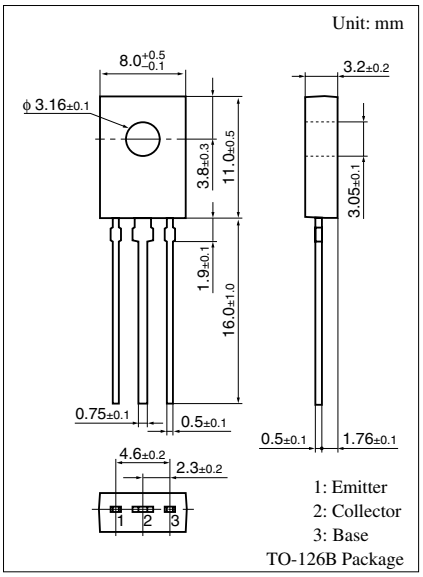
2SD0946, 2SD0946A, 2SD0946B
(2SD946, 2SD946A, 2SD946B)

Silicon NPN epitaxial planar type darlington

For low-frequency amplification



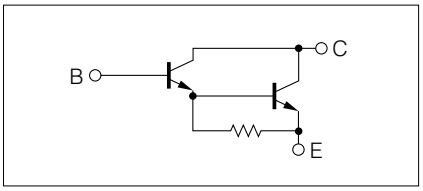
■ Features

- 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 $T_C = 25°C$

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

Internal Connection



■ Electrical Characteristics $T_C = 25°C$

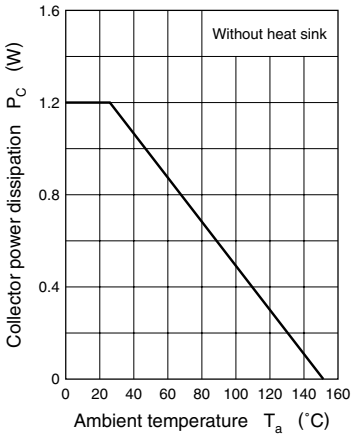
Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current		I_{CBO}	V_{CB} = 25 V, I_E = 0			100	nA
Emitter cutoff current		I_{EBO}	V_{EB} = 4 V, I_C = 0			100	nA
Collector to base voltage	2SD0946	V_{CBO}	I_C = 100 µA, I_E = 0	30			V
	2SD0946A			60			
	2SD0946B			100			
Collector to emitter voltage	2SD0946	V_{CEO}	I_C = 1 mA, I_B = 0	25			V
	2SD0946A			50			
	2SD0946B			80			
Emitter to base voltage		V_{EBO}	I_E = 100 µA, I_C = 0	5			V
Forward current transfer ratio *		h_{FE}	V_{CE} = 10 V, I_C = 1 A	4 000		40 000	
Collector to emitter saturation voltage		$V_{CE(sat)}$	I_C = 1 A, I_B = 1 mA			1.8	V
Base to emitter saturation voltage		$V_{BE(sat)}$	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) ∗: Rank classification

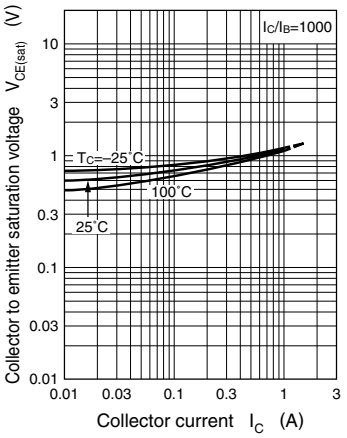
Rank	Q	R	S
h_{FE}	4 000 to 10 000	8 000 to 20 000	16 000 to 40 000

Note.) The Part numbers in the Parenthesis show conventional part number.

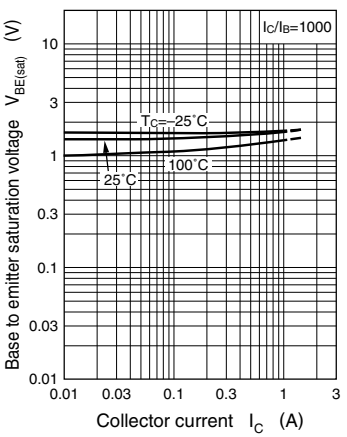
P_C — T_a



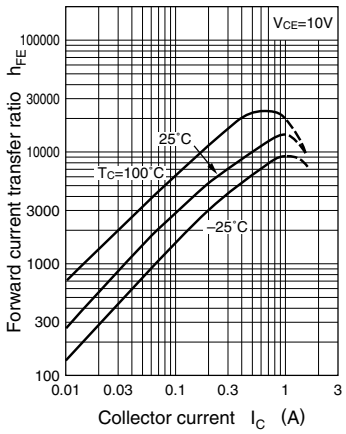
$V_{CE(sat)}$ — I_C



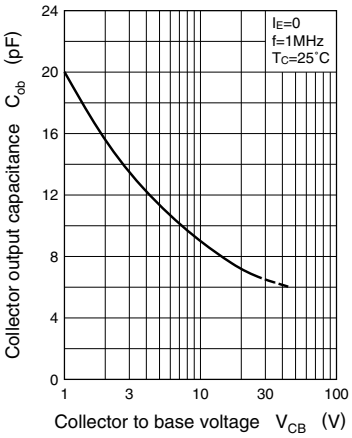
$V_{BE(sat)}$ — I_C



h_{FE} — I_C



C_{ob} — V_{CB}



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