

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

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

● Features

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

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

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

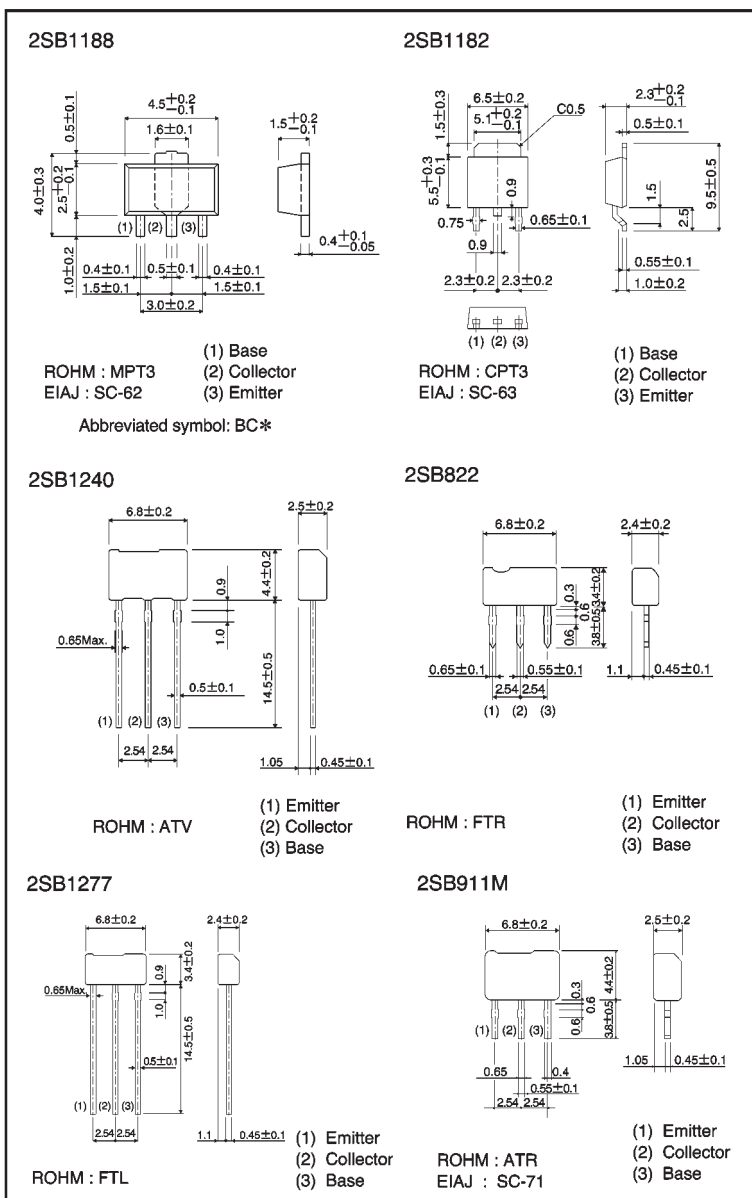
2) Complements the 2SD1766 /  
2SD1758 / 2SD1862 / 2SD1189F /  
2SD1055 / 2SD1919 / SD1227M.

● 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 <sub>CB0</sub>	-40	V
Collector-emitter voltage		V <sub>CEO</sub>	-32	V
Emitter-base voltage		V <sub>EBO</sub>	-5	V
Collector current		I <sub>c</sub>	-2	A (DC)
			-3	A (Pulse) *1
Collector power dissipation	2SB1188	P <sub>c</sub>	0.5	W
	2SB1182		2	W *2
	2SB1240,2SB911M		10	W (T <sub>c</sub> =25°C)
	2SB822,2SB1277		1	W *3
Junction temperature		T <sub>j</sub>	150	°C
Storage temperature		T <sub>stg</sub>	-55~+150	°C

\*1 Single pulse, P<sub>w</sub>=100ms

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

\*3 Printed circuit board, 1.7mm thick, collector copper plating 100mm<sup>2</sup> or larger.

● Electrical characteristics (Ta = 25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage		BV <sub>CB0</sub>	-40	—	—	V	I <sub>c</sub> =-50 μA
Collector-emitter breakdown voltage		BV <sub>CEO</sub>	-32	—	—	V	I <sub>c</sub> =-1mA
Emitter-base breakdown voltage		BV <sub>EBO</sub>	-5	—	—	V	I <sub>E</sub> =-50 μA
Collector cutoff current		I <sub>CB0</sub>	—	—	-1	μA	V <sub>CB</sub> =-20V
Emitter cutoff current		I <sub>EBO</sub>	—	—	-1	μA	V <sub>EB</sub> =-4V
Collector-emitter saturation voltage		V <sub>CE(sat)</sub>	—	-0.5	-0.8	V	I <sub>c</sub> /I <sub>B</sub> =-2A/-0.2A *
DC current transfer ratio	2SB1188,2SB1182	h <sub>FE</sub>	82	—	390	—	V <sub>CE</sub> =-3V, I <sub>c</sub> =-0.5A *
	2SB1240						
	2SB822,2SB1277		120	—	270		
	2SB911M						
Transition frequency		f <sub>T</sub>	—	100	—	MHz	V <sub>CE</sub> =-5V, I <sub>E</sub> =0.5A, f=30MHz
Output capacitance		C <sub>ob</sub>	—	50	—	pF	V <sub>CB</sub> =-10V, I <sub>E</sub> =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

