

# Medium Power Transistor (–32V, –1A)

2SB1132 / 2SA1515S / 2SB1237

## ●Features

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

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

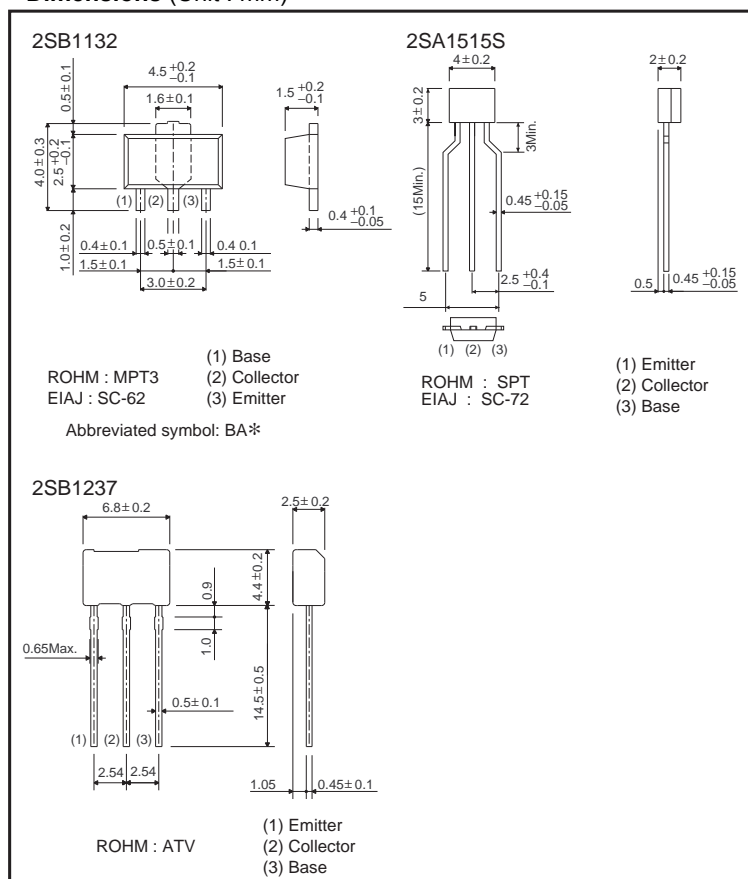
( $I_C / I_B = -500mA / -50mA$ )

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	2SB1132	P <sub>C</sub>	0.5	W *2
			2	
	2SA1515S		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

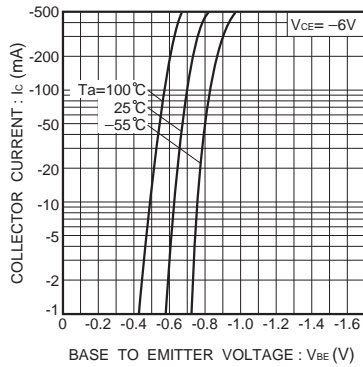


Fig.1 Grounded emitter propagation characteristics

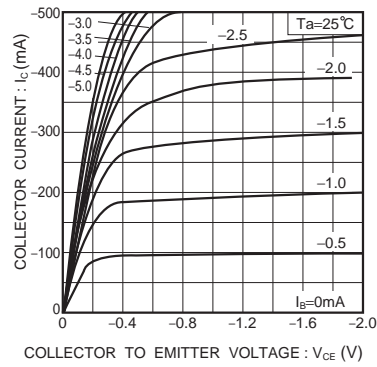


Fig.2 Grounded emitter output characteristics

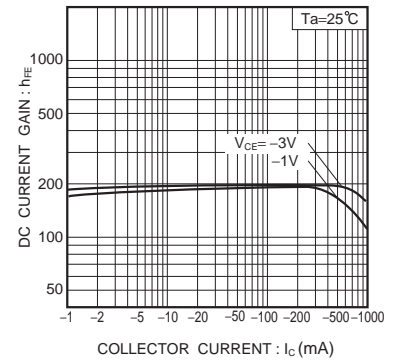


Fig.3 DC current gain vs. collector current(I)

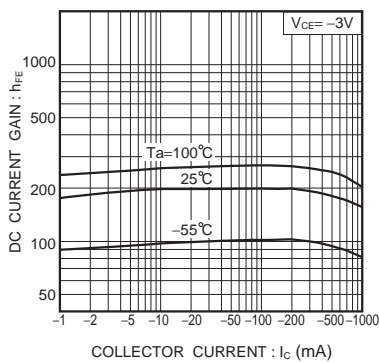


Fig.4 DC current gain vs. collector current(II)

