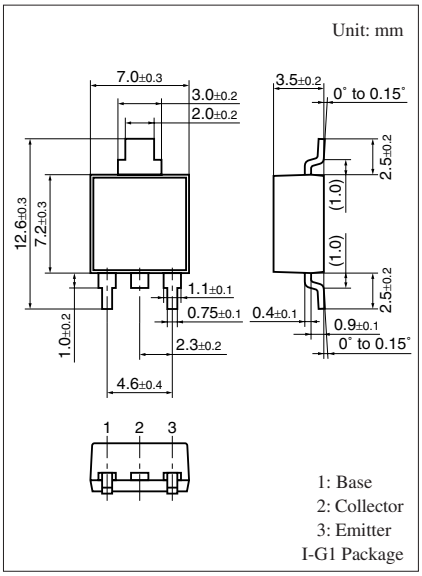
2SB1172, 2SB1172A

Silicon PNP epitaxial planar type

For low-frequency power amplification
Complementary to 2SD1742, 2SD742A

■ Features

- High forward current transfer ratio h_{FE} which has satisfactory linearity
- Low collector-emitter saturation voltage $V_{CE(sat)}$
- I type package enabling direct soldering of the radiating fin to the printed circuit board, etc. of small electronic equipment



Note) Self-supported type package is also prepared.

■ Absolute Maximum Ratings $T_C = 25°C$

Parameter		Symbol	Rating	Unit
Collector-base voltage (Emitter open)	2SB1172	V_{CBO}	−60	V
	2SB1172A		−80	
Collector-emitter voltage (Base open)	2SB1172	V_{CEO}	−60	V
	2SB1172A		−80	
Emitter-base voltage (Collector open)		V_{EBO}	−5	V
Collector current		I_C	−3	A
Peak collector current		I_{CP}	−5	A
Collector power dissipation		P_C	15	W
	$T_a = 25°C$		1.3	
Junction temperature		T_j	150	°C
Storage temperature		T_{stg}	−55 to +150	°C

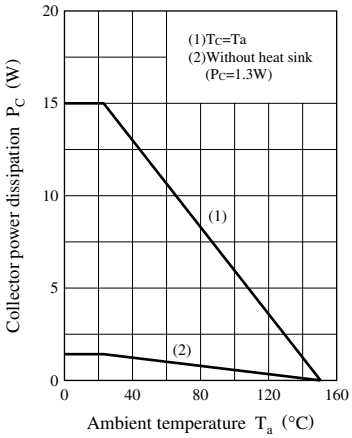
■ Electrical Characteristics $T_C = 25°C \pm 3°C$

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Collector-emitter voltage (Base open)	2SB1172	V_{CEO}	$I_C = -30$ mA, $I_B = 0$	−60			V
	2SB1172A			−80			
Base-emitter voltage		V_{BE}	$V_{CE} = -4$ V, $I_C = -3$ A			−1.8	V
Collector-emitter cutoff current (E-B short)	2SB1172	I_{CES}	$V_{CE} = -60$ V, $V_{BE} = 0$			−200	μA
	2SB1172A		$V_{CE} = -80$ V, $V_{BE} = 0$			−200	
Collector-emitter cutoff current (Emitter open)	2SB1172	I_{CEO}	$V_{CE} = -30$ V, $I_B = 0$			−300	μA
	2SB1172A		$V_{CE} = -60$ V, $I_B = 0$			−300	
Emitter-base cutoff current (Collector open)		I_{EBO}	$V_{EB} = -5$ V, $I_C = 0$			−1	mA
Forward current transfer ratio		h_{FE1} *	$V_{CE} = -4$ V, $I_C = -1$ A	70		250	—
		h_{FE2}	$V_{CE} = -4$ V, $I_C = -3$ A	10			
Collector-emitter saturation voltage		$V_{CE(sat)}$	$I_C = -3$ A, $I_B = -0.375$ A			−1.2	V
Transition frequency		f_T	$V_{CE} = -10$ V, $I_C = -0.5$ A, f = 10 MHz		30		MHz
Turn-on time		t_{on}	$I_C = -1$ A, $I_{B1} = -0.1$ A, $I_{B2} = 0.1$ A		0.5		μs
Storage time		t_{stg}	$V_{CC} = -50$ V		1.2		μs
Fall time		t_f			0.3		μs

