

Transistors

Medium Power Transistor (−32V, −1A)

2SB1132 / 2SA1515S / 2SB1237

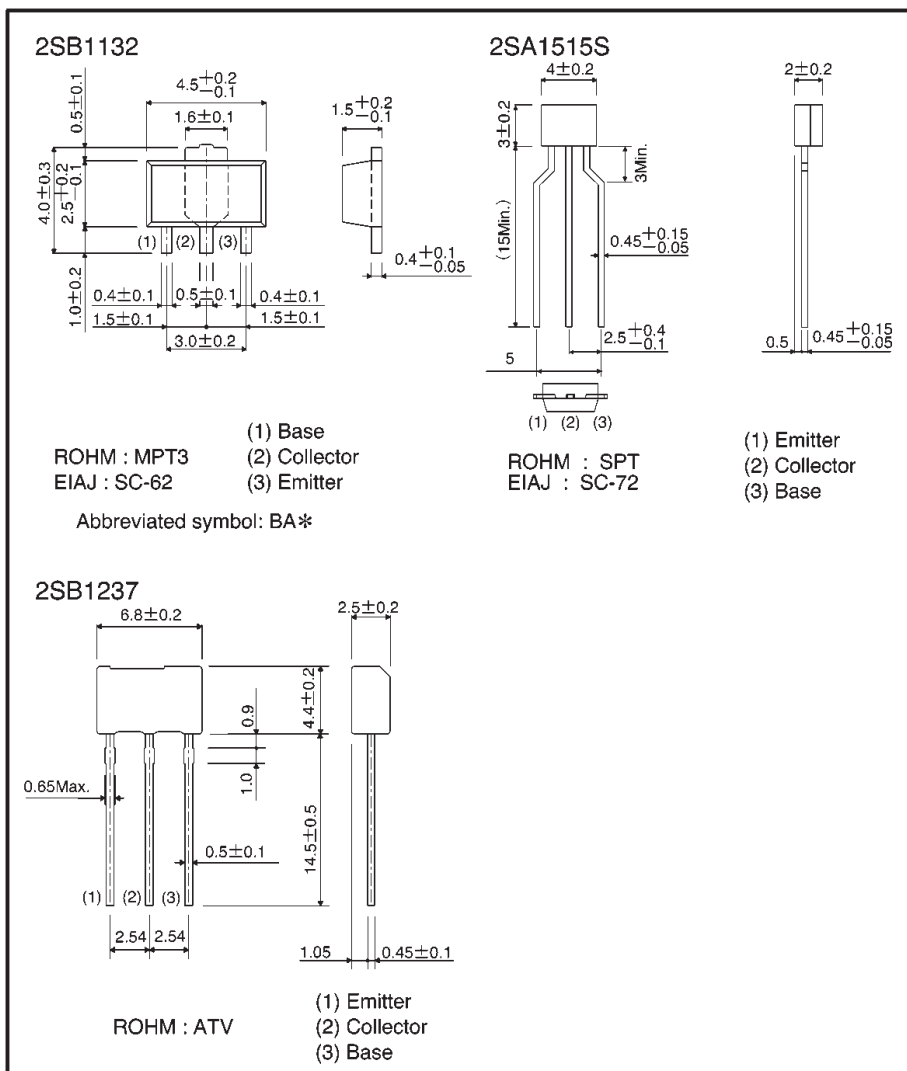
●Features

- 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}

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●Absolute maximum ratings (Ta = 25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V _{CBO}	−40	V
Collector-emitter voltage		V _{CEO}	−32	V
Emitter-base voltage		V _{EBO}	−5	V
Collector current		I _C	−1	A (DC)
			−2	A (Pulse) *1
Collector power dissipation	2SB1132	P _C	0.5	W *2
			2	
	2SA1515S		0.3	
	2SB1237		1	*3
Junction temperature		T _J	150	°C
Storage temperature		T _{stg}	−55~+150	°C

*1 Single pulse, P_w=100ms

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

*3 Printed circuit board, 1.7 mm thick, collector copper plating 100mm² or larger.

●Electrical characteristics (Ta = 25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage		BV _{CBO}	−40	—	—	V	I _C = −50 μA
Collector-emitter breakdown voltage		BV _{CEO}	−32	—	—	V	I _C = −1mA
Emitter-base breakdown voltage		BV _{EBO}	−5	—	—	V	I _E = −50 μA
Collector cutoff current		I _{CBO}	—	—	−0.5	μA	V _{CB} = −20V
Emitter cutoff current		I _{EBO}	—	—	−0.5	μA	V _{EB} = −4V
Collector-emitter saturation voltage		V _{CE(sat)}	—	−0.2	−0.5	V	I _C /I _B = −500mA/−50mA *
DC current transfer ratio	2SB1132, 2SB1237	h _{FE}	82	—	390	—	V _{CE} = −3V, I _C = −0.1A *
	2SA1515S		120	—	390	—	
Transition frequency		f _T	—	150	—	MHz	V _{CE} = −5V, I _E = 50mA, f = 30MHz
Output capacitance		C _{ob}	—	20	30	pF	V _{CB} = −10V, I _E = 0A, f = 1MHz

* Measured using pulse current.

