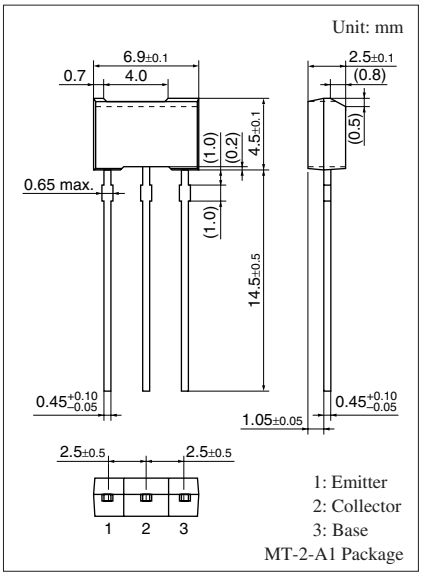
2SB1438

Silicon PNP epitaxial planar type

For low-frequency power amplification



■ Features

- Low collector-emitter saturation voltage $V_{CE(sat)}$
- Large collector-emitter voltage (Base open) V_{CEO}
- Allowing supply with the radial taping

■ Absolute Maximum Ratings $T_a = 25°C$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	V_{CBO}	−100	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	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	−55 to +150	°C

Note) ∗: Print circuit board: Copper foil area of 1 cm^2 or more, and the board thickness of 1.7 mm for the collector portion

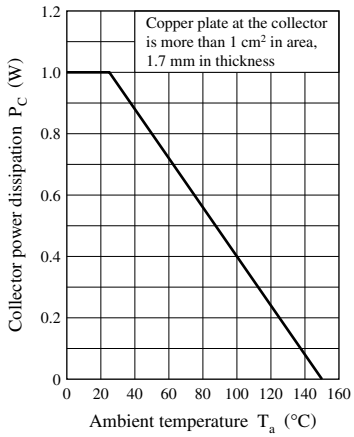
■ Electrical Characteristics $T_a = 25°C \pm 3°C$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	V_{CBO}	$I_C = -10$ µA, $I_E = 0$	−100			V
Collector-emitter voltage (Base open)	V_{CEO}	$I_C = -1$ mA, $I_B = 0$	−100			V
Emitter-base voltage (Collector open)	V_{EBO}	$I_E = -10$ µA, $I_C = 0$	−5			V
Collector-base cutoff current (Emitter open)	I_{CBO}	$V_{CB} = -50$ V, $I_E = 0$			− 0.1	µA
Forward current transfer ratio	h_{FE1} *2	$V_{CE} = -2$ V, $I_C = -200$ mA	120		340	—
	h_{FE2} *1	$V_{CE} = -2$ V, $I_C = -1$ A	60			
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_C = -1$ A, $I_B = -50$ mA		− 0.17	− 0.30	V
Base-emitter saturation voltage *1	$V_{BE(sat)}$	$I_C = -1$ A, $I_B = -50$ mA		− 0.85	−1.20	V
Transition frequency	f_T	$V_{CB} = -10$ V, $I_E = 50$ mA, f = 200 MHz		90		MHz
Collector output capacitance (Common base, input open circuited)	C_{ob}	$V_{CB} = -10$ V, $I_E = 0$, f = 1 MHz		70	90	pF

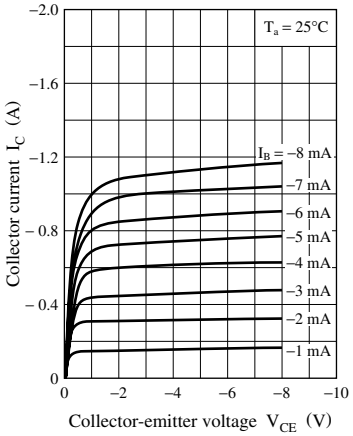
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. ∗1: Pulse measurement
∗2: Rank classification

Rank	P	Q
h_{FE1}	120 to 240	170 to 340

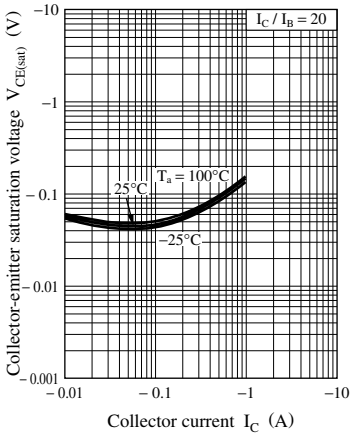
P_C — T_a



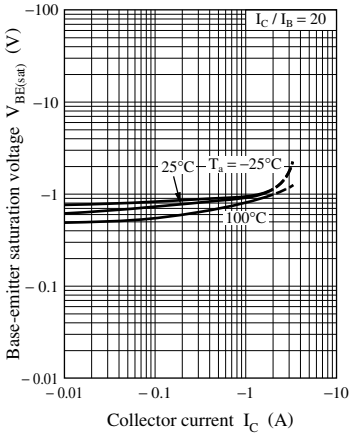
I_C — V_{CE}



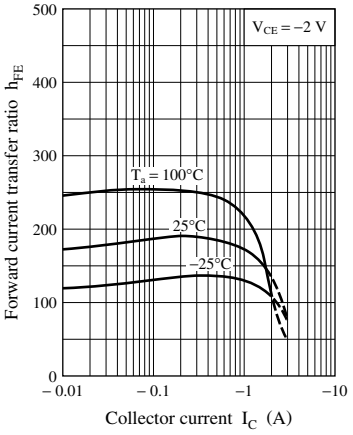
$V_{CE(sat)}$ — I_C



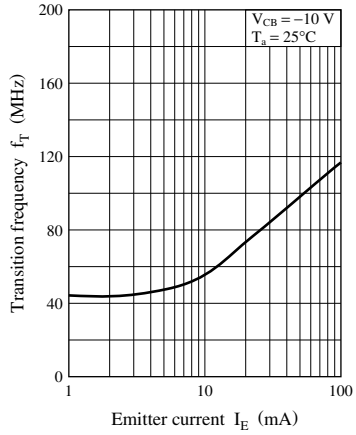
$V_{BE(sat)}$ — I_C



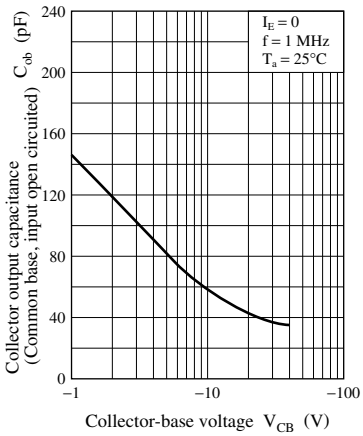
h_{FE} — I_C



f_T — I_E



C_{ob} — V_{CB}



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