

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

2SA1515S / 2SB1237

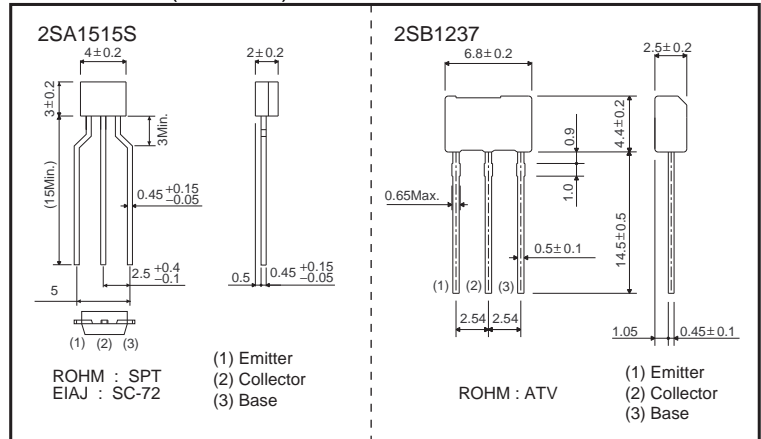
●Features

- 1) Low  $V_{CE(sat)}$ .  
 $V_{CE(sat)} = -0.2V(Typ.)$   
 $(I_C / I_B = -500mA / -50mA)$
- 2) Compliments 2SD1858

●Structure

Epitaxial planar type  
PNP silicon transistor

●Dimensions (Unit : mm)



●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 *1	A(Pulse)
Collector power dissipation	2SA1515S	0.3	W
	2SB1237	1 *2	
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

\*1 Single pulse,  $P_w=100ms$

\*2 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	$BV_{CBO}$	-40	-	-	V	$I_C = -50\mu A$
Collector-emitter breakdown voltage	$BV_{CEO}$	-32	-	-	V	$I_C = -1mA$
Emitter-base breakdown voltage	$BV_{EBO}$	-5	-	-	V	$I_E = -50\mu A$
Collector cutoff current	$I_{CBO}$	-	-	-0.5	$\mu A$	$V_{CB} = -20V$
Emitter cutoff current	$I_{EBO}$	-	-	-0.5	$\mu A$	$V_{EB} = -4V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	-	-0.2	-0.5	V	$I_C/I_B = -500mA/-50mA$ *
DC current transfer ratio	$h_{FE}$	120	-	390	-	$V_{CE} = -3V, I_C = -0.1A$ *
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 hFE

Type	hFE	Package	Taping	
		Code	TP	TU2
		Basic ordering unit (pieces)	5000	2500
2SA1515S	QR		○	-
2SB1237	QR		-	○

hFE values are classified as follows :

Item	Q	R
hFE	120 to 270	180 to 390

●Electrical characteristics curves

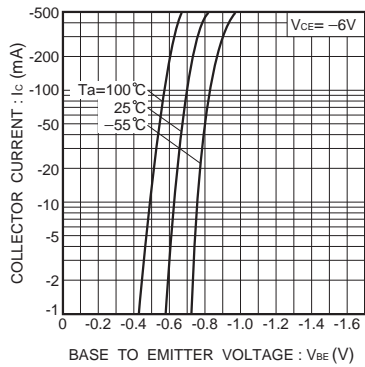


Fig.1 Grounded emitter propagation characteristics

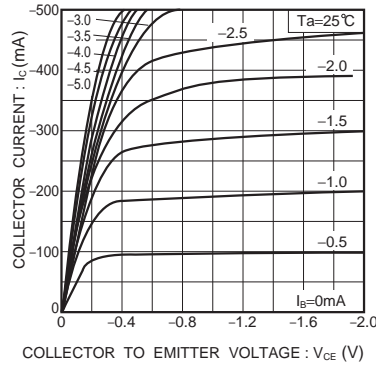


Fig.2 Grounded emitter output characteristics

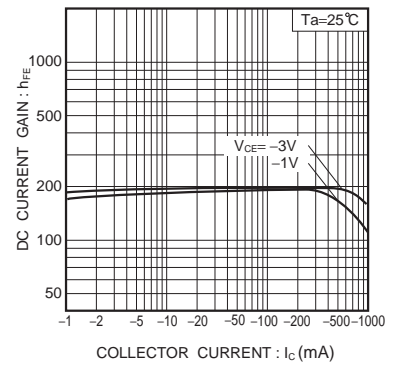


Fig.3 DC current gain vs. collector current(I)

