

2SD0946 (2SD946), 2SD0946A (2SD946A), 2SD0946B (2SD946B)

Silicon NPN epitaxial planar type darlington

For low-frequency amplification

■ Features

- Forward current transfer ratio h_{FE} is designed high, which is appropriate to the driver circuit of motors and printer hammer.
- A shunt resistor is omitted from the driver.

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

Parameter		Symbol	Rating	Unit
Collector-base voltage (Emitter open)	2SD0946	V_{CBO}	30	V
	2SD0946A		60	
	2SD0946B		100	
Collector-emitter voltage (Base open)	2SD0946	V_{CEO}	25	V
	2SD0946A		50	
	2SD0946B		80	
Emitter-base voltage (Collector open)		V_{EBO}	5	V
Collector current		I_C	1	A
Peak collector current		I_{CP}	1.5	A
Collector power dissipation		P_C	1.2	W
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	2SD0946 2SD0946A 2SD0946B	V_{CBO} $I_C = 100\ \mu\text{A}$, $I_E = 0$	30			V
			60			
			100			
Collector-emitter voltage (Base open)	2SD1263 2SD0946A 2SD0946B	V_{CEO} $I_C = 1\ \text{mA}$, $I_B = 0$	25			V
			50			
			80			
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}	$V_{CB} = 25\ \text{V}$, $I_E = 0$			0.1	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 4\ \text{V}$, $I_C = 0$			0.1	μA
Forward current transfer ratio *1, 2	h_{FE}	$V_{CE} = 10\ \text{V}$, $I_C = 1\ \text{A}$	4000		40000	—
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_C = 1\ \text{A}$, $I_B = 1\ \text{mA}$			1.8	V
Base-emitter saturation voltage *1	$V_{BE(sat)}$	$I_C = 1\ \text{A}$, $I_B = 1\ \text{mA}$			2.2	V
Transition frequency	f_T	$V_{CB} = 10\ \text{V}$, $I_E = -50\ \text{mA}$, $f = 200\ \text{MHz}$		150		MHz

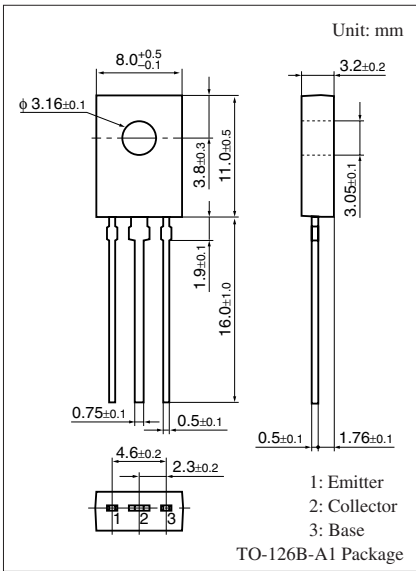
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. *1: Pulse measurement

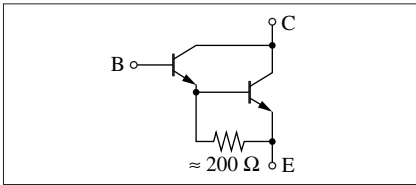
*2: Rank classification

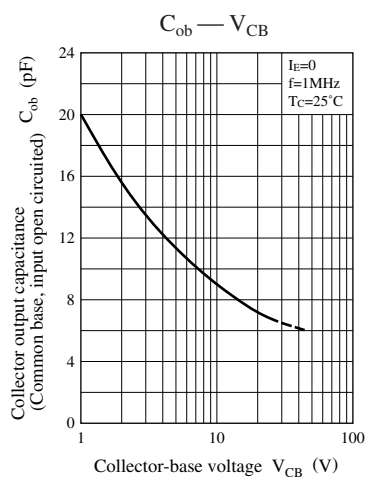
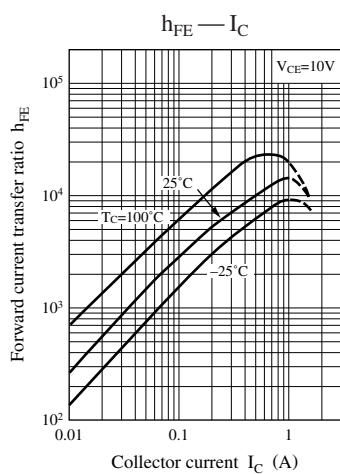
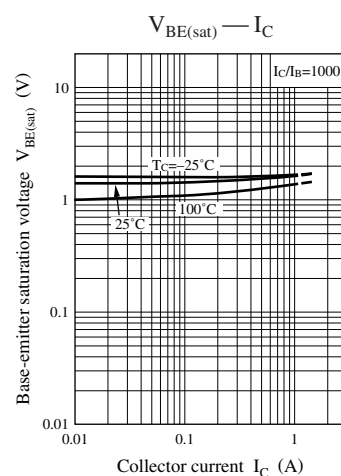
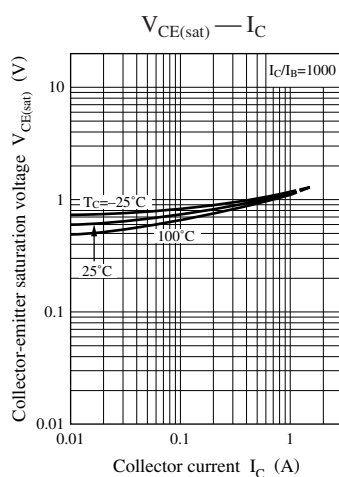
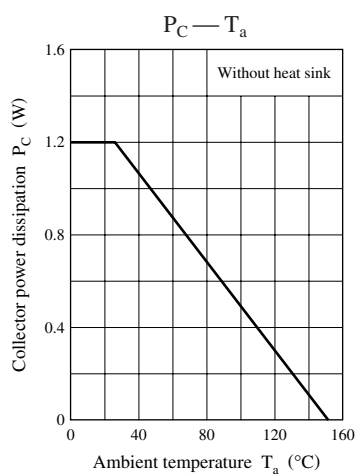
Rank	Q	R	S
h_{FE}	4 000 to 10 000	8 000 to 20 000	16 000 to 40 000

Note) The part numbers in the parenthesis show conventional part number.



Internal Connection





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