

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

## 2SB1188 / 2SB1182 / 2SB1240

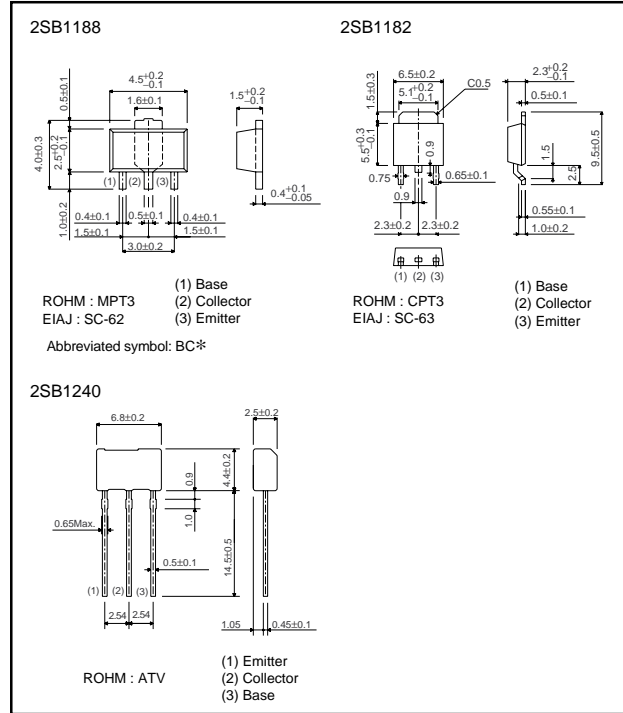
**●Features**

- 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

**●External dimensions (Unit : mm)**



**●Absolute maximum ratings (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CB0}$	-40	V
Collector-emitter voltage	$V_{CE0}$	-32	V
Emitter-base voltage	$V_{EB0}$	-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)
2SB1240		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 100mm<sup>2</sup> or larger.

Transistors

●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> = -50μA
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> = -50μA
Collector cutoff current	I <sub>CBO</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	h <sub>FE</sub>	82	-	390	-	V <sub>CE</sub> = -3V, I <sub>c</sub> = -0.5A *
Transition frequency	f <sub>r</sub>	-	100	-	MHz	V <sub>CE</sub> = -5V, I <sub>E</sub> =0.5A, f=100MHz
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<sub>FE</sub>

Type	h <sub>FE</sub>	Package	Taping		
		Code	T100	TL	TV2
		Basic ordering unit (pieces)	1000	2500	2500
2SB1188	PQR		○	-	-
2SB1182	PQR		-	○	-
2SB1240	PQR		-	-	○

h<sub>FE</sub> values are classified as follows :

Item	P	Q	R
h <sub>FE</sub>	82 to 180	120 to 270	180 to 390

●Electrical characteristic curves

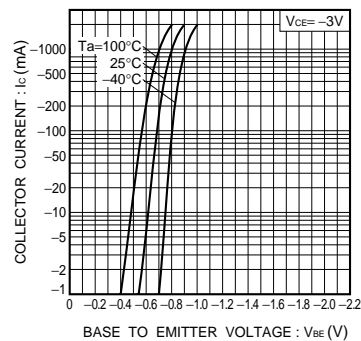


Fig.1 Grounded emitter propagation characteristics

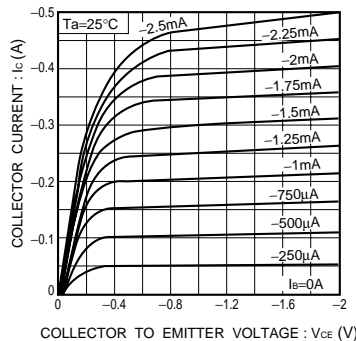


Fig.2 Grounded emitter output characteristics

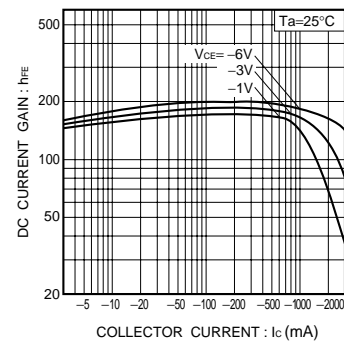


Fig.3 DC current gain vs. collector current ( I )

