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Medium power transistor (−32V, −2A)

2SB1188 / 2SB1182 / 2SB1240

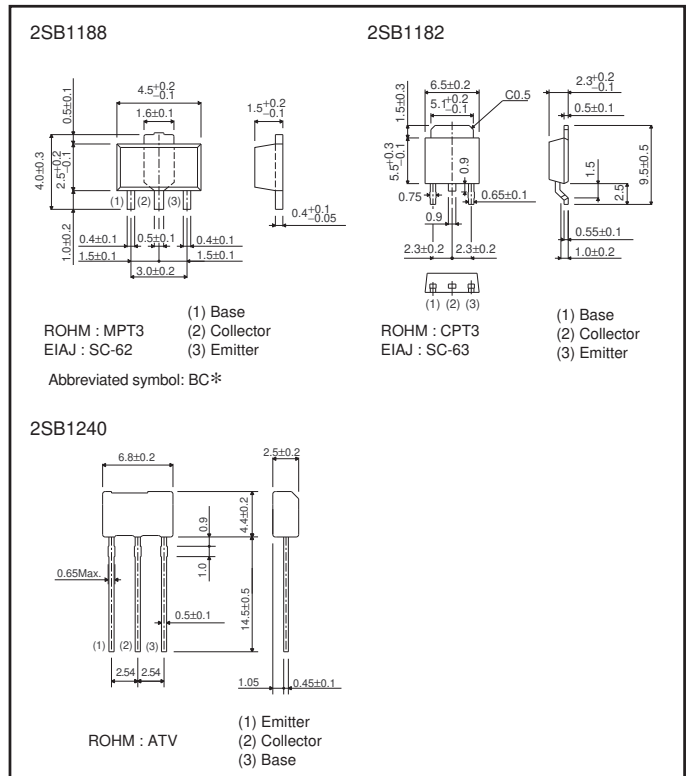
●Features

- 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)



●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	P_c	0.5	W
		2	W *2
		10	W (Tc=25°C)
		1	W *3
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.

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	-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 _{CB0}	-	-	-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	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	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

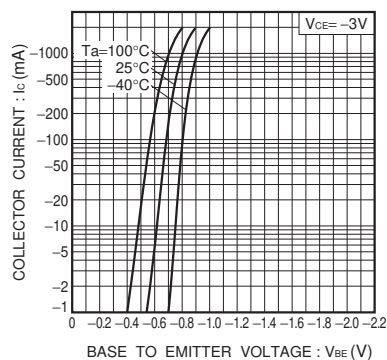


Fig.1 Grounded emitter propagation characteristics

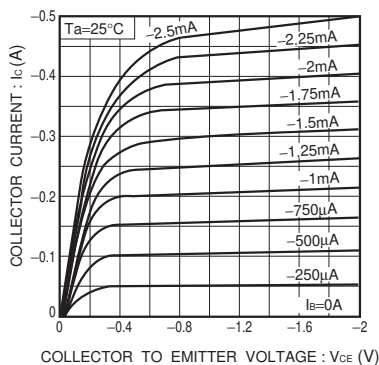


Fig.2 Grounded emitter output characteristics

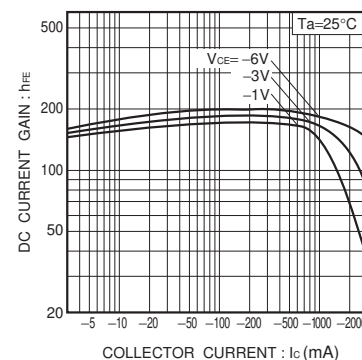


Fig.3 DC current gain vs. collector current (I_C)

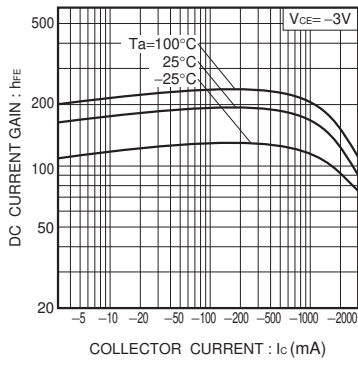


Fig.4 DC current gain vs. collector current (II)

