

# 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	30	V
	2SD0946A	60	
	2SD0946B	100	
Collector-emitter voltage (Base open)	2SD0946	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	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

## ■ 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	$I_C = 100 \mu\text{A}, I_E = 0$	30			V
	2SD0946A		60			
	2SD0946B		100			
Collector-emitter voltage (Base open)	2SD1263	$I_C = 1 \text{ mA}, I_B = 0$	25			V
	2SD0946A		50			
	2SD0946B		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	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = 4 \text{ V}, I_C = 0$			0.1	$\mu\text{A}$
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

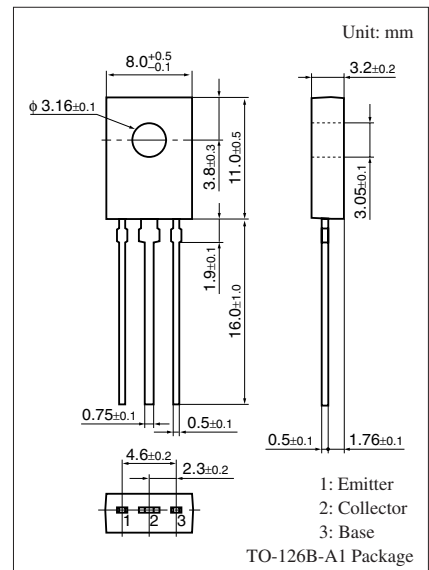
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*1: Pulse measurement

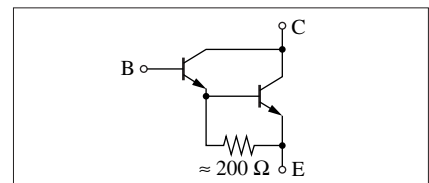
\*2: Rank classification

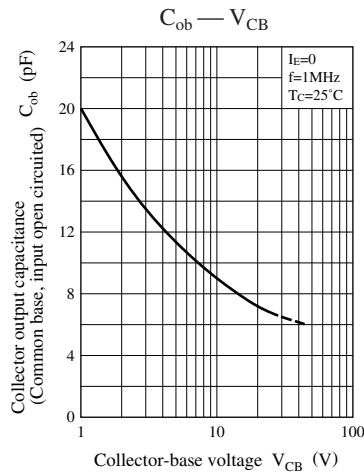
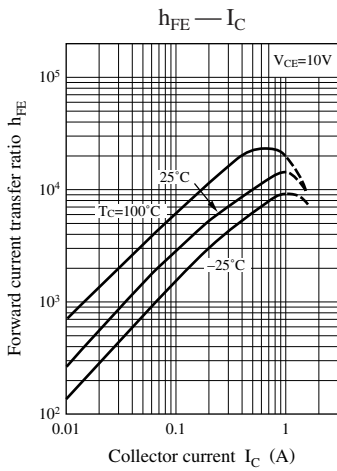
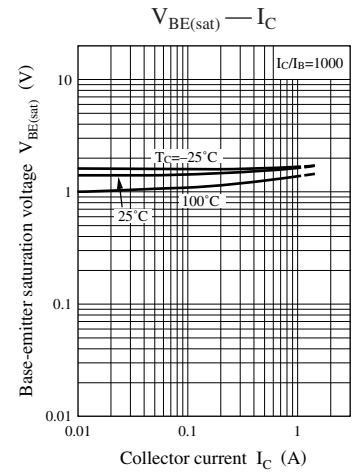
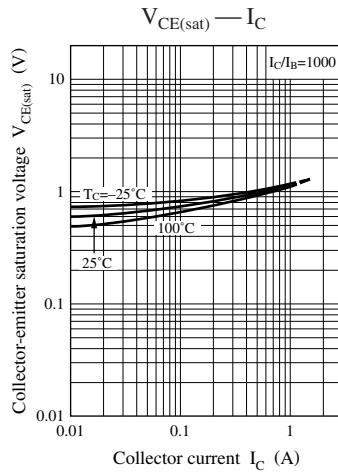
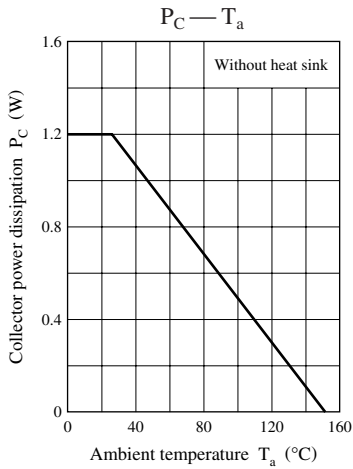
Rank	Q	R	S
$h_{FE}$	4 000 to 10 000	8 000 to 20 000	16 000 to 40 000

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



## Internal Connection





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