

Medium power transistor (−32V, −2A)

2SB1188 / 2SB1182 / 2SB1240

●Features

1) Low $V_{CE(sat)}$.

$$V_{CE(sat)} = -0.5V \text{ (Typ.)}$$

$$(I_C/I_B = -2A / -0.2A)$$

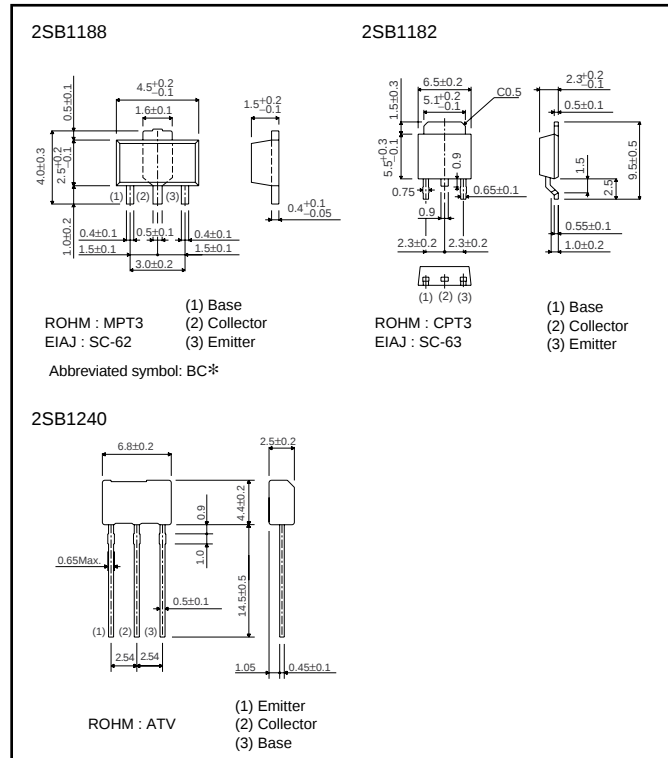
2) Complements the 2SD1766 / 2SD1758 / 2SD1862.

●Structure

Epitaxial planar type

PNP silicon transistor

●External dimensions (Unit : mm)



* Denotes hFE

●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	−40	V
Collector-emitter voltage		V_{CEO}	−32	V
Emitter-base voltage		V_{EBO}	−5	V
Collector current		I_C	−2	A(DC)
			−3	A (Pulse)*1
Collector power dissipation	2SB1188	P_C	0.5	W
	2SB1182		2	W *2
	2SB1240		10	W (Tc=25°C)
Junction temperature		T_J	150	°C
Storage temperature		T_{stg}	−55 to 150	°C

*1 Single pulse, $P_w=100ms$

*2 When mounted on a 40×40×0.7 mm ceramic board.

*3 Printed circuit board, 1.7mm thick, collector copper plating 100mm² or larger.

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●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	-40	—	—	V	$I_C = -50\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	-32	—	—	V	$I_C = -1mA$
Emitter-base breakdown voltage	BV_{EBO}	-5	—	—	V	$I_E = -50\mu A$
Collector cutoff current	I_{CBO}	—	—	-1	μA	$V_{CB} = -20V$
Emitter cutoff current	I_{EBO}	—	—	-1	μA	$V_{EB} = -4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	-0.5	-0.8	V	$I_C/I_E = -2A/-0.2A$ *
DC current transfer ratio	h_{FE}	82	—	390	—	$V_{CE} = -3V, I_C = -0.5A$ *
Transition frequency	f_T	—	100	—	MHz	$V_{CE} = -5V, I_E = 0.5A, f = 100MHz$
Output capacitance	C_{ob}	—	50	—	pF	$V_{CB} = -10V, I_E = 0A, f = 1MHz$

* Measured using pulse current.

●Packaging specifications and h_{FE}

Type	h_{FE}	Package	Taping		
		Code	T100	TL	TV2
		Basic ordering unit (pieces)	1000	2500	2500
2SB1188	PQR		○	—	—
2SB1182	PQR		—	○	—
2SB1240	PQR		—	—	○

 h_{FE} values are classified as follows :

