

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

2SB1132/2SA1515S/2SB1237

●Features

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

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

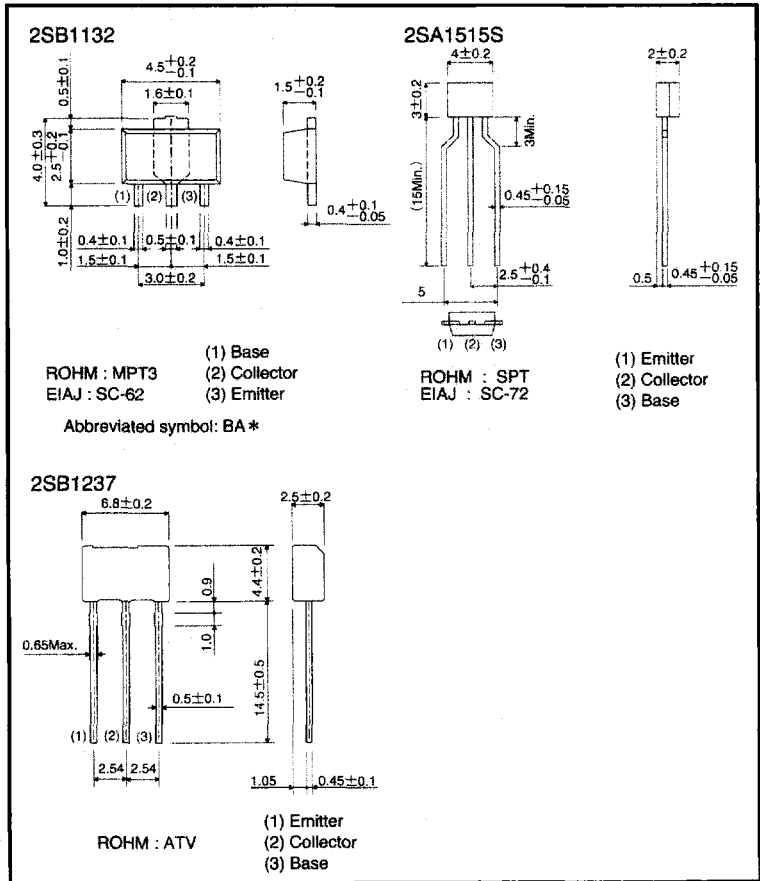
$$(I_c/I_e = -500mA/-50mA)$$

2) Compliments 2SD1664/2SD1858.

●Structure

Epitaxial planar type
PNP silicon transistor

●External dimensions (Units: mm)



*Denotes hFE

● Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V _{CB0}	-40	V
Collector-emitter voltage	V _{CE0}	-32	V
Emitter-base voltage	V _{EB0}	-5	V
Collector current	I _c	-1	A (DC)
		-2	A (Pulse) *1
Collector power dissipation	P _c	0.5	W *2
		2	
		0.3	*3
		1	
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	-55~150	°C

*1 Single pulse Pw=100ms

*2 On 40 x 40 x 0.7 mm ceramic board.

*3 Printed circuit board 1.7 mm thick, collector copper plating 1cm² or large.

● Electrical characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV _{CB0}	-40	—	—	V	I _c =-50 μA
Collector-emitter breakdown voltage	BV _{CE0}	-32	—	—	V	I _c =-1mA
Emitter-base breakdown voltage	BV _{EB0}	-5	—	—	V	I _E =-50 μA
Collector cutoff current	I _{CB0}	—	—	-0.5	μA	V _{CB} =-20V
Emitter cutoff current	I _{EB0}	—	—	-0.5	μA	V _{EB} =-4V
Collector-emitter saturation voltage	V _{CE(sat)}	—	-0.2	-0.5	V	I _c /I _E =-500mA/-50mA *
DC current transfer ratio	2SB1132, 2SB1237	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

● Electrical characteristic curves

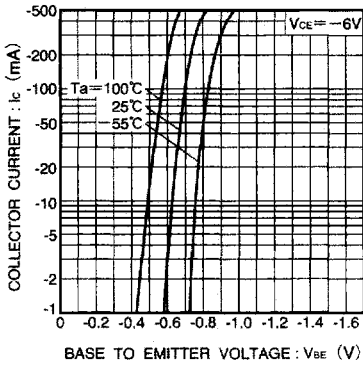


Fig. 1 Grounded emitter propagation characteristics

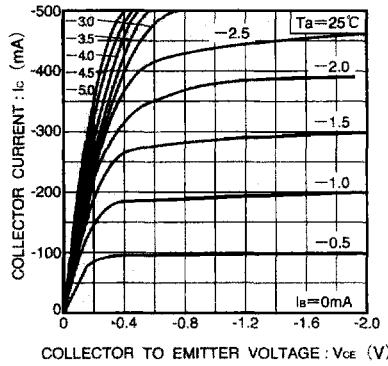


Fig. 2 Grounded emitter output characteristics

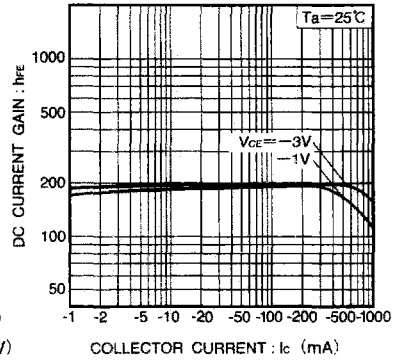


Fig. 3 DC current gain vs. collector current (I)

