Medium power transistor (–32V, –2A)

2SB1188 / 2SB1182 / 2SB1240

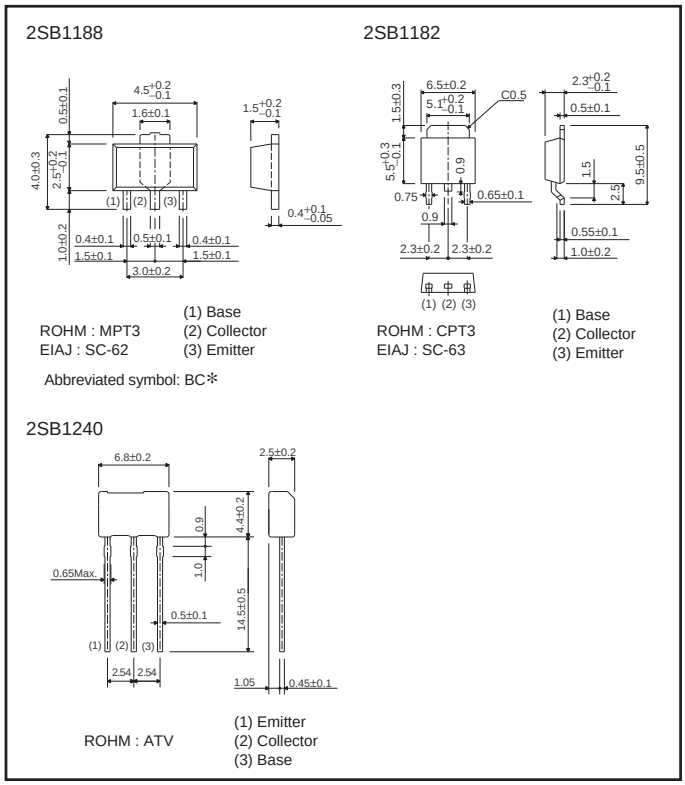
●Features

1) Low $V_{CE(sat)}$.
   $V_{CE(sat)}$ = –0.5V (Typ.)
   (I_C/I_B = –2A / –0.2A)
2) Complements the 2SD1766 / 2SD1758 / 2SD1862.

●Structure

Epitaxial planar type
PNP silicon transistor

●Dimensions (Unit : mm)



* Denotes h_{FE}

●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
			2	W *2
	2SB1182		10	W (Tc=25°C)
	2SB1240		1	W *3
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–55 to 150	°C

*1 Single pulse, Pw=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= –50μA
Collector-emitter breakdown voltage	BV_{CEO}	–32	–	–	V	I_C= –1mA
Emitter-base breakdown voltage	BV_{EBO}	–5	–	–	V	I_E= –50μA
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_B= –2A/ –0.2A ✻
DC current transfer ratio	h_{FE}	120	–	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	Cob	–	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	QR		○	–	–
2SB1182	QR		–	○	–
2SB1240	QR		–	–	○

h_{FE} values are classified as follows :

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

●Electrical characteristic curves

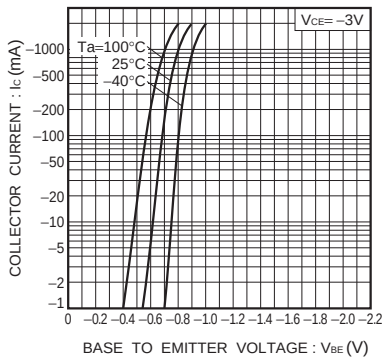


Fig.1 Grounded emitter propagation characteristics

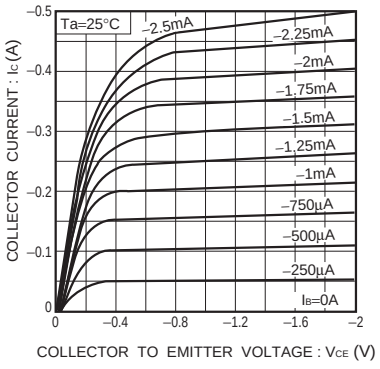


Fig.2 Grounded emitter output characteristics

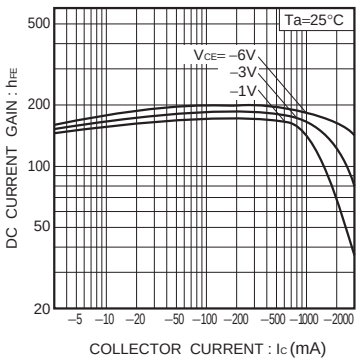


Fig.3 DC current gain vs. collector curren (I)

