

Medium power Transistor(- 32V, - 2A)

2SB1188 / 2SB1182 / 2SB1240 / 2SB822 / 2SB1277 / 2SB911M

● Features

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

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

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

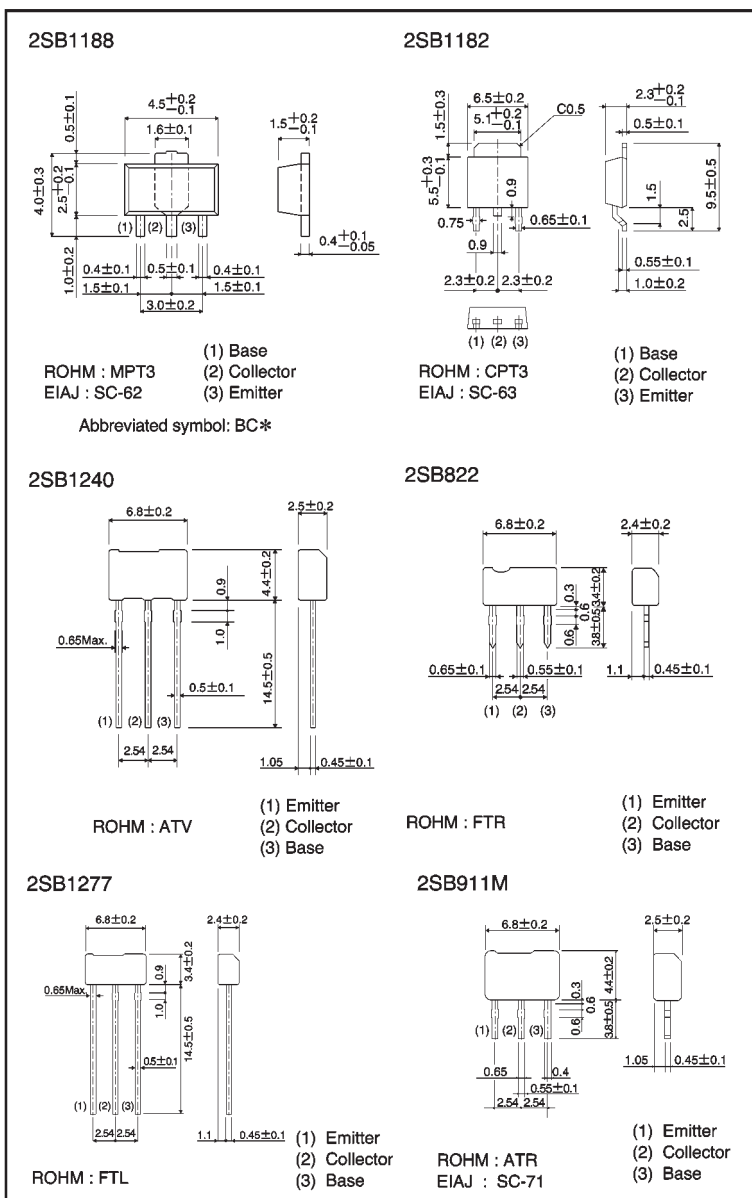
2) Complements the 2SD1766 /
2SD1758 / 2SD1862 / 2SD1189F /
2SD1055 / 2SD1919 / SD1227M.

● 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 _{CB0}	-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
	2SB1240,2SB911M		10	W (T _c =25°C)
	2SB822,2SB1277		1	W *3
Junction temperature		T _j	150	°C
Storage temperature		T _{stg}	-55~+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 =-50 μA
Collector-emitter breakdown voltage		BV _{CEO}	-32	—	—	V	I _c =-1mA
Emitter-base breakdown voltage		BV _{EBO}	-5	—	—	V	I _E =-50 μA
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	2SB1188,2SB1182	h _{FE}	82	—	390	—	V _{CE} =-3V, I _c =-0.5A *
	2SB1240						
	2SB822,2SB1277		120	—	270		
	2SB911M						
Transition frequency		f _T	—	100	—	MHz	V _{CE} =-5V, I _E =0.5A, f=30MHz
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				Bulk
		Code	T100	TL	TV2	TL2	—
		Basic ordering unit (pieces)	1000	2500	2500	2500	2000
2SB1188	PQR	○	—	—	—	—	
2SB1182	PQR	—	○	—	—	—	
2SB1240	PQR	—	—	○	—	—	
2SB822	Q	—	—	—	—	○	
2SB1277	Q	—	—	—	○	—	
2SB911M	Q	—	—	—	—	○	

h_{FE} values are classified as follows :

