

# 2SD2018

## Silicon NPN epitaxial planar type darlington

For low-frequency amplification

### ■ Features

- High forward current transfer ratio  $h_{FE}$
- Built-in 60 V Zener diode between base to collector

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$60^{+25}_{-10}$	V
Collector-emitter voltage (Base open)	$V_{CEO}$	$60^{+25}_{-10}$	V
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	$T_C = 25^\circ\text{C}$ $P_C$	1.2 5.0	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

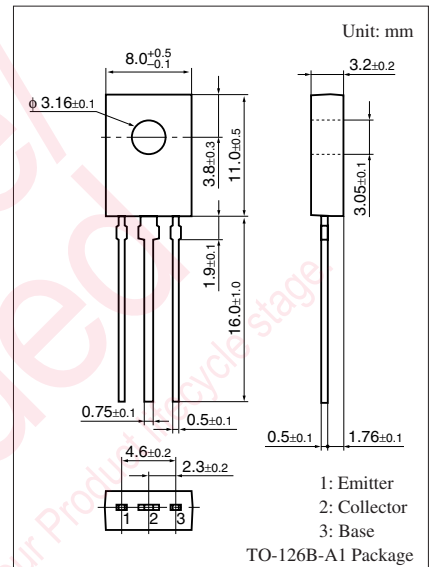
Note) \*: With a 100 mm × 100 mm × 2 mm Al heat sick.

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

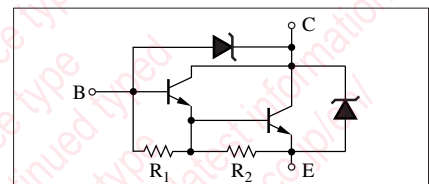
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = 100 \mu\text{A}, I_E = 0$	50		85	V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 1 \text{ mA}, I_B = 0$	50		85	V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = 25 \text{ V}, I_E = 0$			1	$\mu\text{A}$
Emitter-base cutoff current (Collector open)	$I_{EBO}$	$V_{EB} = 4 \text{ V}, I_C = 0$			2	mA
Forward current transfer ratio *	$h_{FE}$	$V_{CE} = 10 \text{ V}, I_C = 1.0 \text{ A}$	6500		40000	—
Collector-emitter saturation voltage *	$V_{CE(sat)}$	$I_C = 1.0 \text{ A}, I_B = 1.0 \text{ mA}$			1.8	V
Base-emitter saturation voltage *	$V_{BE(sat)}$	$I_C = 1.0 \text{ A}, I_B = 1.0 \text{ mA}$			2.2	V

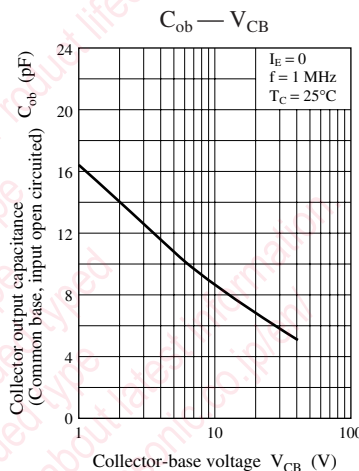
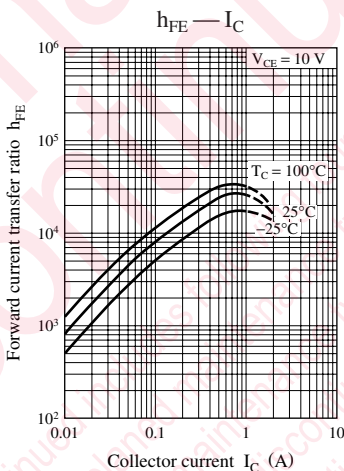
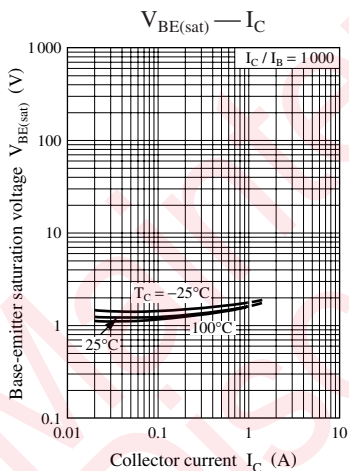
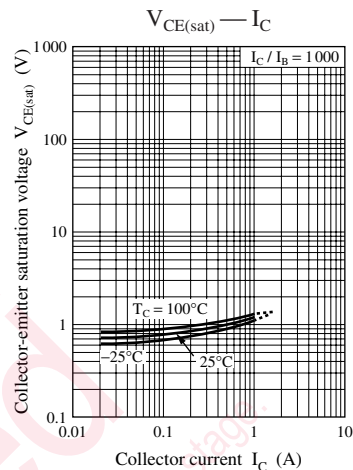
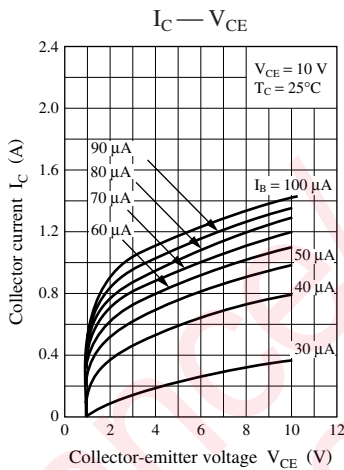
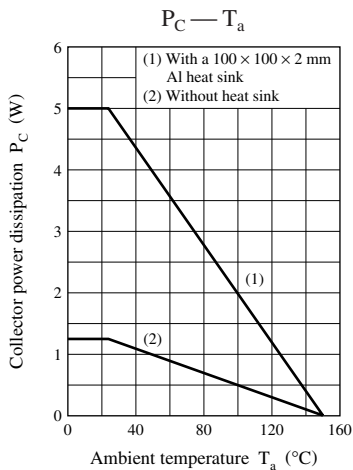
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*: Pulse measurement



### Internal Connection





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