

# Medium Power Transistor ( $-32V$ , $-1A$ )

## 2SB1132 / 2SA1515S / 2SB1237

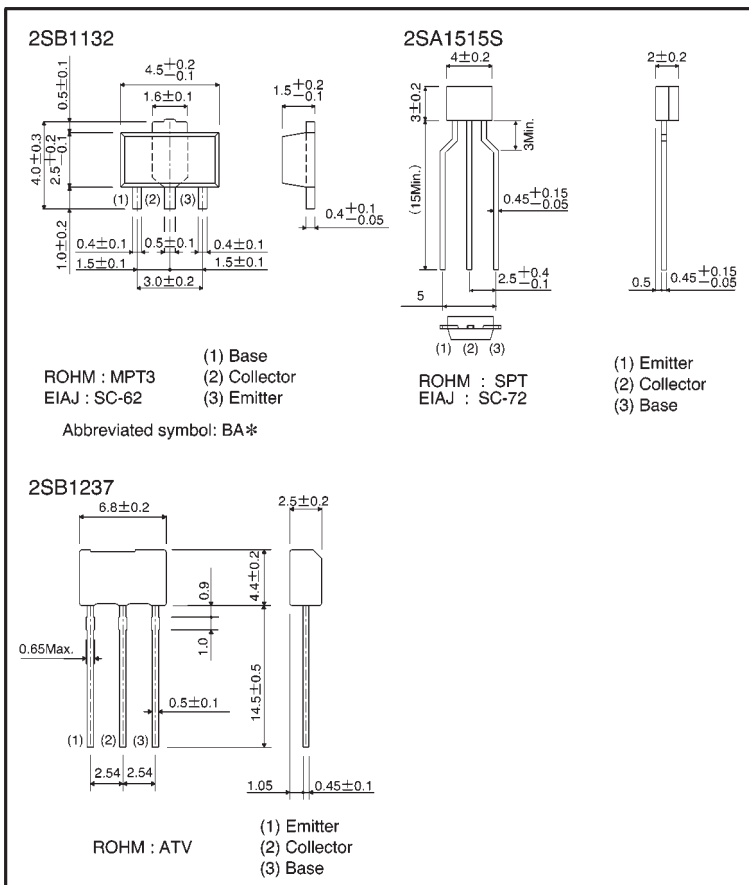
### ●Features

- 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

### ●External dimensions (Units: mm)



\* Denotes  $h_{FE}$

●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V <sub>CB0</sub>	−40	V
Collector-emitter voltage		V <sub>CE0</sub>	−32	V
Emitter-base voltage		V <sub>EB0</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~+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>CB0</sub>	−40	—	—	V	I <sub>c</sub> =−50 μA
Collector-emitter breakdown voltage		BV <sub>CE0</sub>	−32	—	—	V	I <sub>c</sub> =−1mA
Emitter-base breakdown voltage		BV <sub>EB0</sub>	−5	—	—	V	I <sub>E</sub> =−50 μA
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>E</sub> =−500mA/−50mA *
DC current transfer ratio	2SB1132, 2SB1237	h <sub>FE</sub>	82	—	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	PQR		○	—	—
2SA1515S	QR		—	○	—
2SB1237	PQR		—	—	○

