2SD0946A, 2SD0946B

Silicon NPN epitaxial planar type darlington

For low-frequency amplification

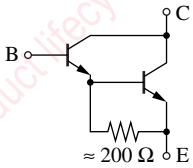
■ Features

- 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.

■ Package

- Code
  TO-126B-A1
- Pin Name
  1: Emitter
  2: Collector
  3: Base

■ Internal Connection



■ Absolute Maximum Ratings $T_a = 25°C$

Parameter		Symbol	Rating	Unit
Collector-base voltage (Emitter open)	2SD0946A	V_{CBO}	60	V
	2SD0946B		100	
Collector-emitter voltage (Base open)	2SD0946A	V_{CEO}	50	V
	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 $T_a = 25°C \pm 3°C$

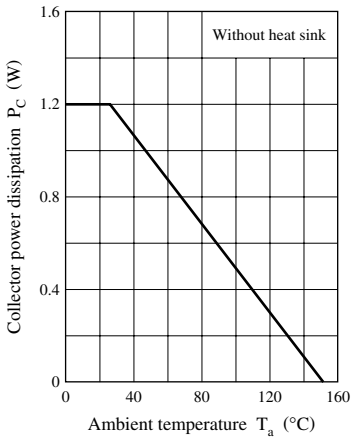
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	2SD0946A	V_{CBO}	I_C = 100 µA, I_E = 0	60			V
	2SD0946B			100			
Collector-emitter voltage (Base open)	2SD0946A	V_{CEO}	I_C = 1 mA, I_B = 0	50			V
	2SD0946B			80			
Emitter-base voltage (Collector open)		V_{EBO}	I_E = 100 µA, I_C = 0	5			V
Collector-base cutoff current (Emitter open)		I_{CBO}	V_{CB} = 25 V, I_E = 0			0.1	µA
Emitter-base cutoff current (Collector open)		I_{EBO}	V_{EB} = 4 V, I_C = 0			0.1	µA
Forward current transfer ratio *1, 2		h_{FE}	V_{CE} = 10 V, I_C = 1 A	4 000		40 000	—
Collector-emitter saturation voltage *1		$V_{CE(sat)}$	I_C = 1 A, I_B = 1 mA			1.8	V
Base-emitter saturation voltage *1		$V_{BE(sat)}$	I_C = 1 A, I_B = 1 mA			2.2	V
Transition frequency		f_T	V_{CB} = 10 V, I_E = −50 mA, f = 200 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

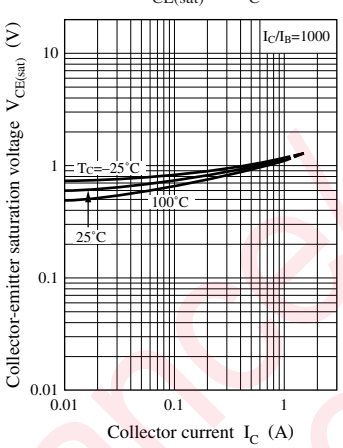
Rank	Q	R	S
h_{FE}	4 000 to 10 000	8 000 to 20 000	16 000 to 40 000

Maintenance/ Discontinued
This product is planned to be discontinued. It includes following four Product lifecycle stage.
planned maintenance type
maintenance type
planned discontinued type
discontinued type
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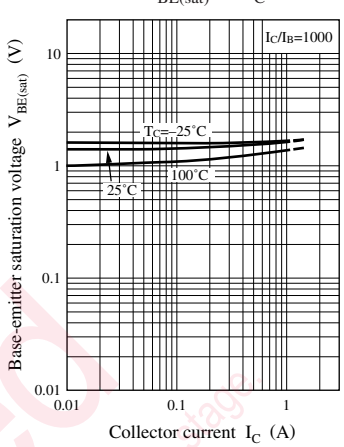
P_C — T_a



