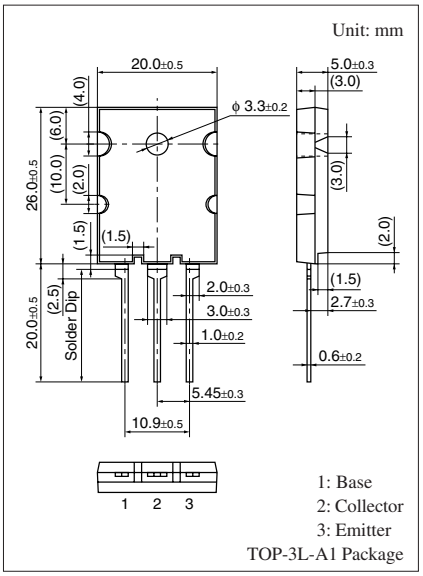
2SB1317

Silicon PNP triple diffusion planar type

For high power amplification
Complementary to 2SD1975



■ Features

- Excellent collector current I_C characteristics of forward current transfer ratio h_{FE}
- Wide safe operation area
- High transition frequency f_T
- Optimum for the output stage of a Hi-Fi audio amplifier

■ Absolute Maximum Ratings $T_C = 25°C$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	−180	V
Collector-emitter voltage (Base open)	V_{CEO}	−180	V
Emitter-base voltage (Collector open)	V_{EBO}	−5	V
Collector current	I_C	−15	A
Peak collector current	I_{CP}	−25	A
Collector power dissipation	P_C	150	W
$T_a = 25°C$		3.5	
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

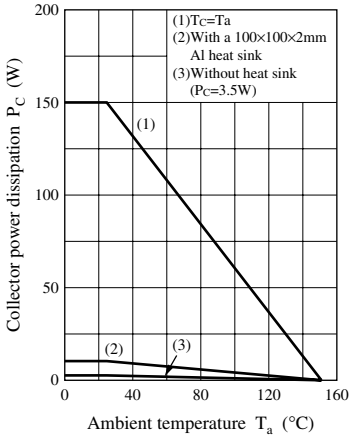
■ Electrical Characteristics $T_C = 25°C \pm 3°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Base-emitter voltage	V_{BE}	$V_{CE} = -5$ V, $I_C = -8$ A			−1.8	V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = -180$ V, $I_E = 0$			−50	μA
Emitter-base cutoff current (Collector open)	I_{EBO}	$V_{EB} = -3$ V, $I_C = 0$			−50	μA
Forward current transfer ratio	h_{FE1}	$V_{CE} = -5$ V, $I_C = -20$ mA	20			—
	h_{FE2} *	$V_{CE} = -5$ V, $I_C = -1$ A	60		200	
	h_{FE3}	$V_{CE} = -5$ V, $I_C = -8$ A	20			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10$ A, $I_B = -1$ A			−2.5	V
Transition frequency	f_T	$V_{CE} = -5$ V, $I_C = -0.5$ A, f = 1 MHz		20		MHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	$V_{CB} = -10$ V, $I_E = 0$, f = 1 MHz		200		pF

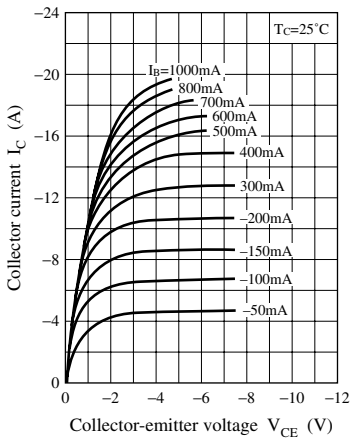
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *: Rank classification

