# 2SD1640

# Silicon NPN epitaxial planar type darlington

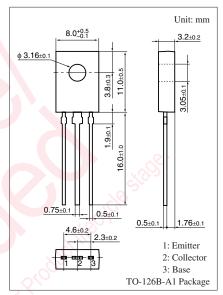
### For low-frequency output amplification

#### ■ Features

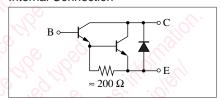
- High forward current transfer ratio h<sub>FE</sub>
- Large peak collector current I<sub>CP</sub>
- $\bullet$  High collector-emitter voltage (Base open)  $V_{\text{CEO}}$

### ■ Absolute Maximum Ratings $T_a = 25$ °C

Parameter	Symbol	Symbol Rating	
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	120	V
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	100	V
Emitter-base voltage (Collector open)	$V_{EBO}$	5	V
Collector current	$I_{C}$	2	A
Peak collector current	$I_{CP}$	3	A
Collector power dissipation	$P_{C}$	1.2	W
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C



#### Internal Connection



## ■ Electrical Characteristics $T_a = 25$ °C $\pm 3$ °C

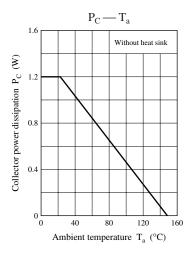
Parameter	Symbol	Conditions	Min	Тур	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = 100 \mu\text{A},  I_E = 0$	120	0		V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 1 \text{ mA}, I_B = 0$	100			V
Emitter-base voltage (Collector open)	V <sub>EBO</sub>	$I_E = 100 \mu\text{A}, I_C = 0$	5			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = 25 \text{ V}, I_{E} = 0$			0.1	μΑ
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = 4 \text{ V}, I_C = 0$			1	μΑ
Forward current transfer ratio *1, 2	$h_{FE}$	$V_{CE} = 10 \text{ V}, I_{C} = 1 \text{ A}$	4000		40 000	_
Collector-emitter saturation voltage *1	V <sub>CE(sat)</sub>	$I_C = 1.0 \text{ A}, I_B = 1.0 \text{ mA}$			1.5	V
Base-emitter saturation voltage *1	V <sub>BE(sat)</sub>	$I_C = 1.0 \text{ A}, I_B = 1.0 \text{ mA}$			2.0	V

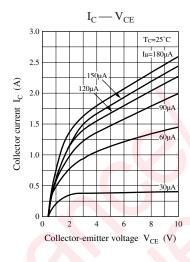
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

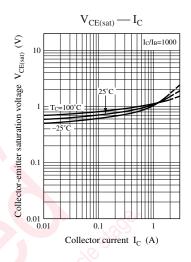
#### 2. \*1: Pulse measurement

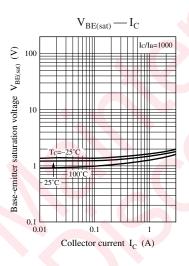
#### \*2: Rank classification

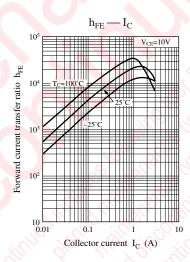
Rank	Q	R	S		
$h_{FE}$	4000 to 10000	8 000 to 20 000	16 000 to 40 000		

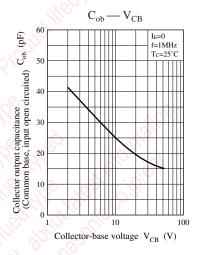


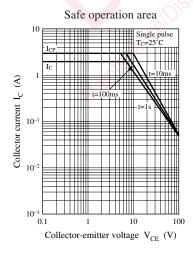


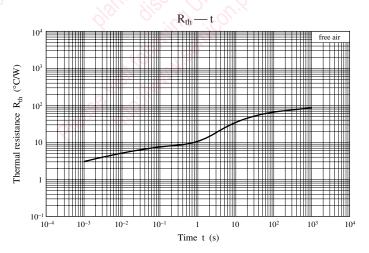












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