Medium Power Transistor (–32V, –1A)

2SB1132 / 2SA1515S / 2SB1237

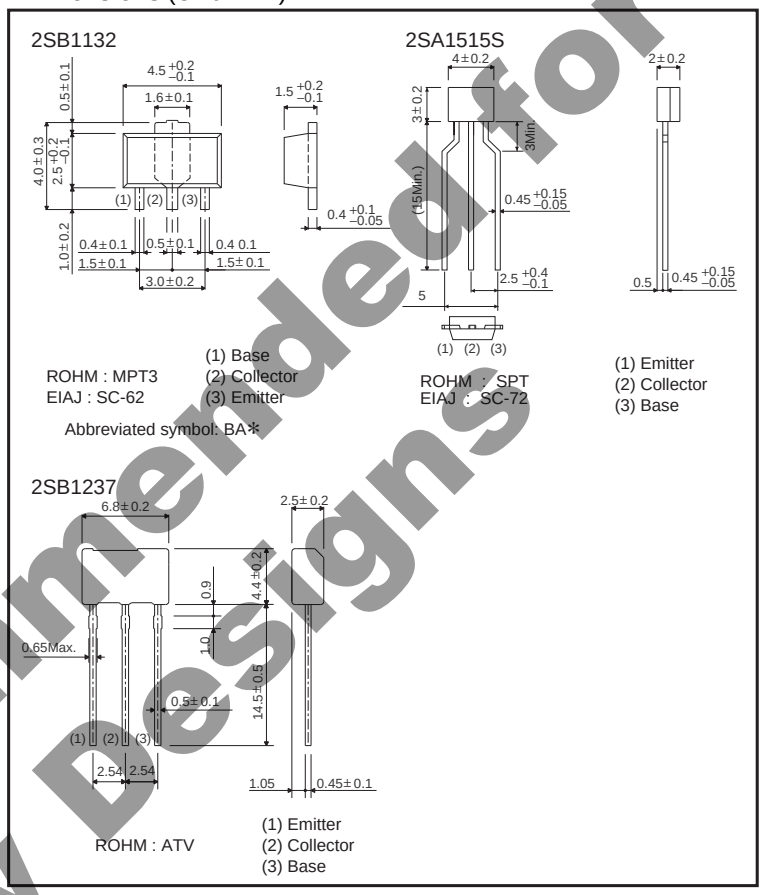
●Features

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_{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		Tj	150	℃	
Storage temperature		Tstg	–55 to +150	℃	

✻1 Single pulse, Pw=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^2 or larger.

●Electrical characteristics (Ta=25°C)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Conditions	
Collector-base breakdown voltage		BV_{CBO}	–40	–	–	V	I_C= –50μA	
Collector-emitter breakdown voltage		BV_{CEO}	–32	–	–	V	I_C= –1mA	
Emitter-base breakdown voltage		BV_{EBO}	–5	–	–	V	I_E= –50μA	
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}	120	–	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		Cob	–	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	QR		○	–	–
2SA1515S	QR		–	○	–
2SB1237	QR		–	–	○

h_{FE} values are classified as follows :

Item	Q	R
h_{FE}	120 to 270	180 to 390

●Electrical characteristics curves

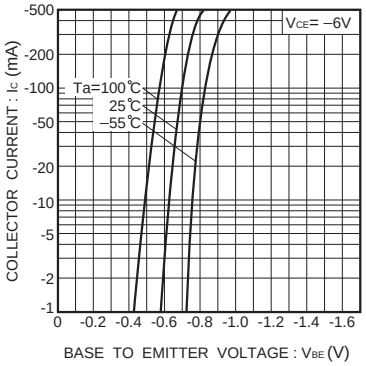


Fig.1 Grounded emitter propagation characteristics

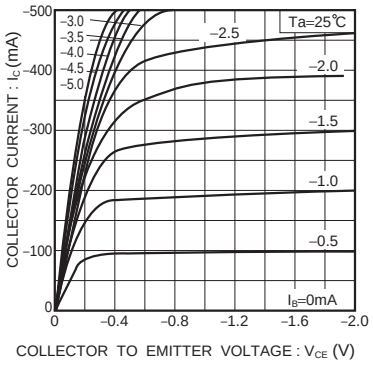


Fig.2 Grounded emitter output characteristics

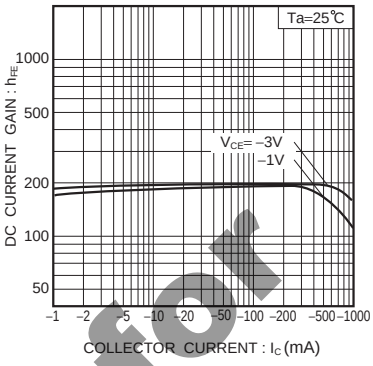


Fig.3 DC current gain vs. collector current(I)

