

# 2SD1640

## Silicon NPN epitaxial planar type darlington

For low-frequency output amplification

### ■ Features

- Darlington connection
- High forward current transfer ratio  $h_{FE}$
- Large peak collector current  $I_{CP}$
- High collector to emitter voltage  $V_{CEO}$

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

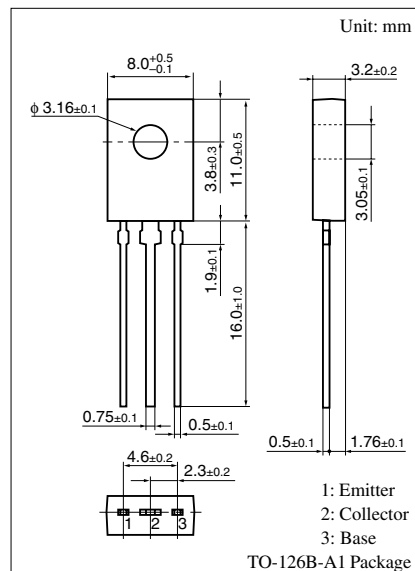
Parameter	Symbol	Rating	Unit
Collector to base voltage	$V_{CBO}$	120	V
Collector to emitter voltage	$V_{CEO}$	100	V
Emitter to base voltage	$V_{EBO}$	5	V
Peak collector current	$I_{CP}$	3	A
Collector current	$I_C$	2	A
Collector power dissipation	$P_C$	1.2	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

### ■ Electrical Characteristics $T_C = 25^\circ\text{C}$

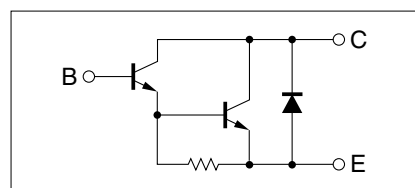
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	$I_{CBO}$	$V_{CB} = 25\text{ V}, I_E = 0$			0.1	$\mu\text{A}$
Emitter cutoff current	$I_{EBO}$	$V_{EB} = 4\text{ V}, I_C = 0$			1	$\mu\text{A}$
Collector to base voltage	$V_{CBO}$	$I_C = 100\ \mu\text{A}, I_E = 0$	120			V
Collector to emitter voltage	$V_{CEO}$	$I_C = 1\text{ mA}, I_B = 0$	100			V
Emitter to base voltage	$V_{EBO}$	$I_E = 100\ \mu\text{A}, I_C = 0$	5			V
Forward current transfer ratio *	$h_{FE}$	$V_{CE} = 10\text{ V}, I_C = 1\text{ A}$	4 000		40 000	
Collector to emitter saturation voltage	$V_{CE(sat)}$	$I_C = 1\text{ A}, I_B = 1\text{ mA}$			1.5	V
Base to emitter saturation voltage	$V_{BE(sat)}$	$I_C = 1\text{ A}, I_B = 1\text{ mA}$			2	V
Transition frequency	$f_T$	$V_{CE} = 10\text{ V}, I_E = -50\text{ mA}, f = 200\text{ MHz}$		150		MHz

