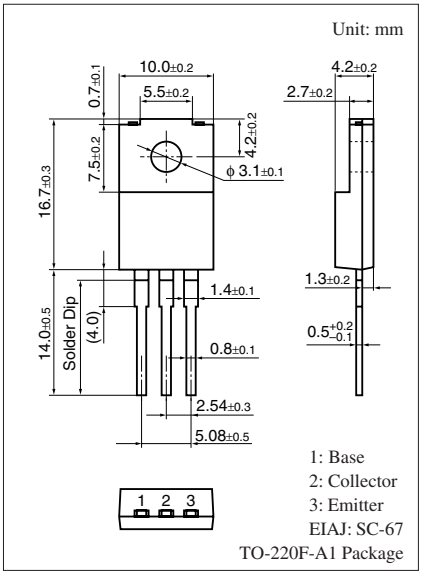
2SB1252

Silicon PNP epitaxial planar type darlington

For power amplification



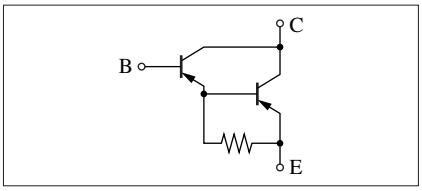
■ Features

- Optimum for 35 W Hi-Fi output
- High forward current transfer ratio h_{FE}
- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Full-pack package which can be installed to the heat sink with one screw.

■ Absolute Maximum Ratings $T_C = 25°C$

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	−5	A
Peak collector current		I_{CP}	−8	A
Collector power dissipation		P_C	45	W
	$T_a = 25°C$		2	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

Internal Connection



■ Electrical Characteristics $T_C = 25°C \pm 3°C$

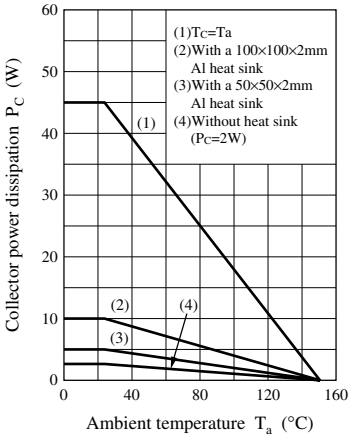
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	V_{CEO}	I_C = −30 mA, I_B = 0	−100			V
Collector-base cutoff current (Emitter open)	I_{CBO}	V_{CB} = −120 V, I_E = 0			−100	μA
Collector-emitter cutoff current (Base open)	I_{CEO}	V_{CE} = −100 V, I_B = 0			−100	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	V_{EB} = −5 V, I_C = 0			−100	μA
Forward current transfer ratio	h_{FE1}	V_{CE} = −5 V, I_C = −1 A	2000			—
	h_{FE2} *	V_{CE} = −5 V, I_C = −4 A	5000		30000	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C = −4 A, I_B = −4 mA			−2.5	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C = −4 A, I_B = −4 mA			−3.0	V
Transition frequency	f_T	V_{CE} = −10 V, I_C = − 0.5 A, f = 1 MHz		20		MHz
Turn-on time	t_{on}	I_C = −4 A, I_{B1} = −4 mA, I_{B2} = 4 mA		1.0		μs
Storage time	t_{stg}	V_{CC} = −50 V		0.8		μs
Fall time	t_f			1.0		μs

