

# Low frequency transistor (-20V, -5A)

## 2SB1386 / 2SB1412 / 2SB1326

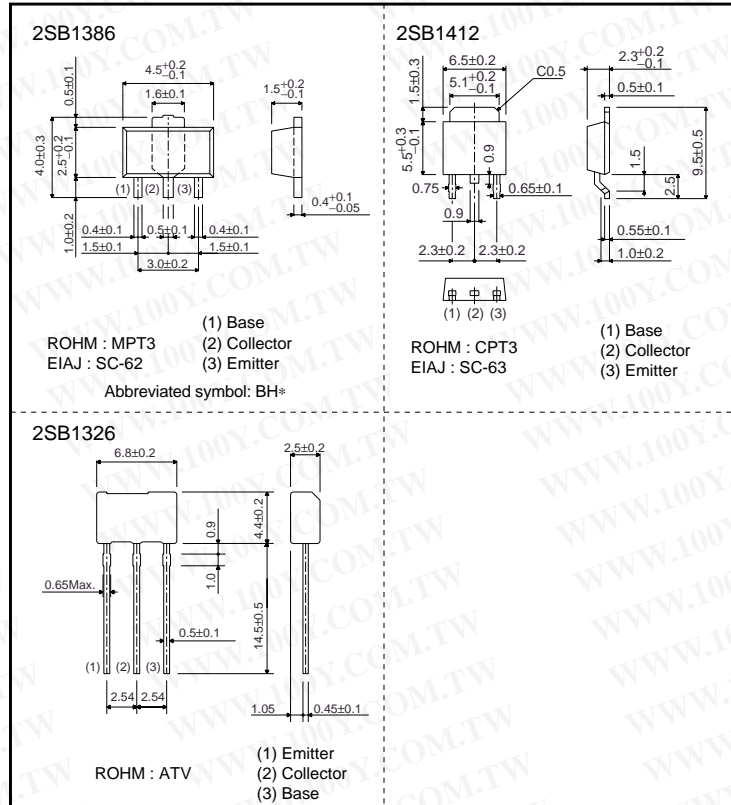
●Features

- 1) Low  $V_{CE(sat)}$ .  
 $V_{CE(sat)} = -0.35V$  (Typ.)  
 $(I_C/I_B = -4A / -0.1A)$
- 2) Excellent DC current gain characteristics.
- 3) Complements the 2SD2098 / 2SD2118 / 2SD2097.

●Structure

Epitaxial planar type  
 PNP silicon transistor

●External dimensions (Units : mm)



\* Denotes hFE

勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-54151736  
 勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

## 2SB1386 / 2SB1412 / 2SB1326

### Transistors

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

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	-30	V
Collector-emitter voltage	V <sub>CE0</sub>	-20	V
Emitter-base voltage	V <sub>EB0</sub>	-6	V
Collector current	I <sub>c</sub>	-5	A(DC)
		-10	A(Pulse) *1
Collector power dissipation	P <sub>c</sub>	0.5	W
		2	W *2
		1	W
		10	W(T <sub>c</sub> =25°C)
2SB1326		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>=10ms

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

\*3 Printed circuit board glass epoxy board 1.6 mm thick with 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>	-30	-	-	V	I <sub>c</sub> =-50μA
Collector-emitter breakdown voltage	BV <sub>CE0</sub>	-20	-	-	V	I <sub>c</sub> =-1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	-6	-	-	V	I <sub>E</sub> =-50μA
Collector cutoff current	I <sub>c0</sub>	-	-	-0.5	μA	V <sub>CB</sub> =-20V
Emitter cutoff current	I <sub>E0</sub>	-	-	-0.5	μA	V <sub>EB</sub> =-5V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	-	-	-1.0	V	I <sub>c</sub> /I <sub>B</sub> =-4A/-0.1A
DC current transfer ratio	2SB1386,2SB1412	82	-	390	-	V <sub>CE</sub> =-2V, I <sub>c</sub> =-0.5A
	2SB1326	120	-	390	-	
Transition frequency	f <sub>T</sub>	-	120	-	MHz	V <sub>CE</sub> =-6V, I <sub>E</sub> =50mA, f=30MHz
Output capacitance	C <sub>ob</sub>	-	60	-	pF	V <sub>CB</sub> =-20V, 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
2SB1386	PQR	○	-	-	-
2SB1412	PQR	-	○	-	-
2SB1326	QR	-	-	-	○

