

# Medium Power Transistor (−32V, −1A)

2SB1132 / 2SA1515S / 2SB1237

### ●Features

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

$$V_{CE(sat)} = -0.2V(\text{Typ.})$$

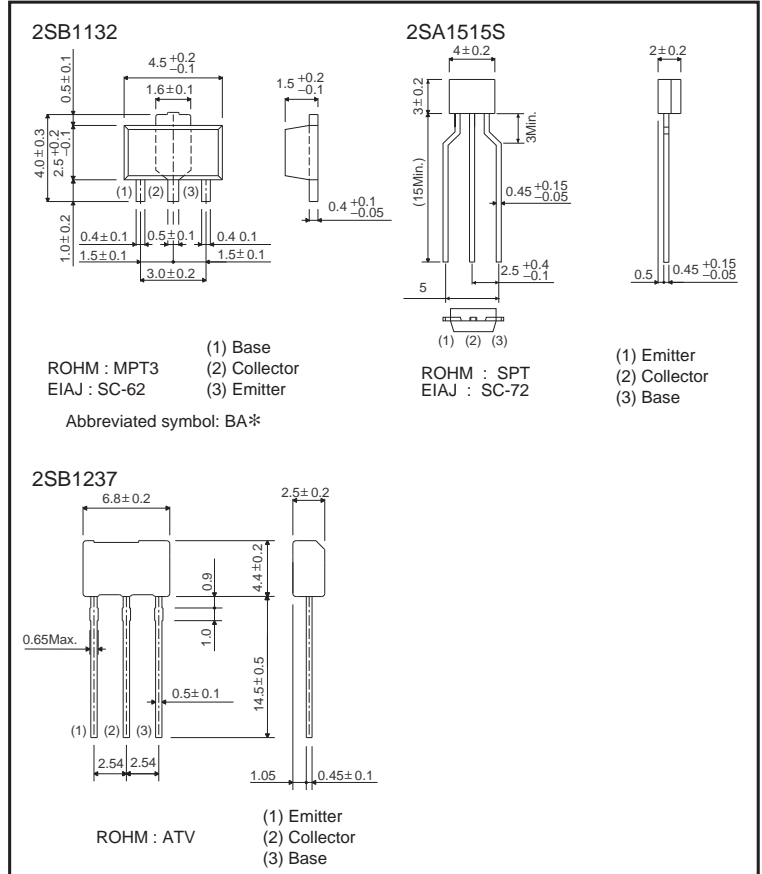
$$(I_C / I_B = -500\text{mA} / -50\text{mA})$$

2) Compliments 2SD1664 / 2SD1858

### ●Structure

Epitaxial planar type  
PNP silicon transistor

### ●Dimensions (Unit : mm)



\* Denotes  $h_{FE}$

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

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CBO</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>	-1	A(DC)
		-2	A(Pulse) *1
Collector power dissipation	P <sub>c</sub>	0.5	W *2
		2	
		0.3	
	2SB1237	1	*3
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +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, 1.7 mm 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>CBO</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>	-	-	-0.5	μA	V <sub>CB</sub> = -20V	
Emitter cutoff current	I <sub>EBO</sub>	-	-	-0.5	μA	V <sub>EB</sub> = -4V	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	-	-0.2	-0.5	V	I <sub>c</sub> /I <sub>B</sub> = -500mA/-50mA *	
DC current transfer ratio	2SB1132, 2SB1237	h <sub>FE</sub>	120	-	390	-	V <sub>CE</sub> = -3V, I <sub>c</sub> = -0.1A *
	2SA1515S		120	-	390	-	
Transition frequency	f <sub>t</sub>	-	150	-	MHz	V <sub>CE</sub> = -5V, I <sub>E</sub> =50mA, f=30MHz	
Output capacitance	C <sub>ob</sub>	-	20	30	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	TP	TU2
		Basic ordering unit (pieces)	1000	5000	2500
2SB1132	QR		○	-	-
2SA1515S	QR		-	○	-
2SB1237	QR		-	-	○

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

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

●Electrical characteristics curves

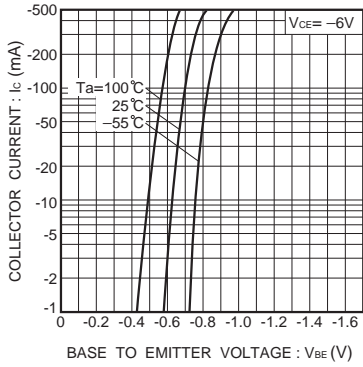


Fig.1 Grounded emitter propagation characteristics

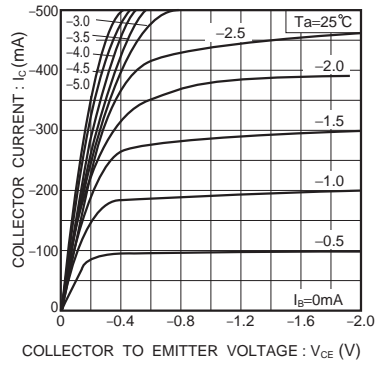


Fig.2 Grounded emitter output characteristics

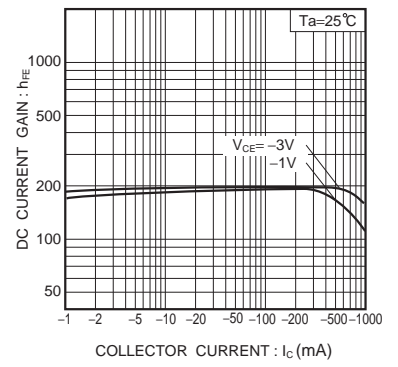


Fig.3 DC current gain vs. collector current(I)