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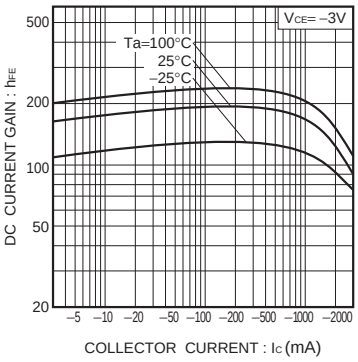


Fig.4 DC current gain vs. collector current (II)

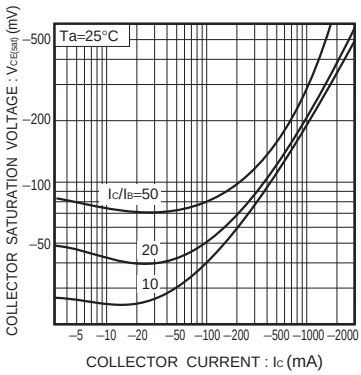


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

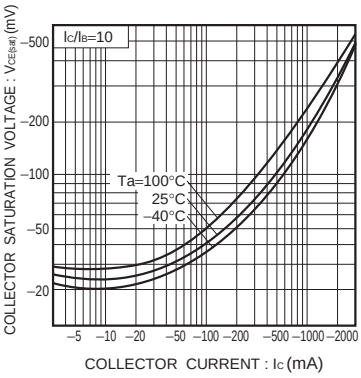


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

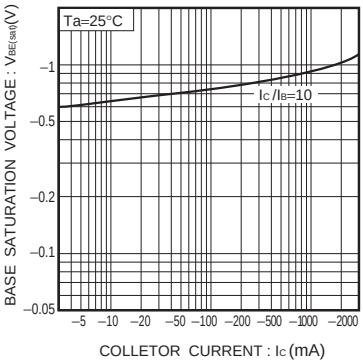


Fig.7 Base-emitter saturation voltage vs. collector current

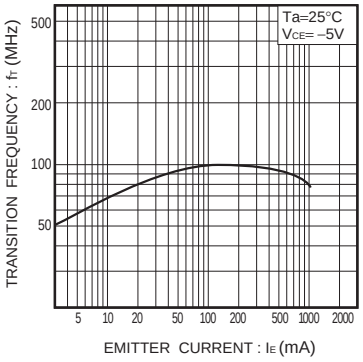


Fig.8 Gain bandwidth product vs. emitter current

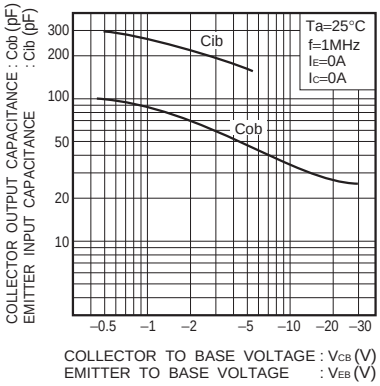


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

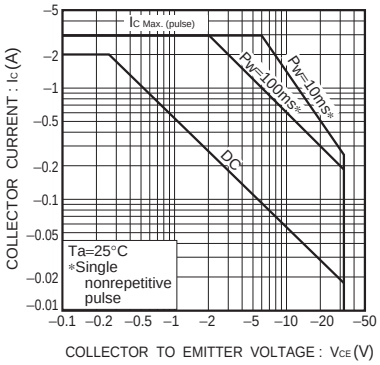


Fig.10 Safe operation area (2SB1188)

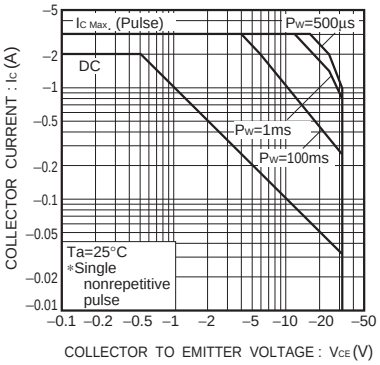


Fig.11 Safe operation area (2SB1182)

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