

2SD1640

Silicon NPN epitaxial planar type darlington

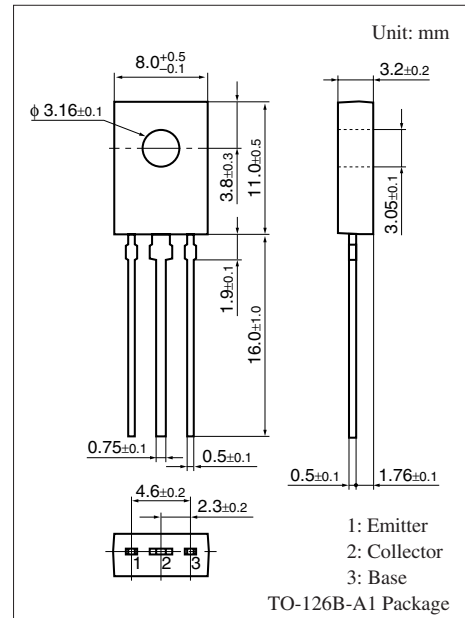
For low-frequency output amplification

■ Features

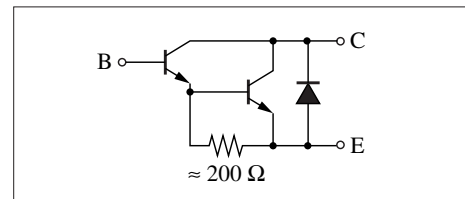
- High forward current transfer ratio h_{FE}
- Large peak collector current I_{CP}
- High collector-emitter voltage (Base open) V_{CEO}

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	120	V
Collector-emitter voltage (Base open)	V_{CEO}	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_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$