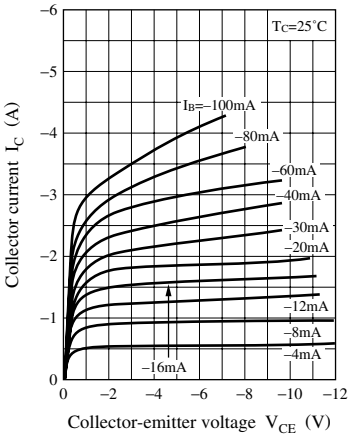
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.
2. *: Rank classification

Rank	Q	P
h_{FE2}	70 to 150	120 to 250

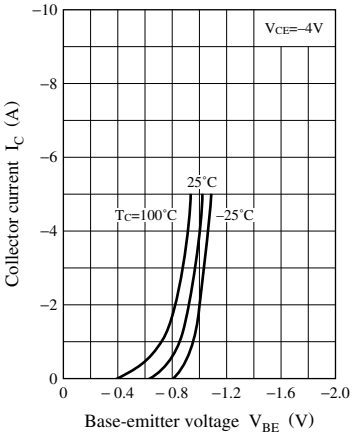
P_C — T_a



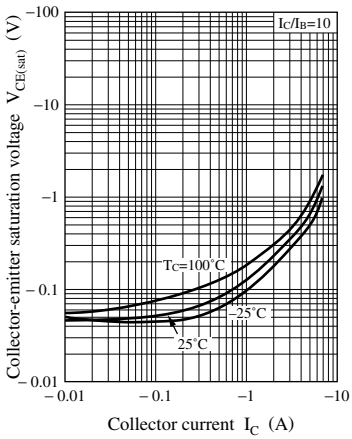
I_C — V_{CE}



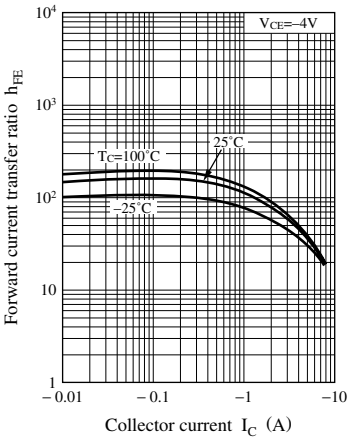
I_C — V_{BE}



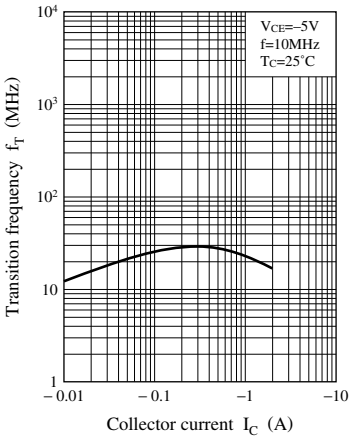
$V_{CE(sat)}$ — I_C



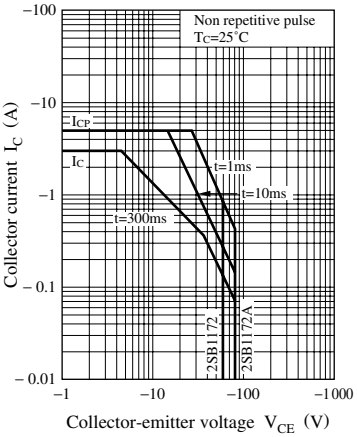
h_{FE} — I_C



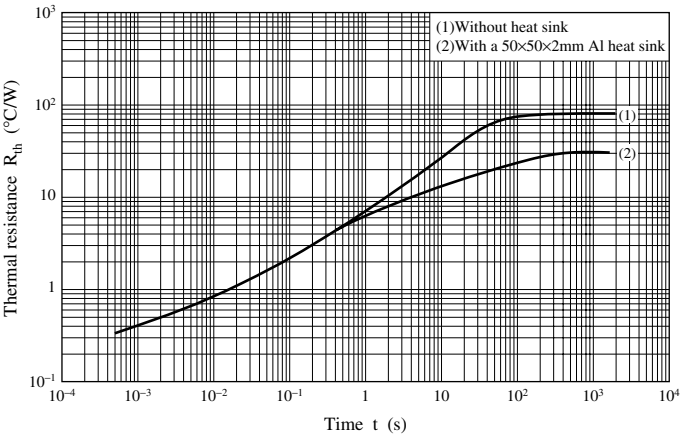
f_T — I_C



Safe operation area



R_{th} — t



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