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

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

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●Electrical characteristic curves

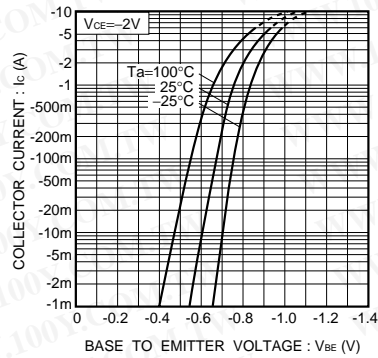


Fig.1 Grounded emitter propagation characteristics

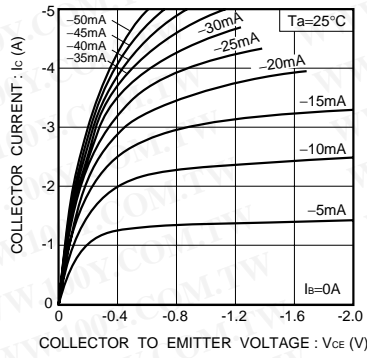


Fig.2 Grounded emitter output characteristics

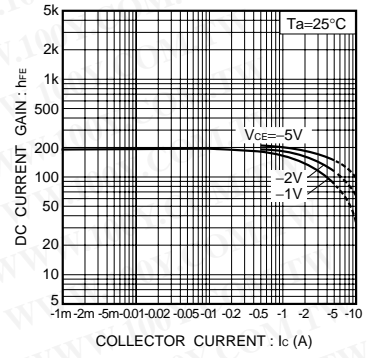


Fig.3 DC current gain vs. collector current (I)

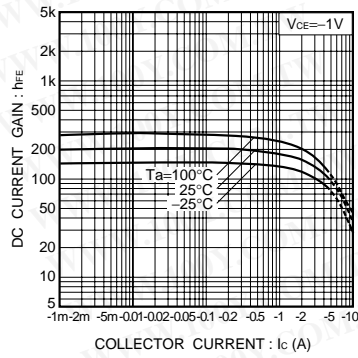


Fig.4 DC current gain vs. collector current (II)

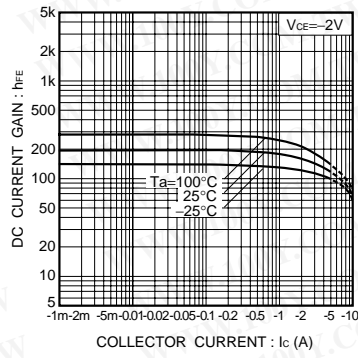


Fig.5 DC current gain vs. collector current (III)

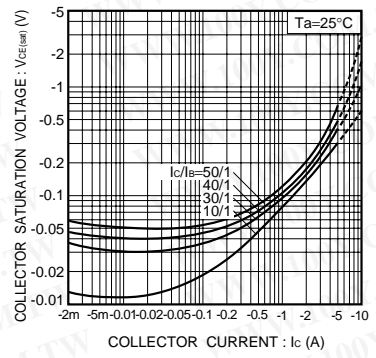


Fig.6 Collector-emitter saturation voltage vs. collector current (I)

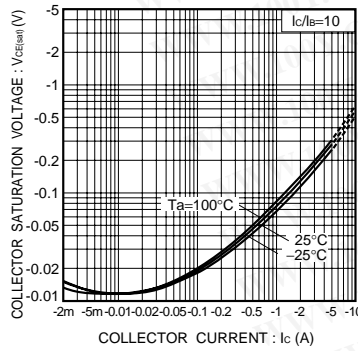


Fig.7 Collector-emitter saturation voltage vs. collector current (II)