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

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

## ●Electrical characteristic curves

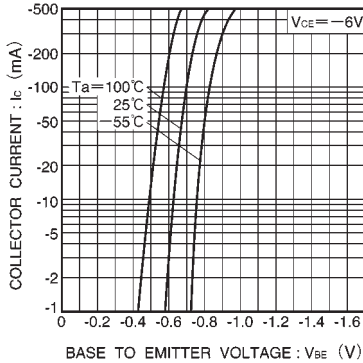


Fig.1 Grounded emitter propagation characteristics

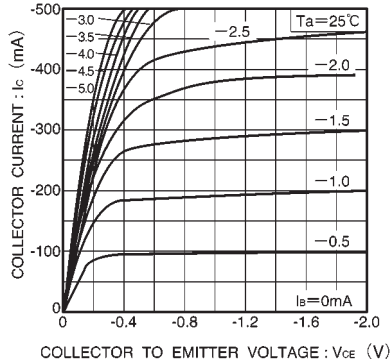


Fig.2 Grounded emitter output characteristics

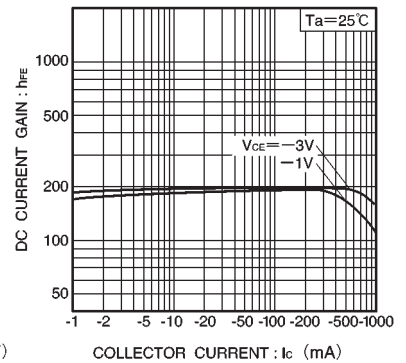
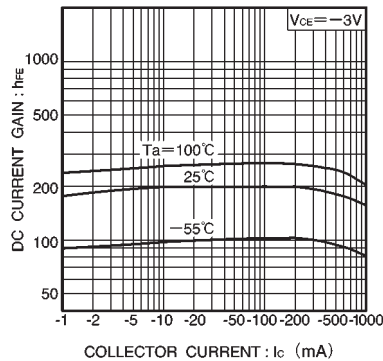
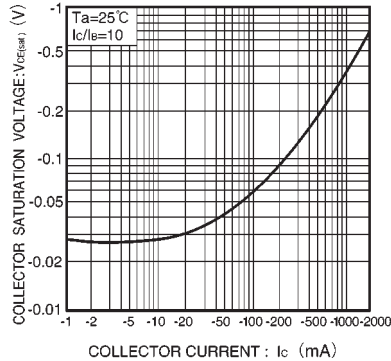
Fig.3 DC current gain vs. collector current ( $I$ )Fig.4 DC current gain vs. collector current ( $II$ )

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

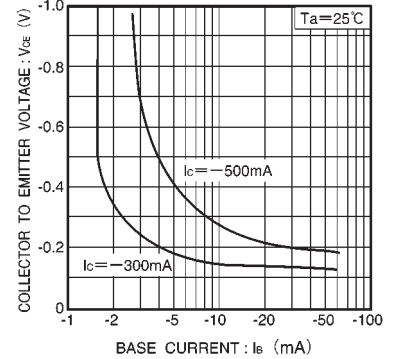


Fig.6 Collector-emitter saturation voltage vs. base current

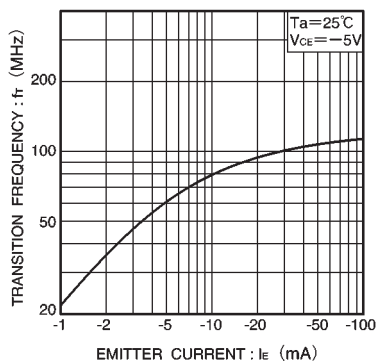


Fig.7 Gain bandwidth product vs. emitter current

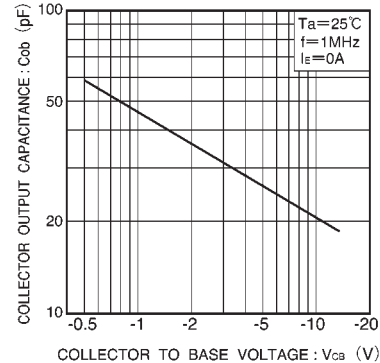


Fig.8 Collector output capacitance vs. collector-base voltage

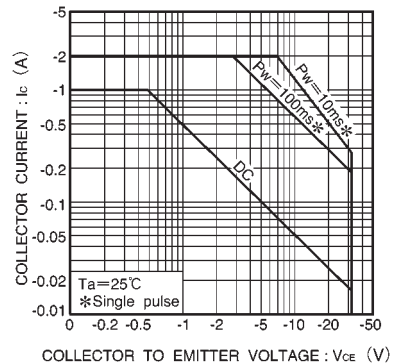


Fig.9 Safe operation area (2SB1132)

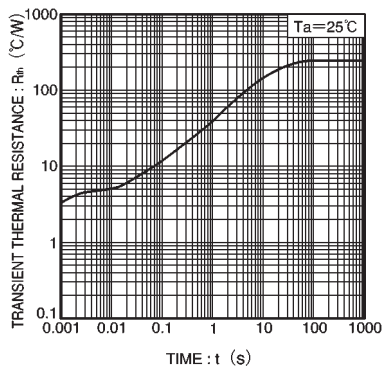


Fig.10 Transient thermal resistance  
(2SB1132)

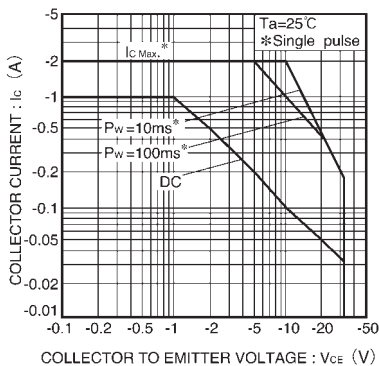


Fig.11 Safe operation area  
(2SB1237)

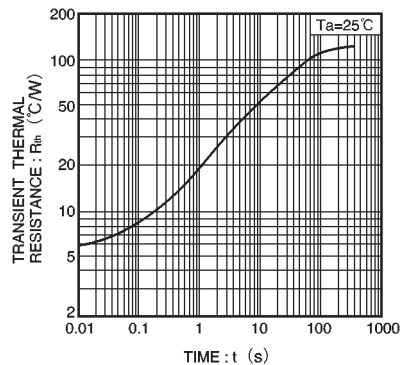


Fig.12 Transient thermal resistance  
(2SB1237)