●Packaging specifications and h_{FE}

Type	h _{FE}	Package	Taping		
		Code	T100	TP	TU2
		Basic ordering unit (pieces)	1000	5000	2500
2SB1132	PQR		○	—	—
2SA1515S	QR		—	○	—
2SB1237	PQR		—	—	○

h_{FE} values are classified as follows :

Item	P	Q	R
h _{FE}	82~180	120~270	180~390

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Electrical characteristic curves

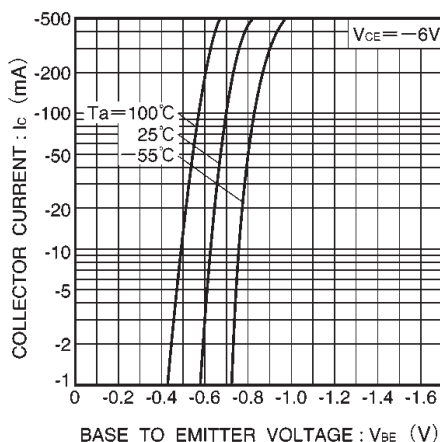


Fig.1 Grounded emitter propagation characteristics

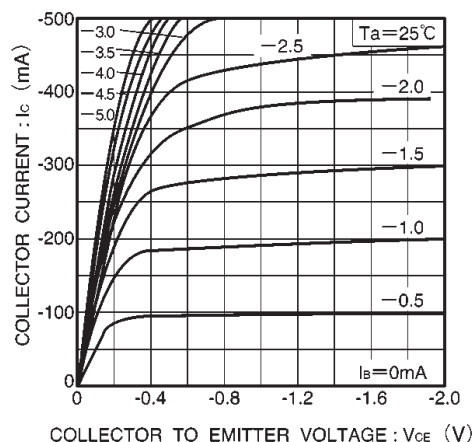


Fig.2 Grounded emitter output characteristics

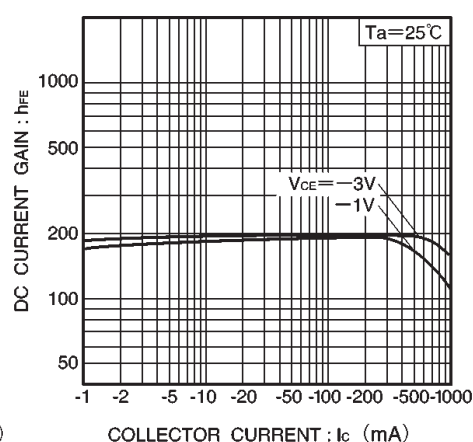


Fig.3 DC current gain vs. collector current (I)

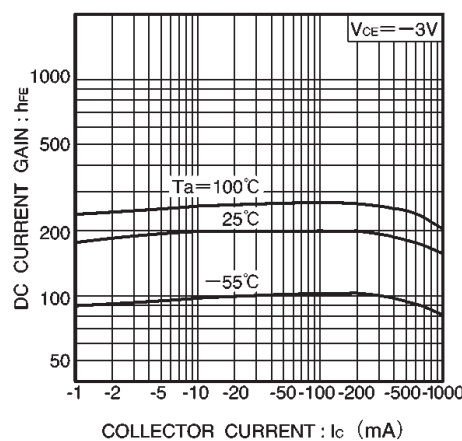


Fig.4 DC current gain vs. collector current (II)