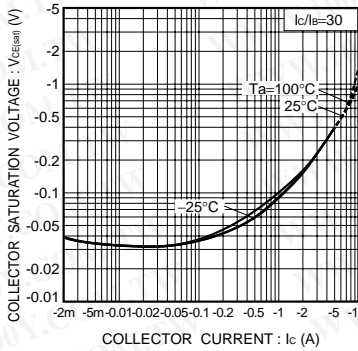


Fig.8 Collector-emitter saturation voltage vs. collector current (III)

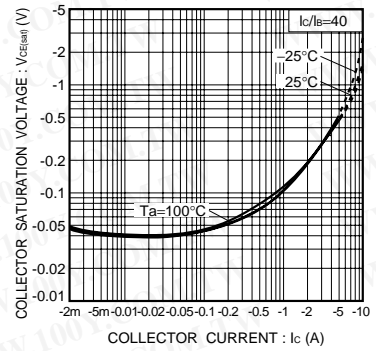


Fig.9 Collector-emitter saturation voltage vs. collector current (IV)

Transistors

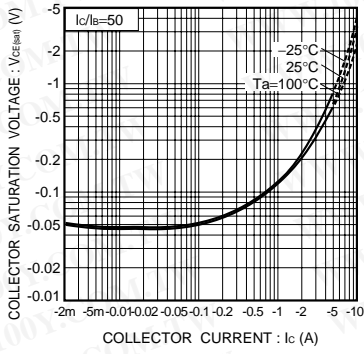


Fig.10 Collector-emitter saturation voltage vs. collector current (V)

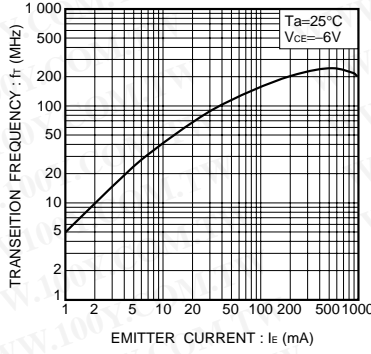


Fig.11 Gain bandwidth product vs. emitter current

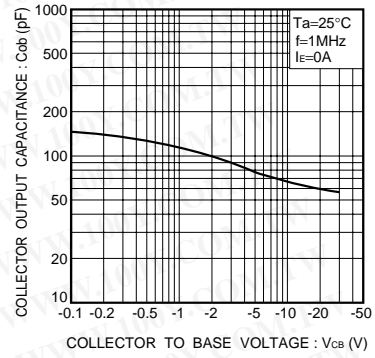


Fig.12 Collector output capacitance vs. collector-base voltage

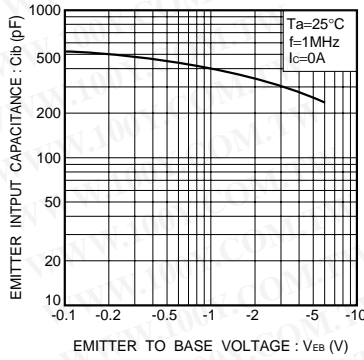


Fig.13 Emitter input capacitance vs. emitter-base voltage

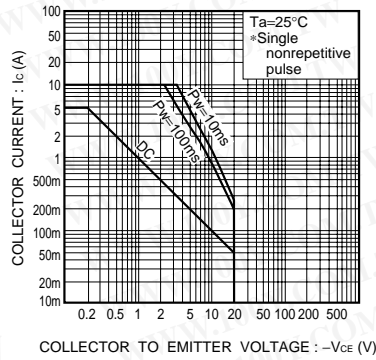


Fig.14 Safe operation area (2SB1412)



## Appendix

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