Item	P	Q	R
h_{FE}	82 to 180	120 to 270	180 to 390

●Electrical characteristic curves

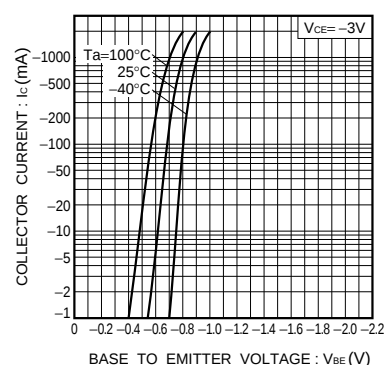


Fig.1 Grounded emitter propagation characteristics

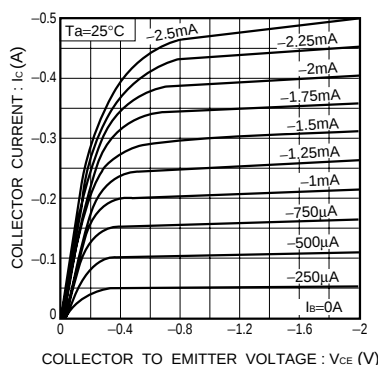


Fig.2 Grounded emitter output characteristics

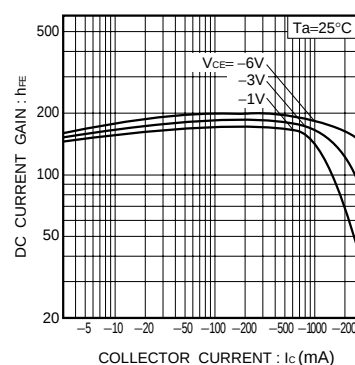


Fig.3 DC current gain vs. collector current (I)

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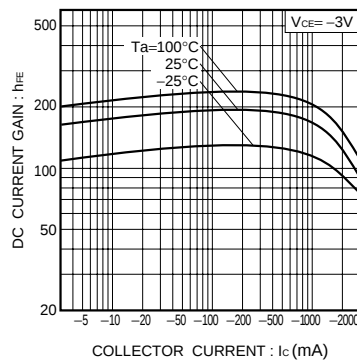


Fig.4 DC current gain vs. collector current (II)

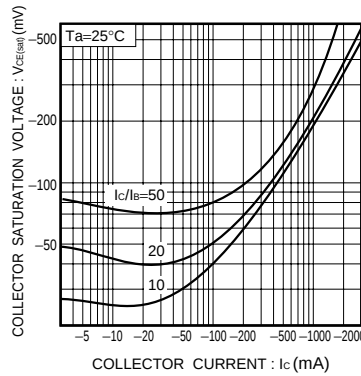


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

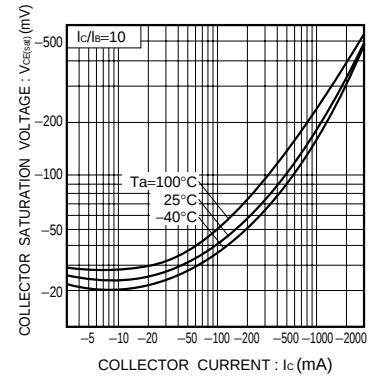


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

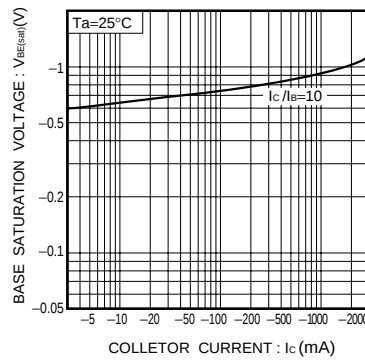


Fig.7 Base-emitter saturation voltage vs. collector current

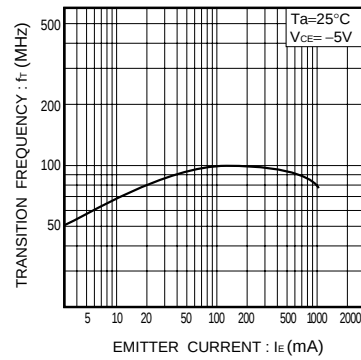


Fig.8 Gain bandwidth product vs. emitter current

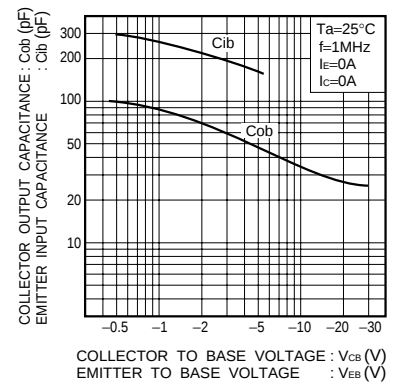


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

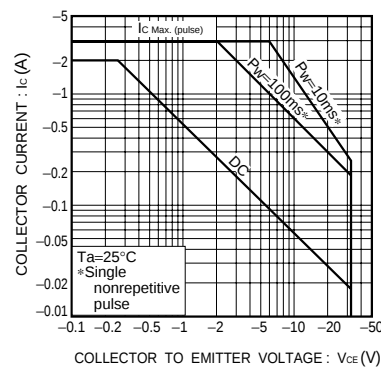


Fig.10 Safe operation area (2SB1188)

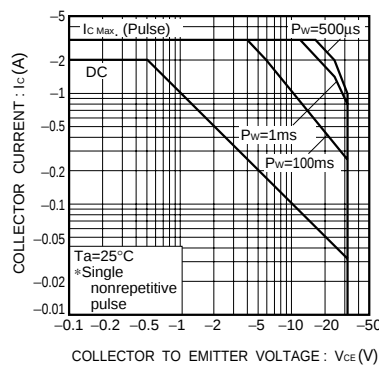


Fig.11 Safe operation area (2SB1182)

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