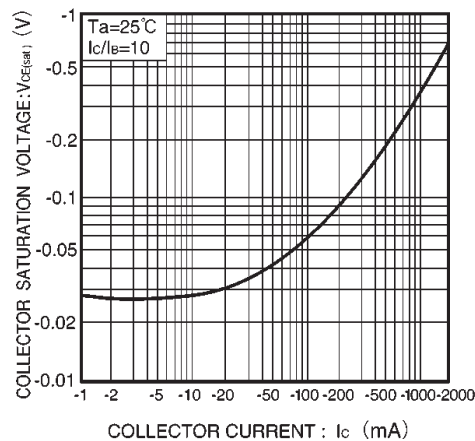


Fig.5 Collector-emitter saturation voltage vs. collector current

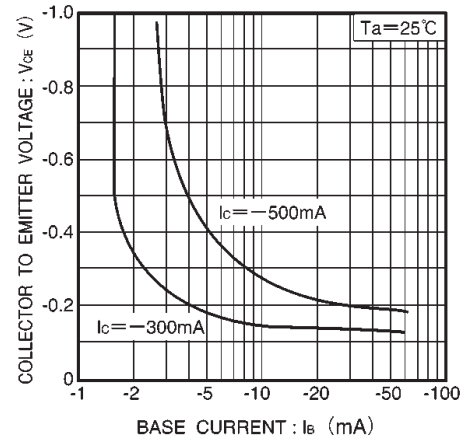


Fig.6 Collector-emitter saturation voltage vs. base current

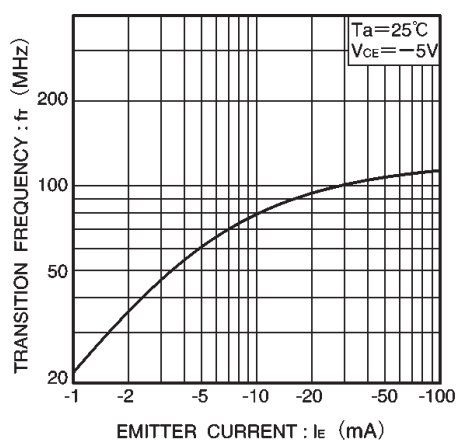


Fig.7 Gain bandwidth product vs. emitter current

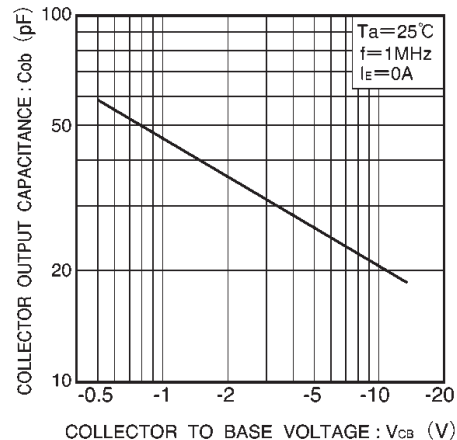


Fig.8 Collector output capacitance vs. collector-base voltage

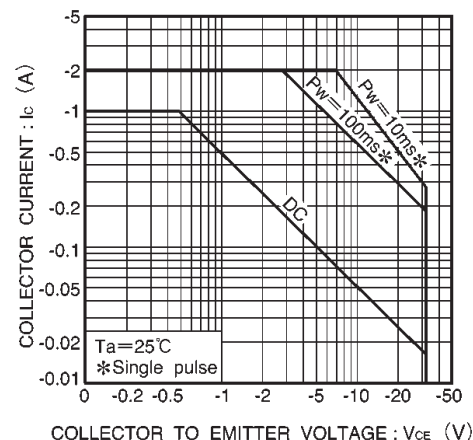


Fig.9 Safe operation area (2SB1132)

Transistors

2SB1132 / 2SA1515S / 2SB1237

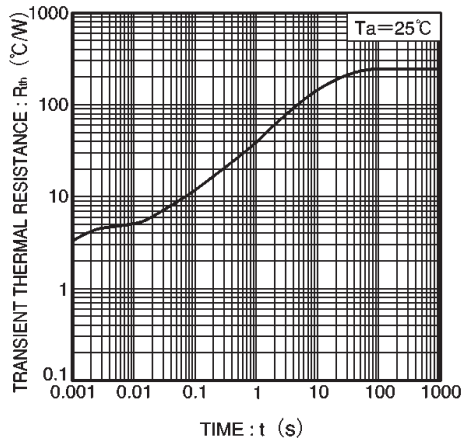


Fig.10 Transient thermal resistance
(2SB1132)

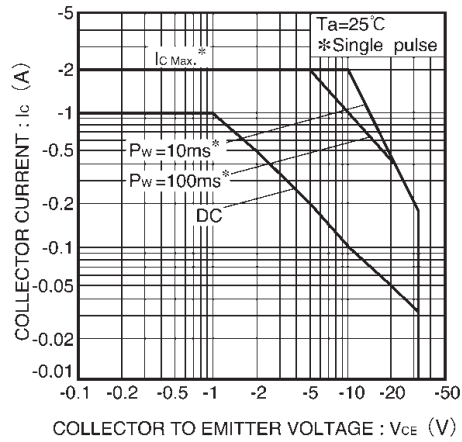


Fig.11 Safe operation area
(2SB1237)

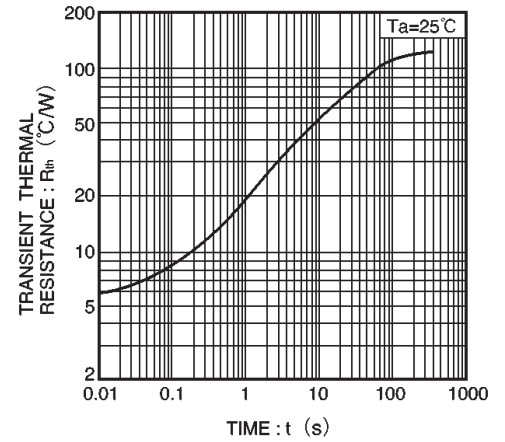


Fig.12 Transient thermal resistance
(2SB1237)