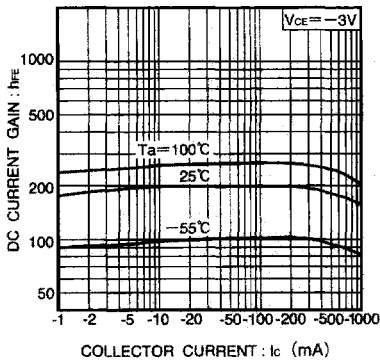


Fig. 4 DC current gain vs. collector current (II)

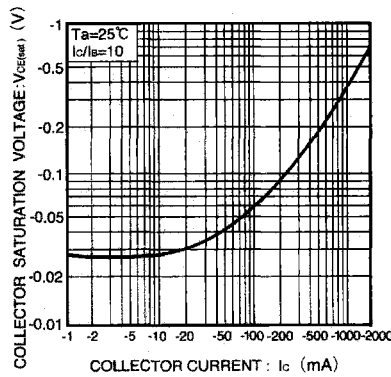


Fig. 5 Collector-emitter saturation voltage vs. collector current

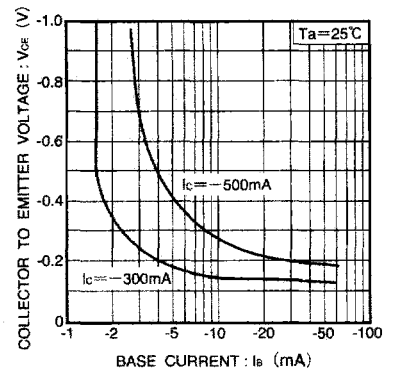


Fig. 6 Collector-emitter saturation voltage vs. base current

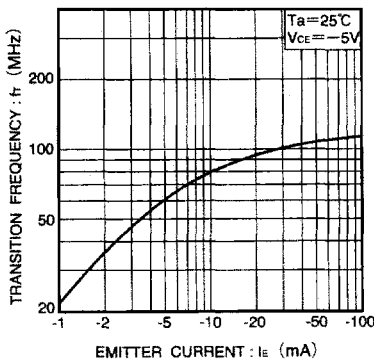


Fig. 7 Gain bandwidth product vs. emitter current

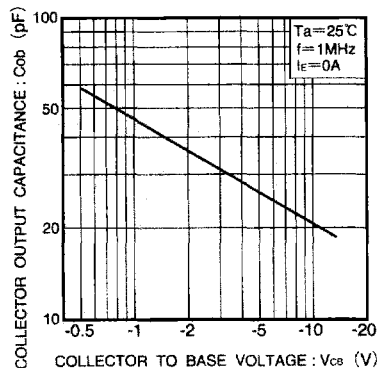


Fig. 8 Collector output capacitance vs. collector-base voltage

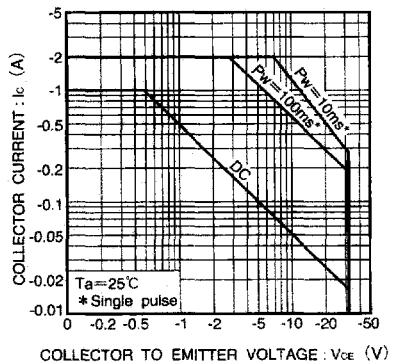


Fig. 9 Safe operation area (2SB1132)

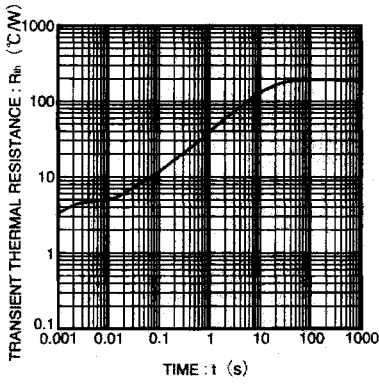


Fig.10 Transient thermal resistance (2SB1132)

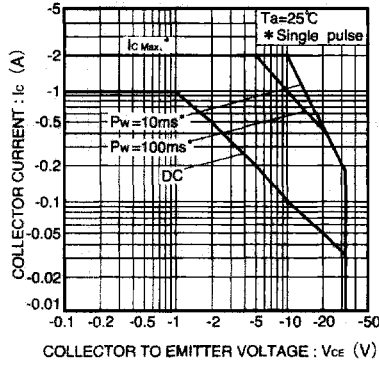


Fig.11 Safe operation area (2SB1237)

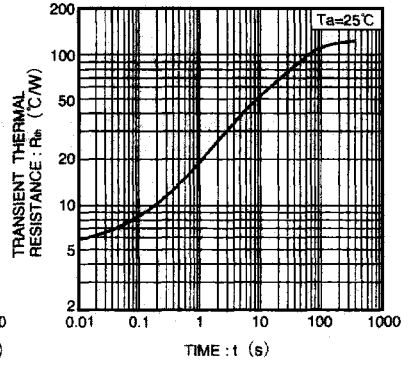


Fig.12 Transient thermal resistance (2SB1237)



Bi-polar transistors