Internal Connection



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

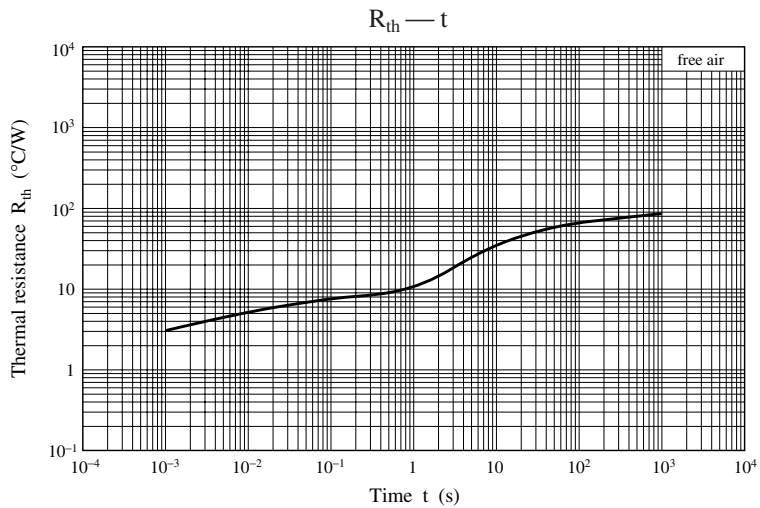
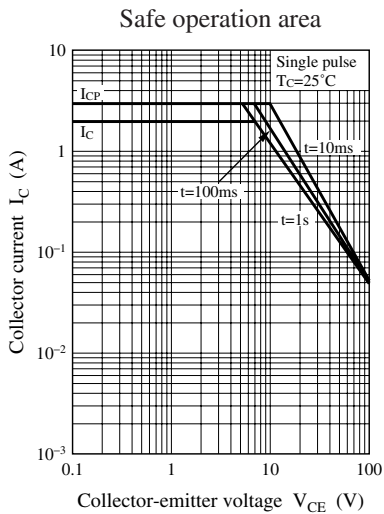
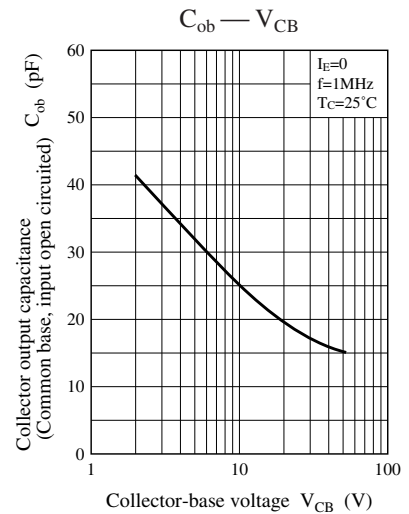
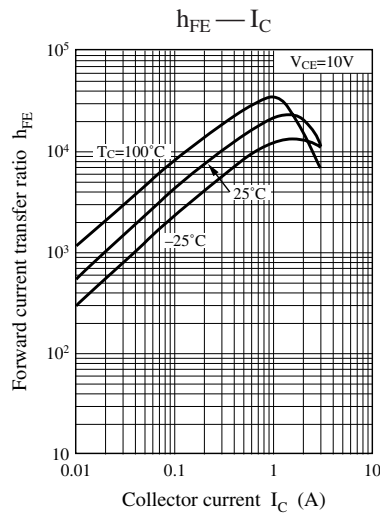
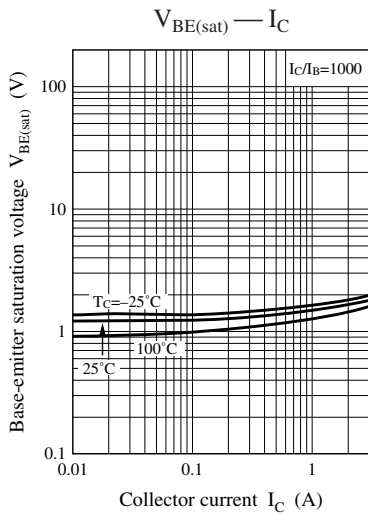
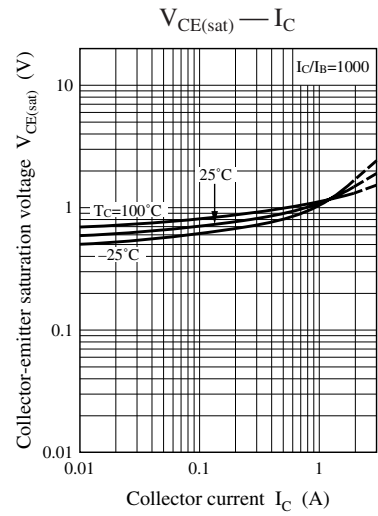
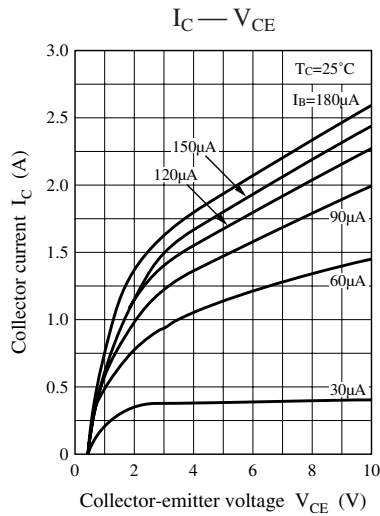
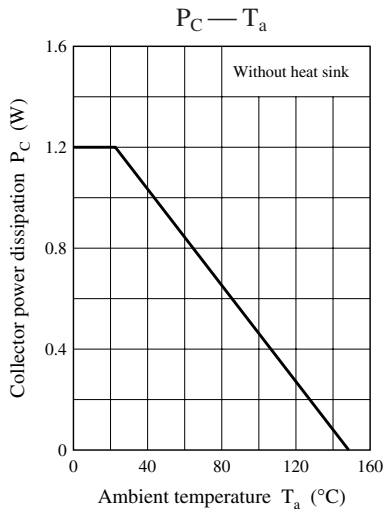
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = 100 \mu\text{A}$, $I_E = 0$	120			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = 1 \text{ mA}$, $I_B = 0$	100			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = 100 \mu\text{A}$, $I_C = 0$	5			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = 25 \text{ V}$, $I_E = 0$			0.1	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = 4 \text{ V}$, $I_C = 0$			1	μA
Forward current transfer ratio *1, 2	h_{FE}	$V_{CE} = 10 \text{ V}$, $I_C = 1 \text{ A}$	4000		40000	—
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_C = 1.0 \text{ A}$, $I_B = 1.0 \text{ mA}$			1.5	V
Base-emitter saturation voltage *1	$V_{BE(sat)}$	$I_C = 1.0 \text{ A}$, $I_B = 1.0 \text{ mA}$			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	8000 to 20000	16000 to 40000



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