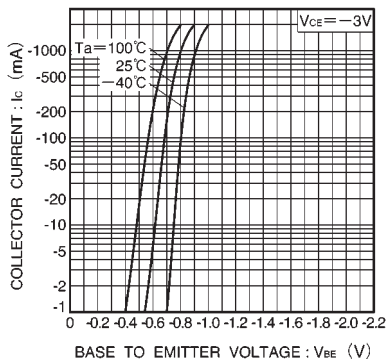


Fig.1 Grounded emitter propagation characteristics

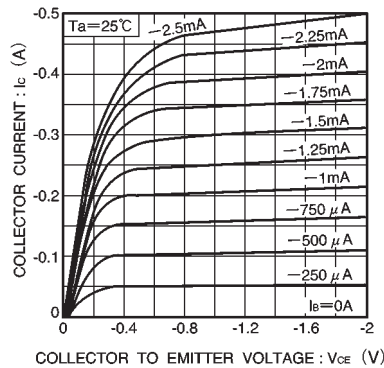


Fig.2 Grounded emitter output characteristics

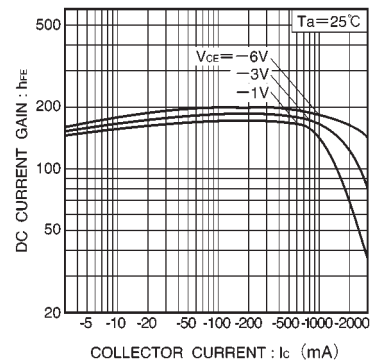


Fig.3 DC current gain vs. collector current ( I )

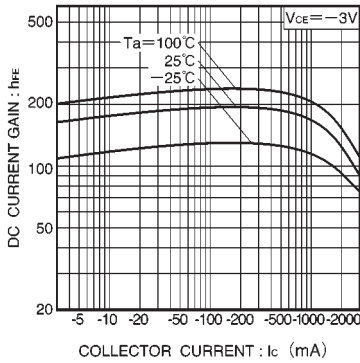


Fig.4 DC current gain vs. collector current ( I )

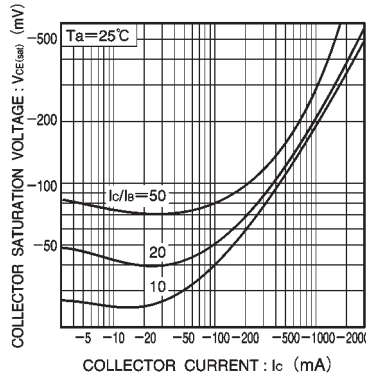


Fig.5 Collector-emitter saturation voltage vs. collector current ( I )

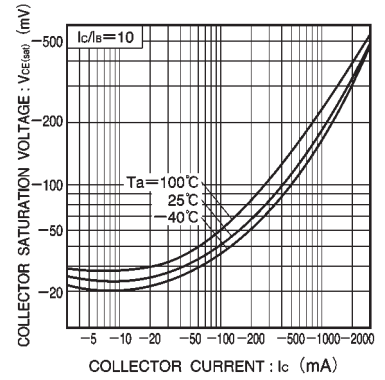


Fig.6 Collector-emitter saturation voltage vs. collector current ( II )

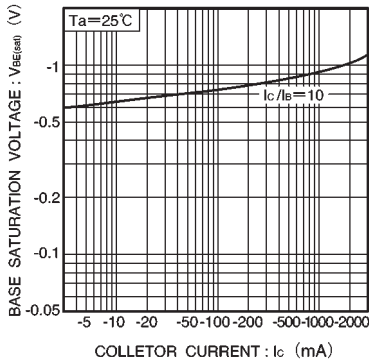


Fig.7 Base-emitter saturation voltage vs. collector current

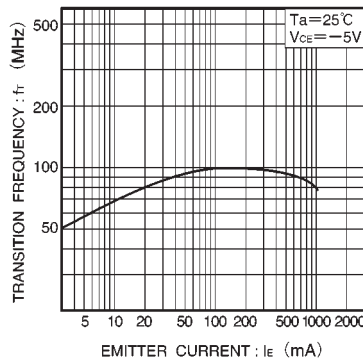


Fig.8 Gain bandwidth product vs. emitter current

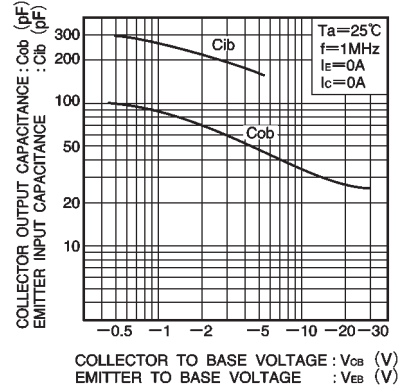


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

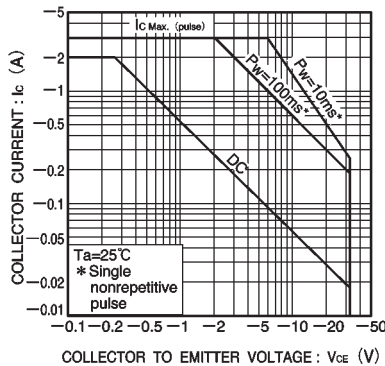


Fig.10 Safe operation area (2SB1188)

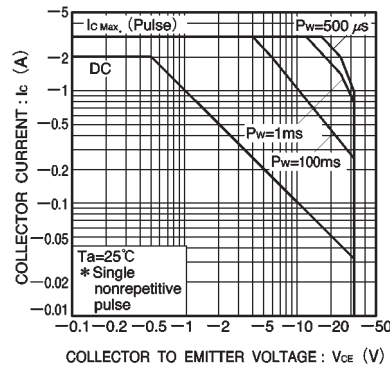


Fig.11 Safe operation area (2SB1182)

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[www.DatasheetCatalog.com](http://www.DatasheetCatalog.com)

Datasheets for electronic components.