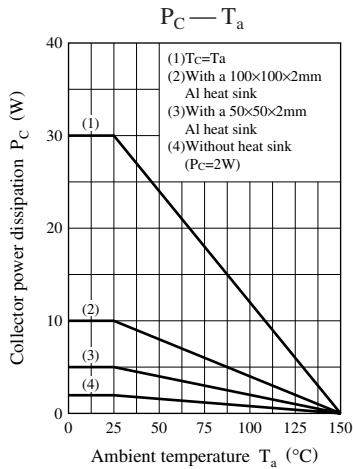
2. *1: Rank classification

Rank	Q	P
h_{FE}	1 500 to 6 000	5 000 to 15 000

*2: $V_{CE0(SUS)}$ test circuit

Internal Connection





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