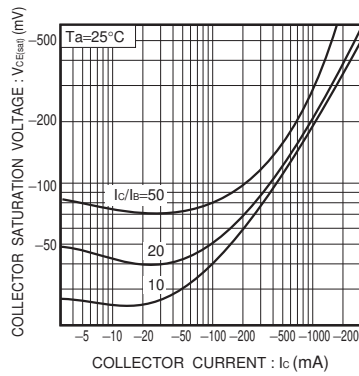


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

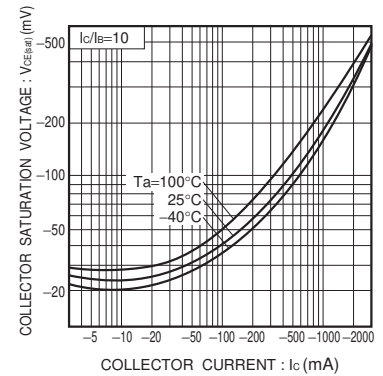


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

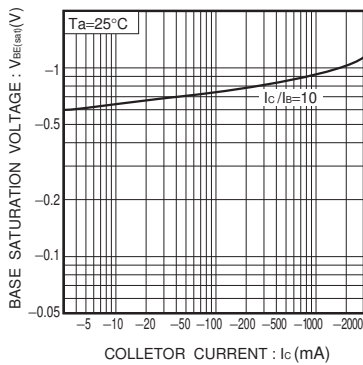


Fig.7 Base-emitter saturation voltage vs. collector current

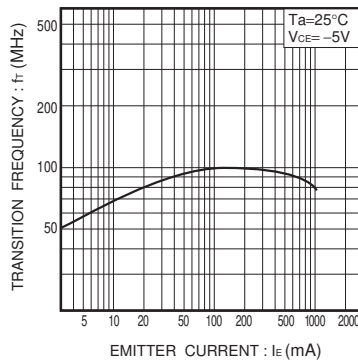


Fig.8 Gain bandwidth product vs. emitter current

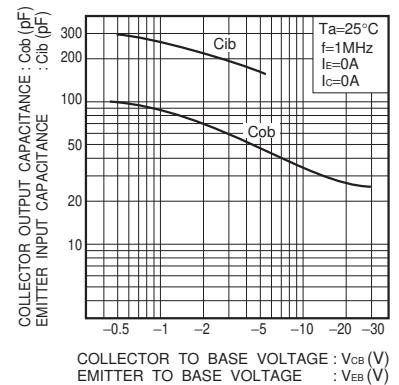


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

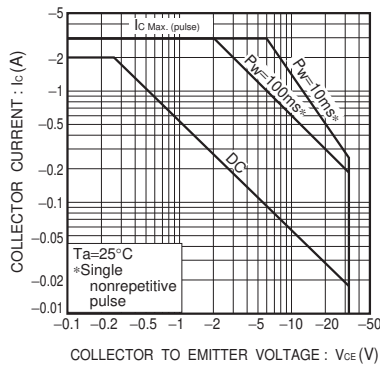


Fig.10 Safe operation area (2SB1188)

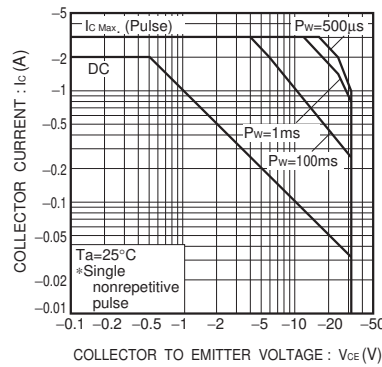


Fig.11 Safe operation area (2SB1182)

Notes

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