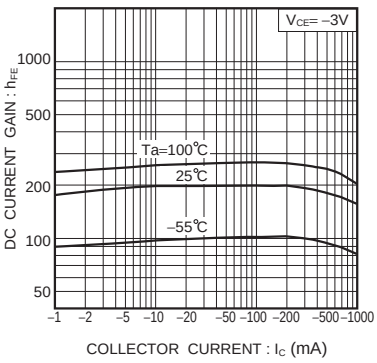


Fig.4 DC current gain vs. collector current(II)

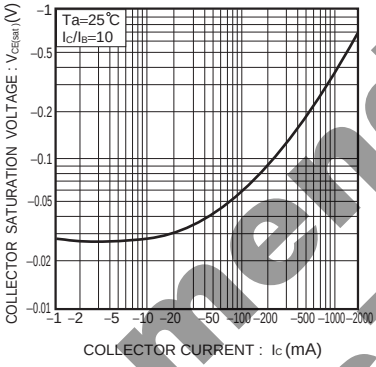


Fig.5 Collector-emitter saturation voltage vs. collector current

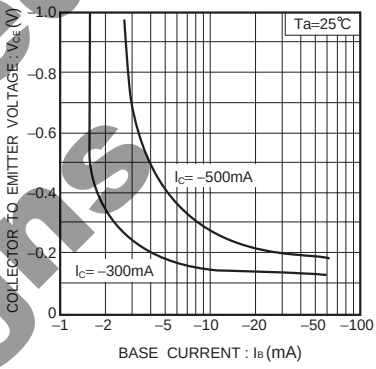


Fig.6 Collector-emitter saturation voltage vs. base current

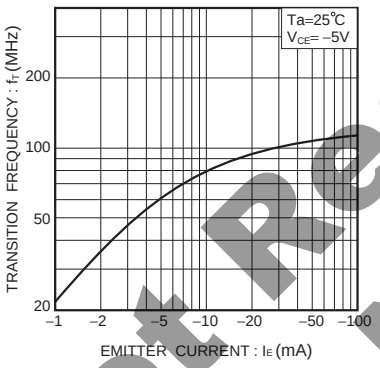


Fig.7 Gain bandwidth product vs. emitter current

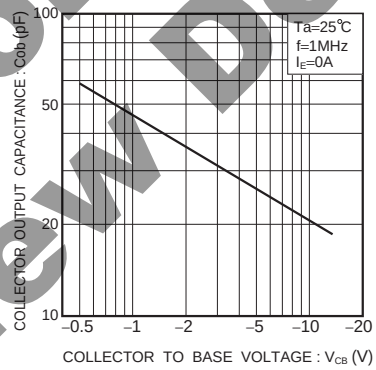


Fig.8 Collector output capacitance vs.collector-base voltage

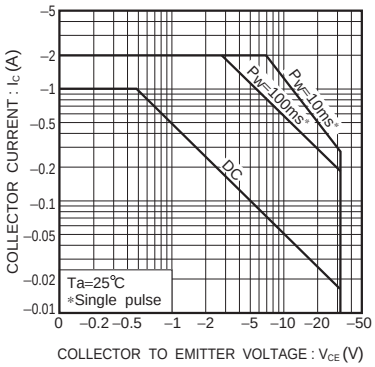


Fig.9 Safe operation area (2SB1132)

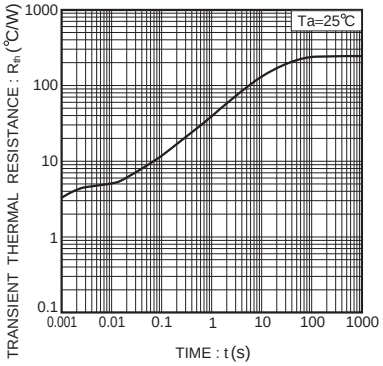


Fig.10 Transient thermal resistance (2SB1132)

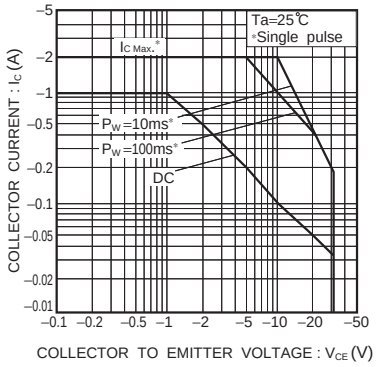


Fig.11 Safe operation area (2SB1237)

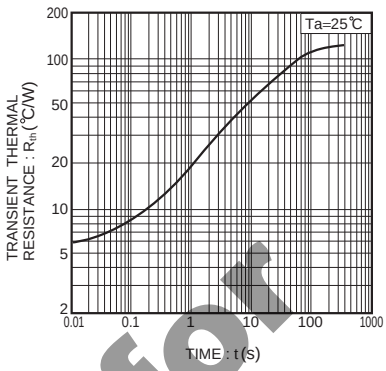


Fig.12 Transient thermal resistance (2SB1237)

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