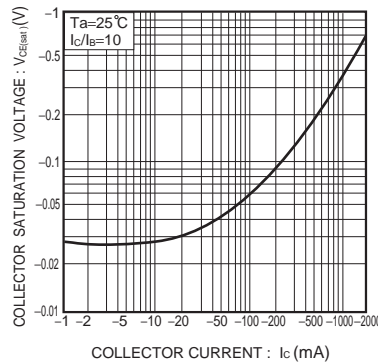


Fig.5 Collector-emitter saturation voltage vs. collector current

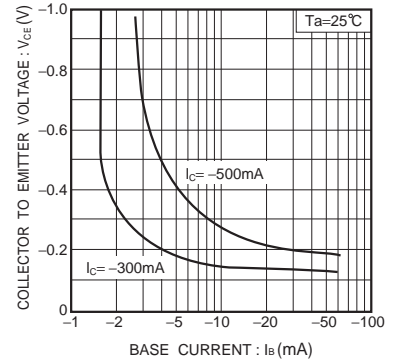


Fig.6 Collector-emitter saturation voltage vs. base current

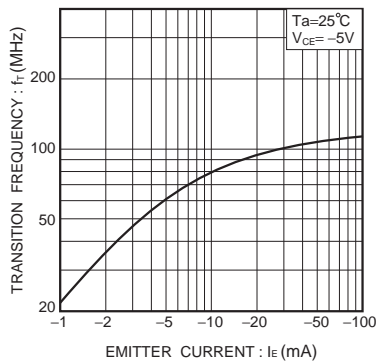


Fig.7 Gain bandwidth product vs. emitter current

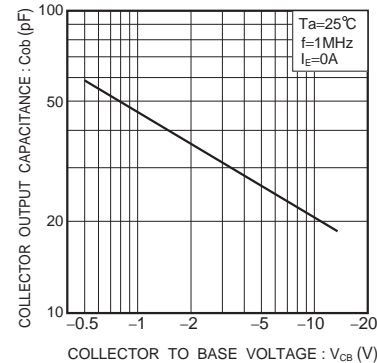


Fig.8 Collector output capacitance vs. collector-base voltage

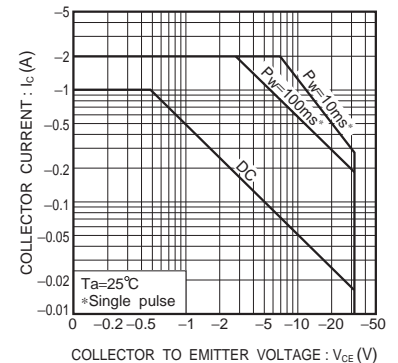


Fig.9 Safe operation area (2SB1132)

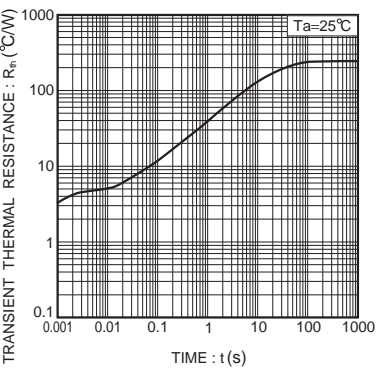


Fig.10 Transient thermal resistance (2SB1132)

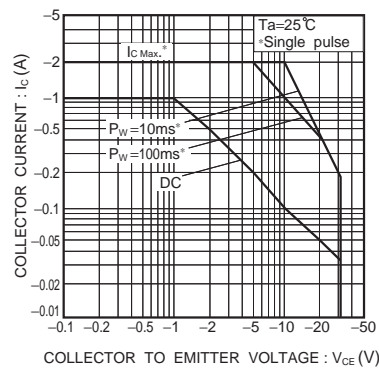


Fig.11 Safe operation area (2SB1237)

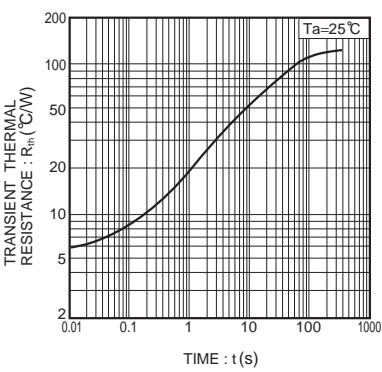


Fig.12 Transient thermal resistance (2SB1237)

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