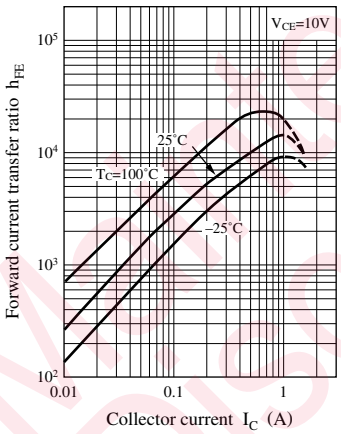
$V_{CE(sat)}$ — I_C



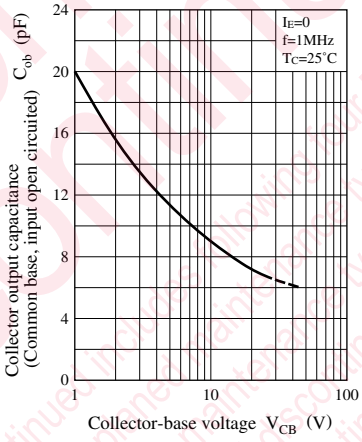
$V_{BE(sat)}$ — I_C



h_{FE} — I_C



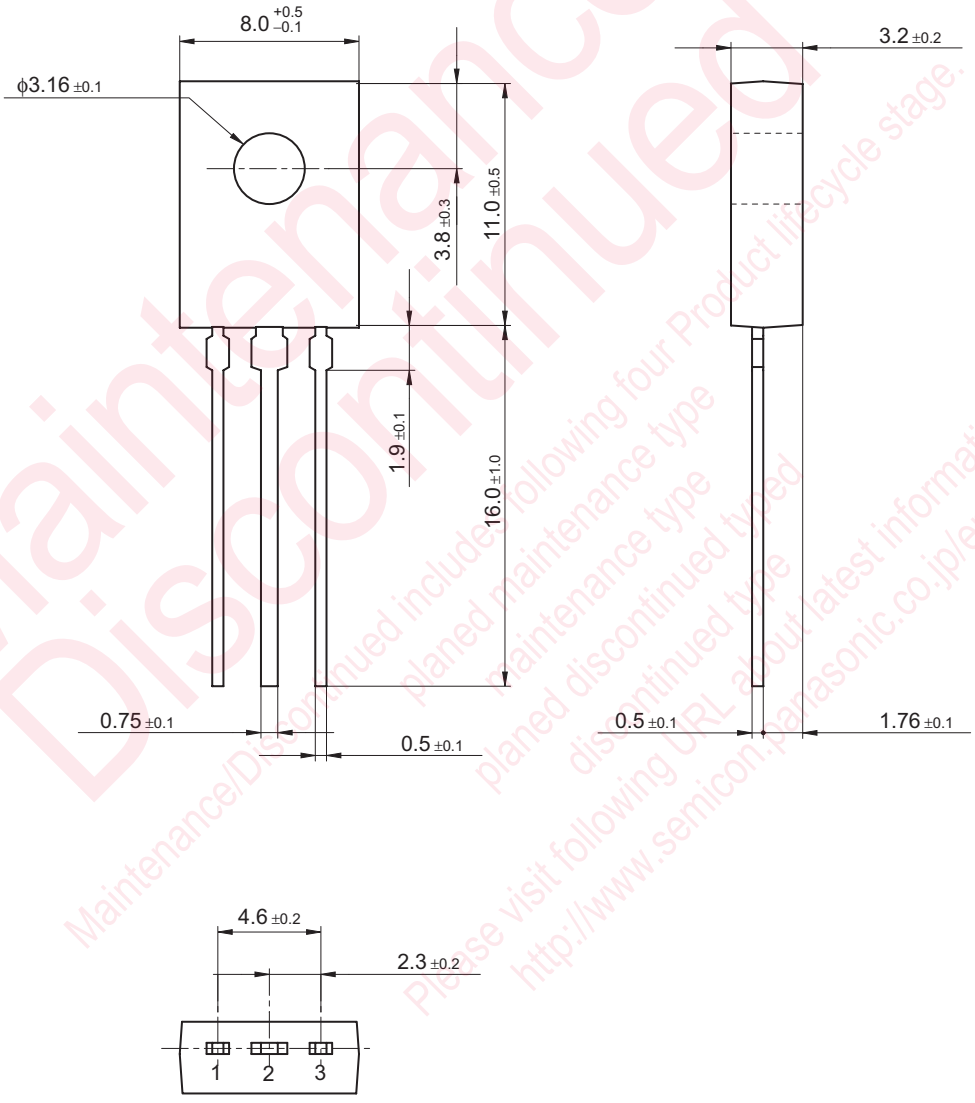
C_{ob} — V_{CB}



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TO-126B-A1

Unit: mm



Maintenance/Discontinued
Maintenance/Discontinued includes following four Product lifecycle stage.
planed maintenance type
maintenance type
planed discontinued type
discontinued type
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