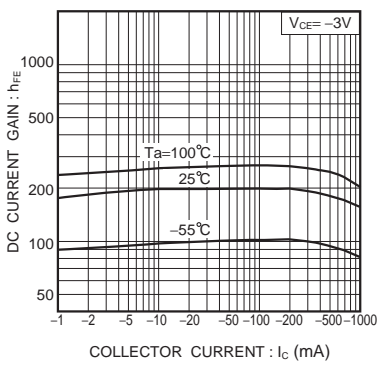


Fig.4 DC current gain vs. collector current(II)

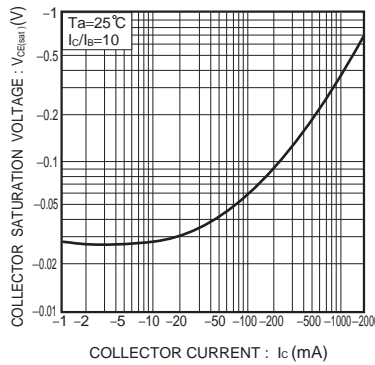


Fig.5 Collector-emitter saturation voltage vs. collector current

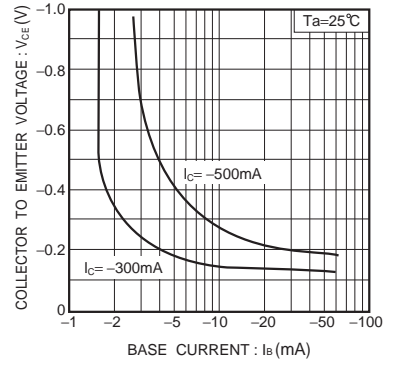


Fig.6 Collector-emitter saturation voltage vs. base current

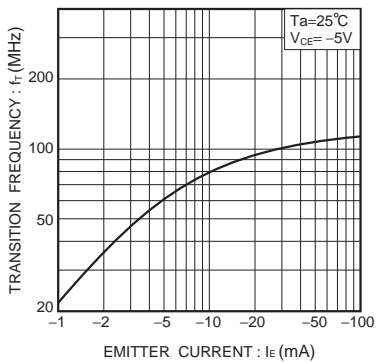


Fig.7 Gain bandwidth product vs. emitter current

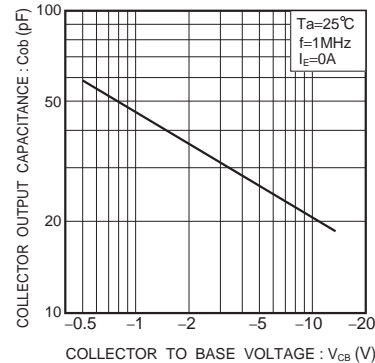


Fig.8 Collector output capacitance vs. collector-base voltage

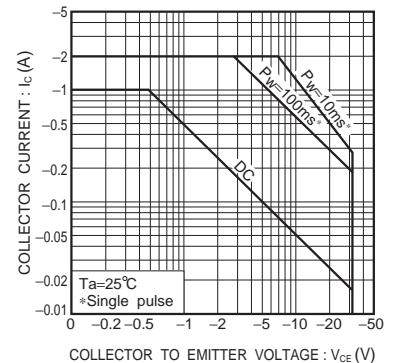


Fig.9 Safe operation area (2SB1132)

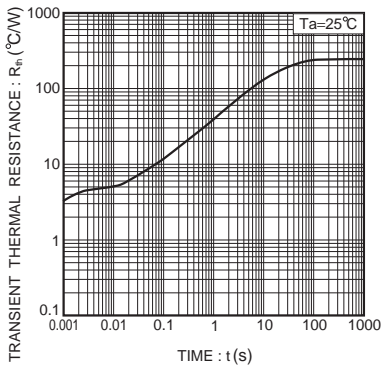


Fig.10 Transient thermal resistance (2SB1132)

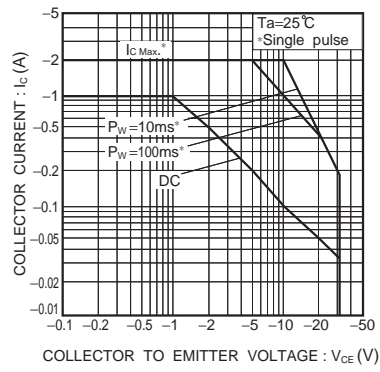


Fig.11 Safe operation area (2SB1237)

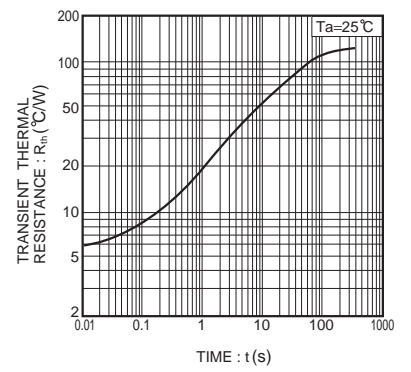


Fig.12 Transient thermal resistance (2SB1237)

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