Rank	Q	S	P
h_{FE2}	60 to 120	80 to 160	100 to 200

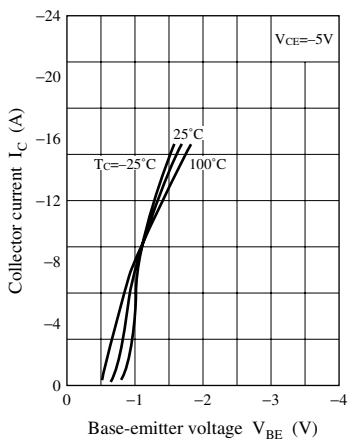
P_C — T_a



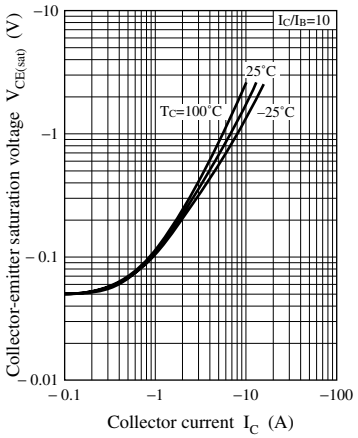
I_C — V_{CE}



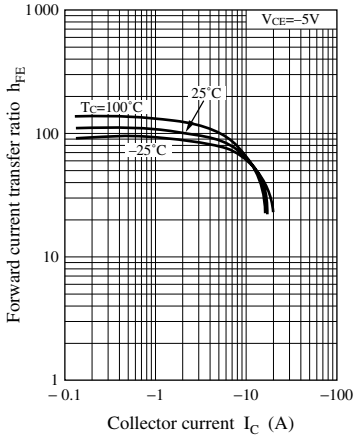
I_C — V_{BE}



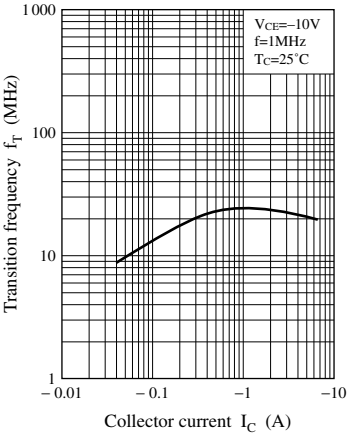
$V_{CE(sat)}$ — I_C



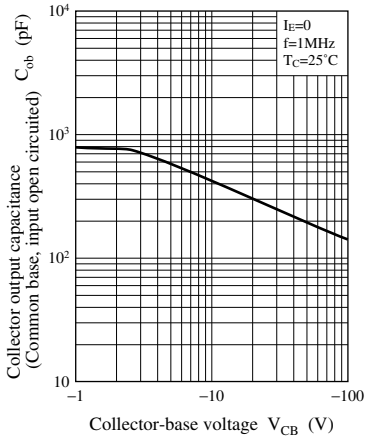
h_{FE} — I_C



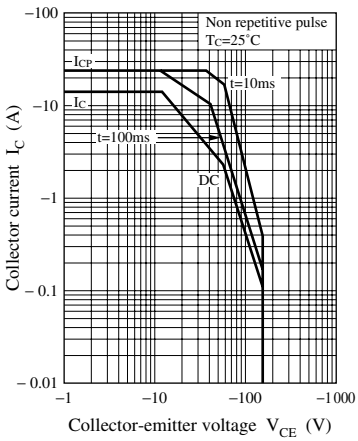
f_T — I_C



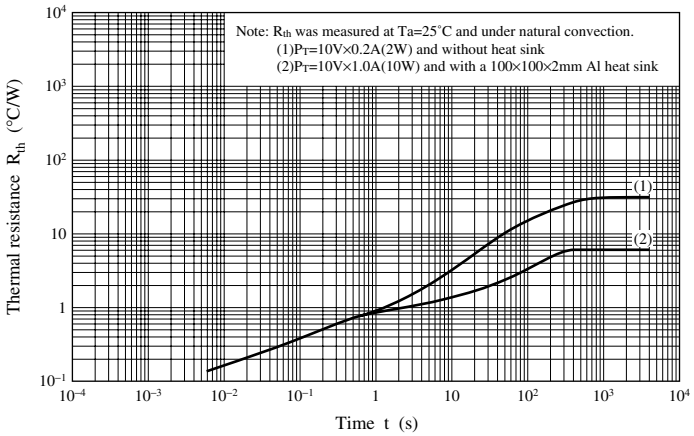
C_{ob} — V_{CB}



Safe operation area



R_{th} — t


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

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