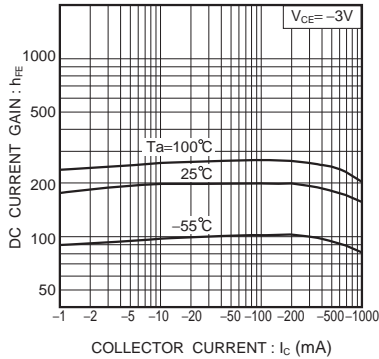


Fig.4 DC current gain vs. collector current(II)

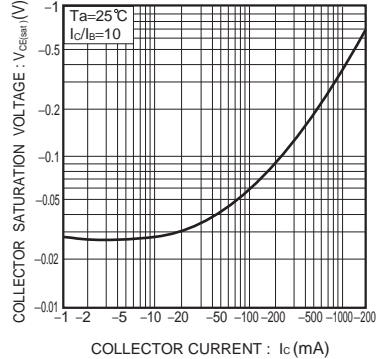


Fig.5 Collector-emitter saturation voltage vs. collector current

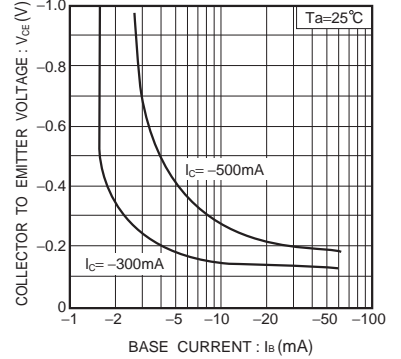


Fig.6 Collector-emitter saturation voltage vs. base current

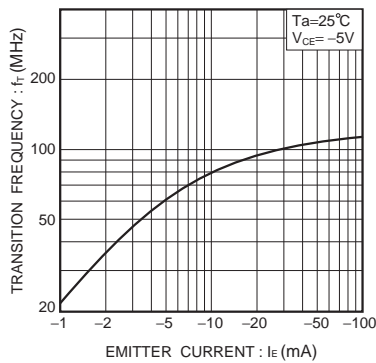


Fig.7 Gain bandwidth product vs. emitter current

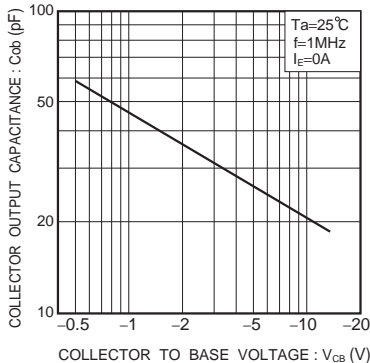


Fig.8 Collector output capacitance vs. collector-base voltage

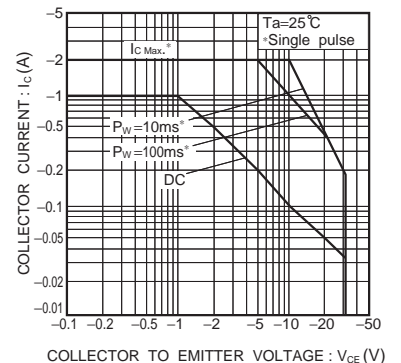


Fig.9 Safe operation area (2SB1237)

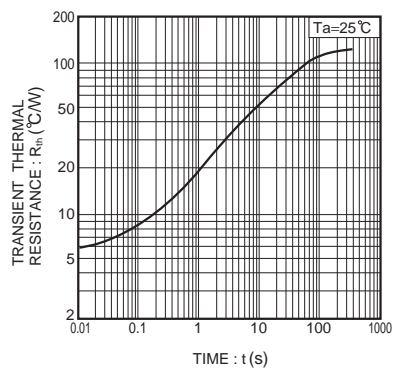


Fig.10 Transient thermal resistance (2SB1237)

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