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

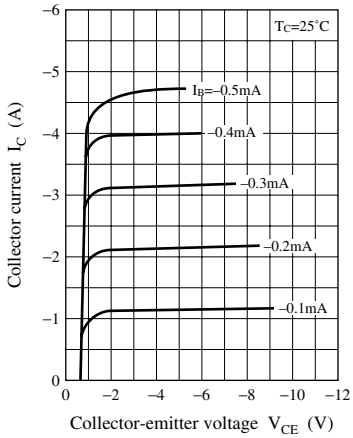
2. *: Rank classification

Rank	Q	P
h_{FE2}	5000 to 15000	8000 to 30000

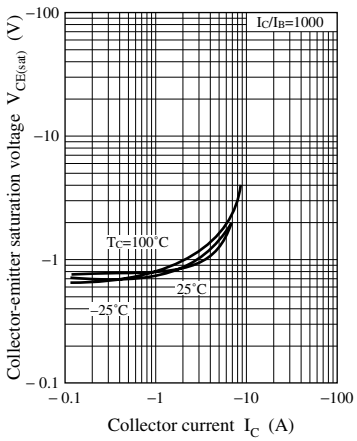
P_C — T_a



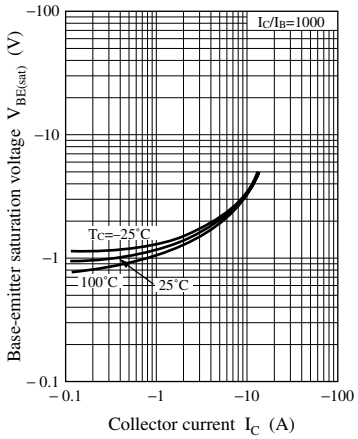
I_C — V_{CE}



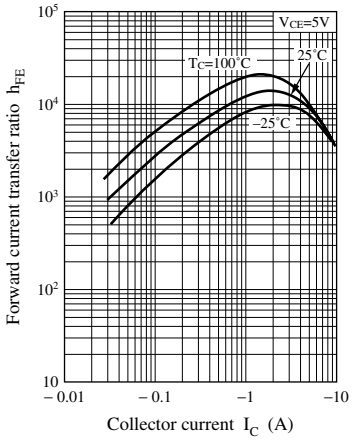
$V_{CE(sat)}$ — I_C



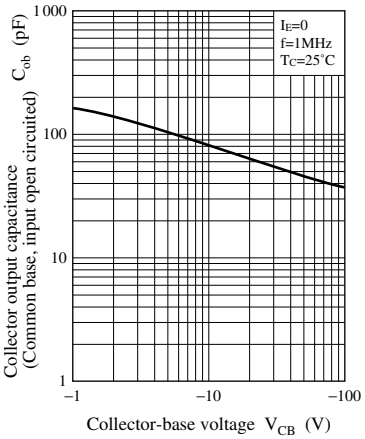
$V_{BE(sat)}$ — I_C



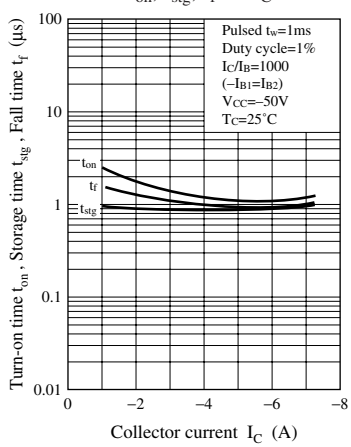
h_{FE} — I_C



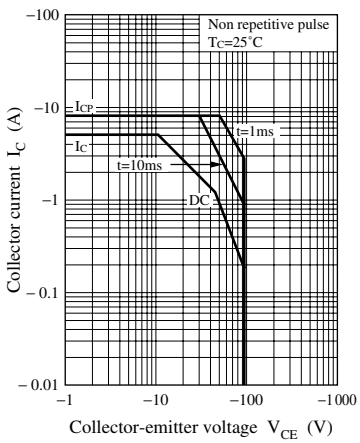
C_{ob} — V_{CB}

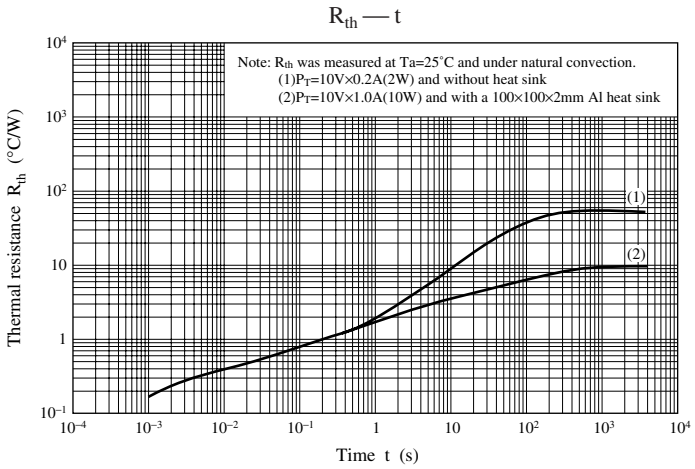


t_{on}, t_{stg}, t_f — I_C



Safe operation area




R_{th} — t
Note: R_{th} was measured at Ta=25°C and under natural convection.
(1)P_T=10V×0.2A(2W) and without heat sink
(2)P_T=10V×1.0A(10W) and with a 100×100×2mm Al heat sink
Thermal resistance R_{th} (°C/W)
10^4
10^3
10^2
10
1
10^{-1}
(1)
(2)
10^{-4}
10^{-3}
10^{-2}
10^{-1}
1
10
10^2
10^3
10^4
Time t (s)

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