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

●Electrical characteristic curves

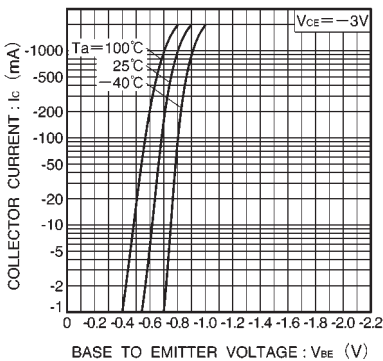


Fig.1 Grounded emitter propagation characteristics

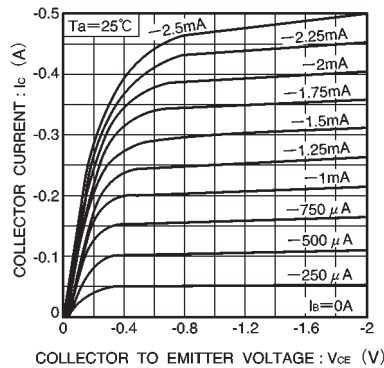


Fig.2 Grounded emitter output characteristics

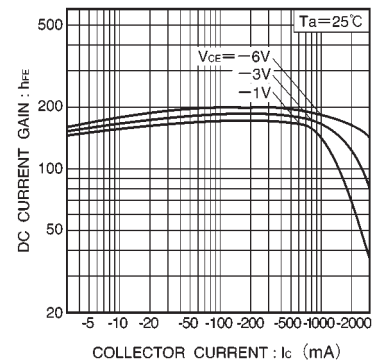


Fig.3 DC current gain vs. collector current (I)

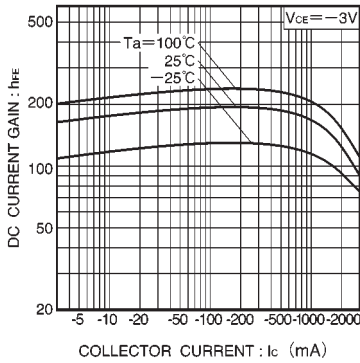


Fig.4 DC current gain vs. collector current (I)

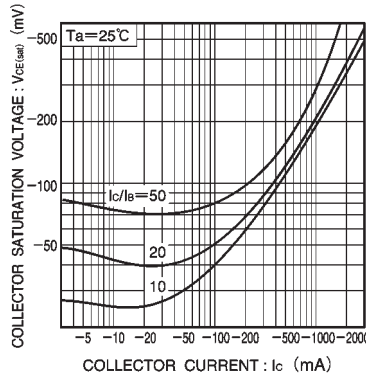


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

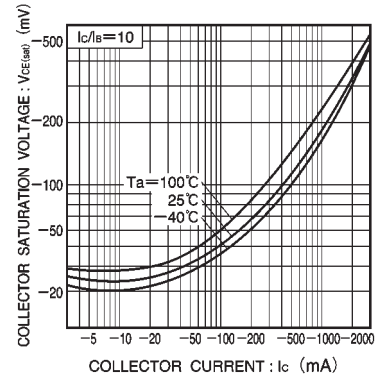


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

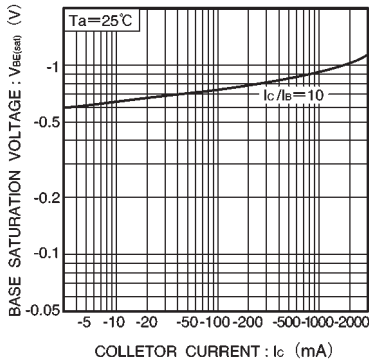


Fig.7 Base-emitter saturation voltage vs. collector current

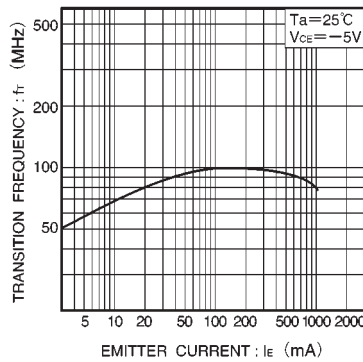


Fig.8 Gain bandwidth product vs. emitter current

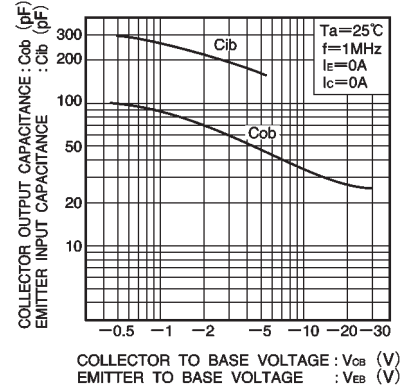


Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

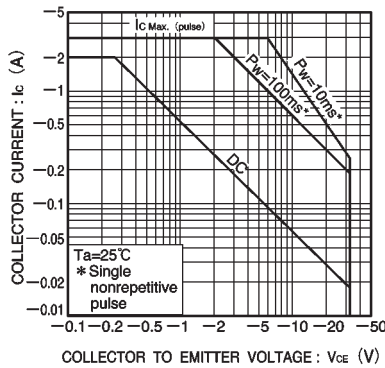


Fig.10 Safe operation area (2SB1188)

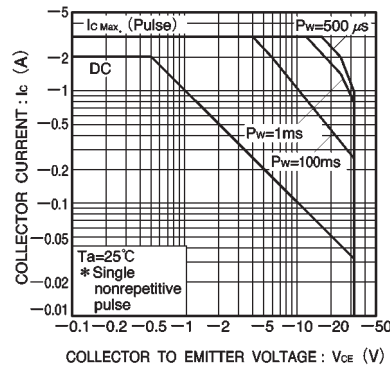


Fig.11 Safe operation area (2SB1182)