

2SD2051

Silicon NPN epitaxial planar type darlington

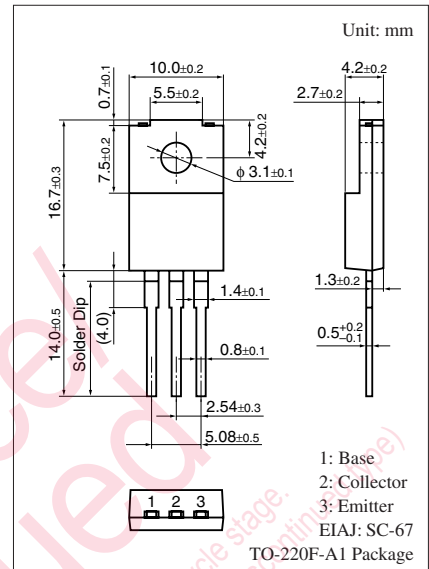
For low-frequency amplification

■ Features

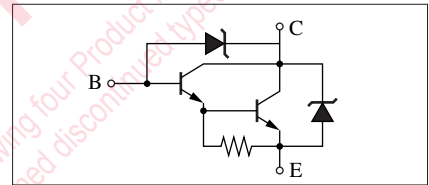
- High forward current transfer ratio h_{FE}
- Incorporating a built-in zener diode
- Full-pack package which can be installed to the heat sink with one screw.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	60 ± 10	V
Collector-emitter voltage (Base open)	V_{CEO}	60 ± 10	V
Emitter-base voltage (Collector open)	V_{EBO}	5	V
Collector current	I_C	1.6	A
Peak collector current	I_{CP}	2.5	A
Collector power dissipation	$T_C = 25^\circ\text{C}$ P_C	12	W
		2.0	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$



Internal Connection



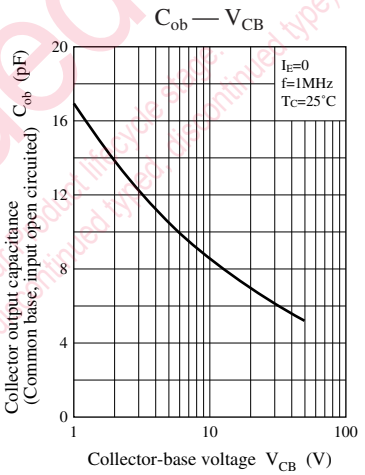
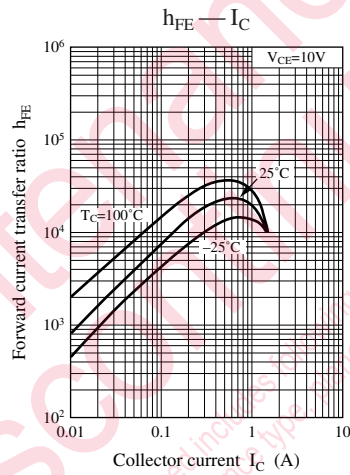
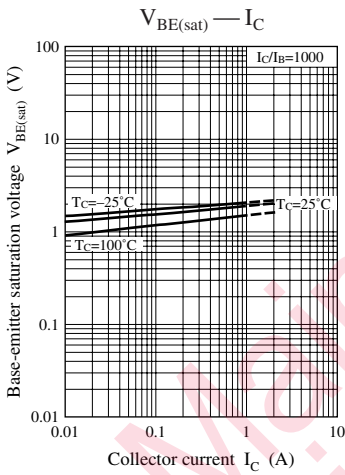
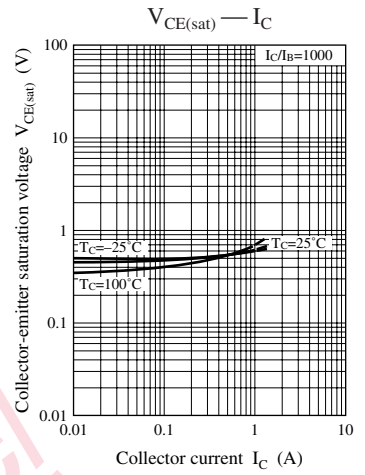
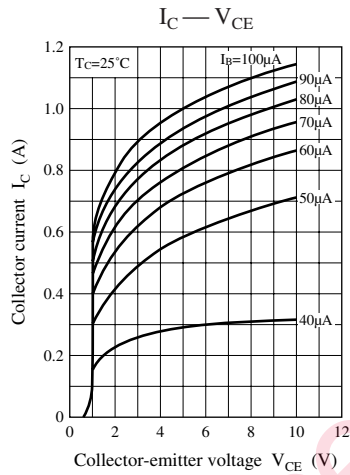
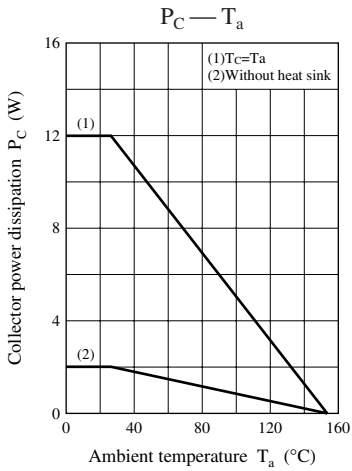
■ Electrical Characteristics $T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 100 \mu\text{A}, I_E = 0$	50		70	V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 1 \text{ mA}, I_B = 0$	50		70	V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = 100 \mu\text{A}, I_C = 0$	5			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 25 \text{ V}, I_E = 0$			1	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 4 \text{ V}, I_C = 0$			1	μA
Forward current transfer ratio *	h_{FE}	$V_{CE} = 10 \text{ V}, I_C = 1.0 \text{ A}$	4000		40000	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1.0 \text{ A}, I_B = 1.0 \text{ mA}$			1.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1.0 \text{ A}, I_B = 1.0 \text{ mA}$			2.2	V
Transition frequency	f_T	$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}, f = 200 \text{ MHz}$		200		MHz

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

2. *: Rank classification

Rank	Q	R	S
h_{FE}	4000 to 10000	8000 to 20000	1600 to 40000



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