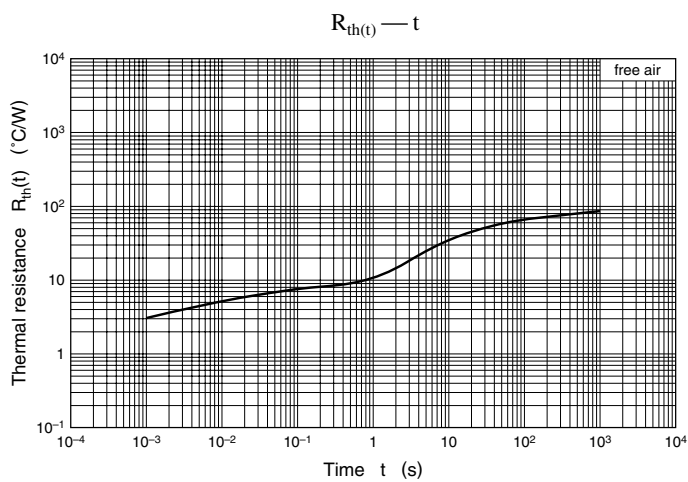
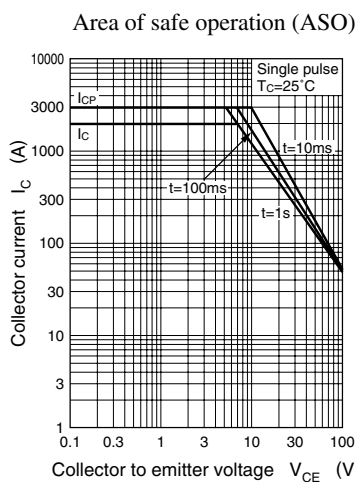
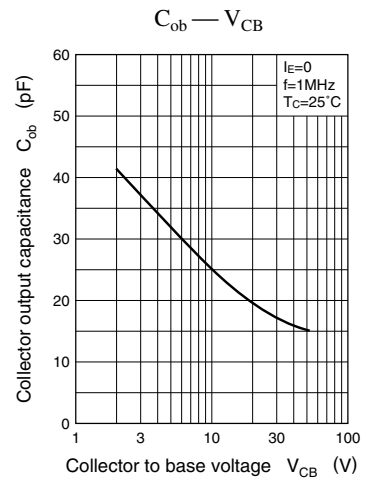
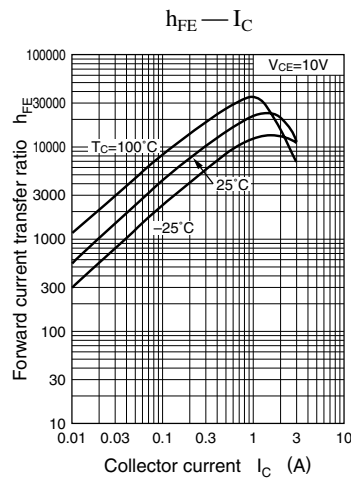
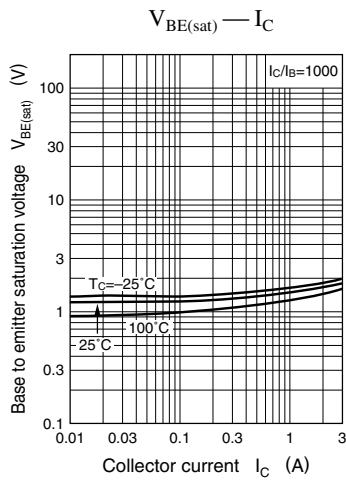
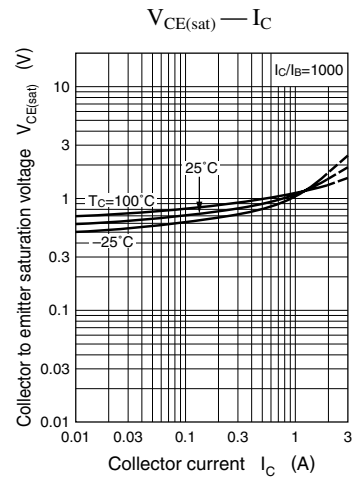
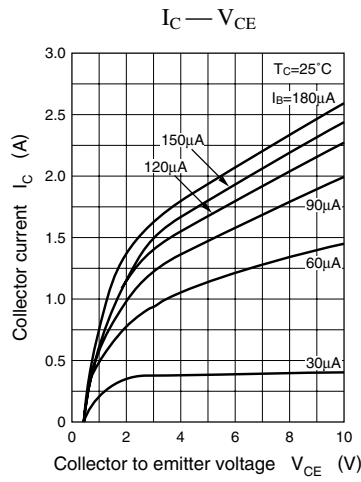
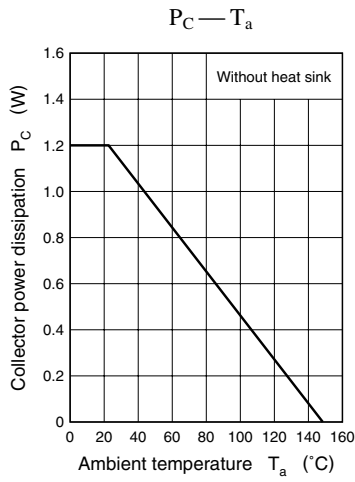
Note) \*: Rank classification

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



### Internal Connection





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