Transistors

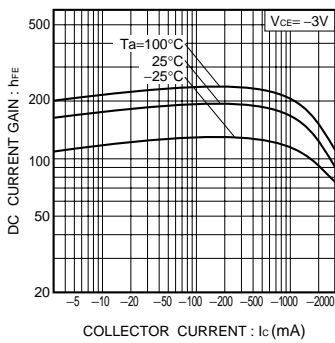


Fig.4 DC current gain vs. collector current (II)

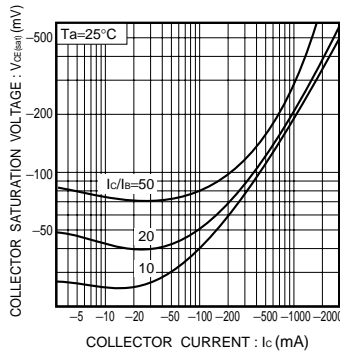


Fig.5 Collector-emitter saturation voltage vs. collector current ( I )

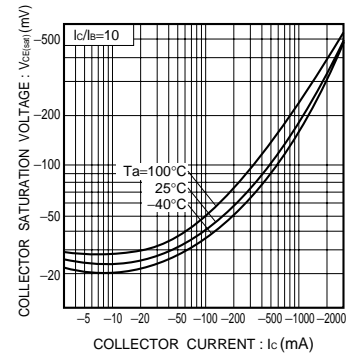


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

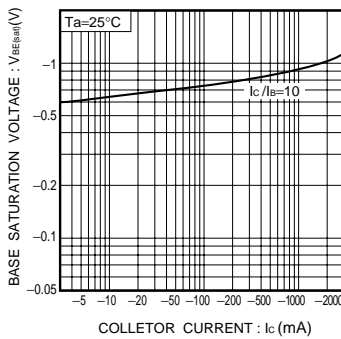


Fig.7 Base-emitter saturation voltage vs. collector current

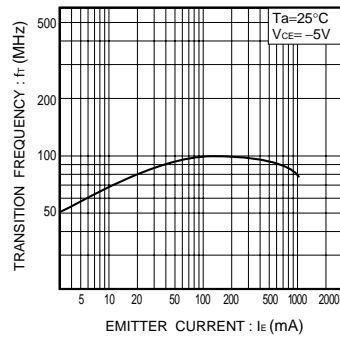


Fig.8 Gain bandwidth product vs. emitter current

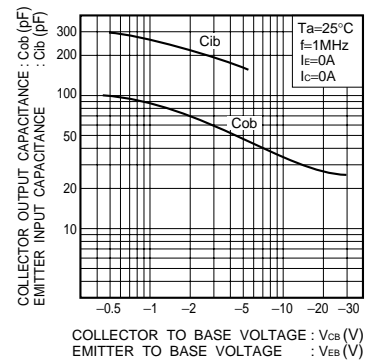


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

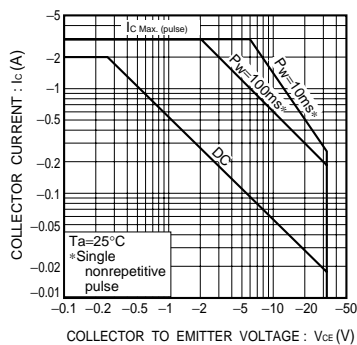


Fig.10 Safe operation area (2SB1188)

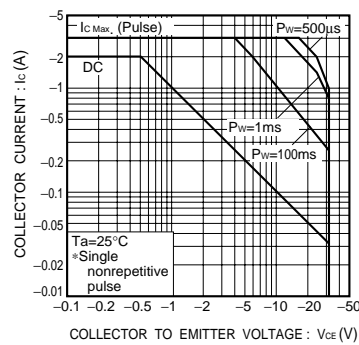


Fig.11 Safe operation area (2SB1182)

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