

Medium Power Transistor (–32V, –1A)

2SA1515S / 2SB1237

●Features

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

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

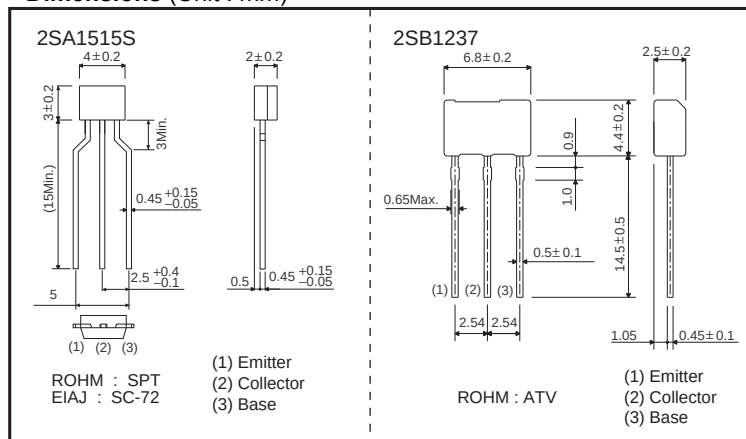
$$(I_C / I_B = -500mA / -50mA)$$

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 100mm² or larger.

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–40	–	–	V	$I_C = -50\mu A$
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	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	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 h_{FE}

Type	h_{FE}	Package	Taping	
		Code	TP	TU2
		Basic ordering unit (pieces)	5000	2500
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

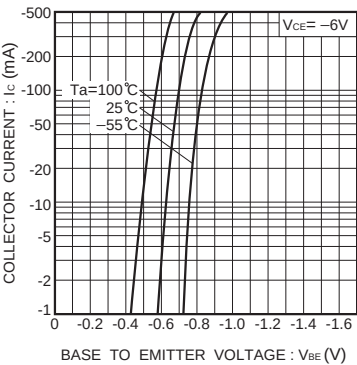


Fig.1 Grounded emitter propagation characteristics

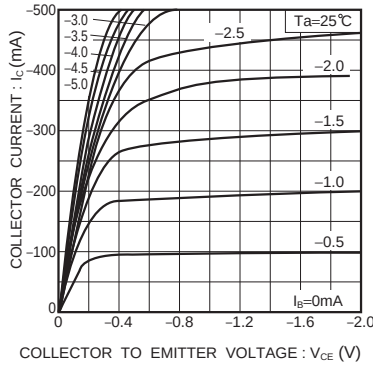


Fig.2 Grounded emitter output characteristics

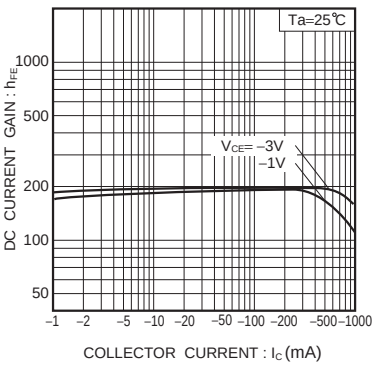


Fig.3 DC current gain vs. collector current(I)

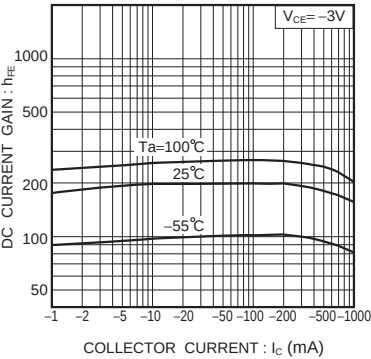


Fig.4 DC current gain vs. collector current(II)

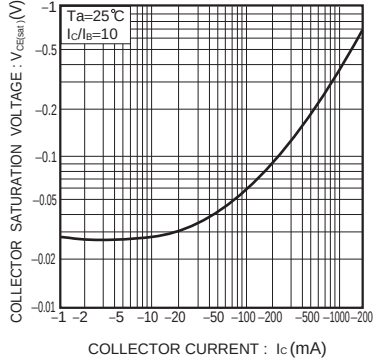


Fig.5 Collector-emitter saturation voltage vs. collector current

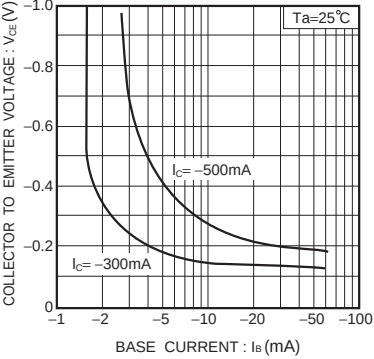


Fig.6 Collector-emitter saturation voltage vs. base current

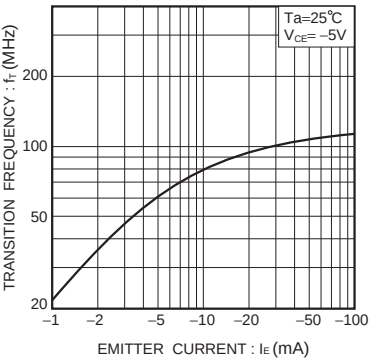


Fig.7 Gain bandwidth product vs. emitter current

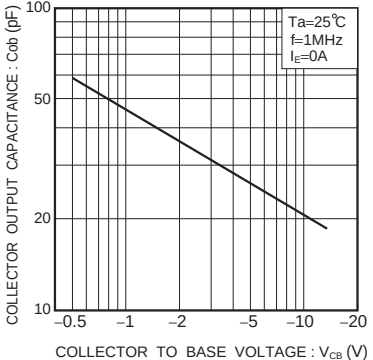


Fig.8 Collector output capacitance vs. collector-base voltage

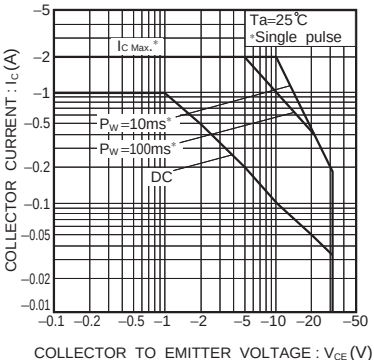


Fig.9 Safe operation area (2SB1237)

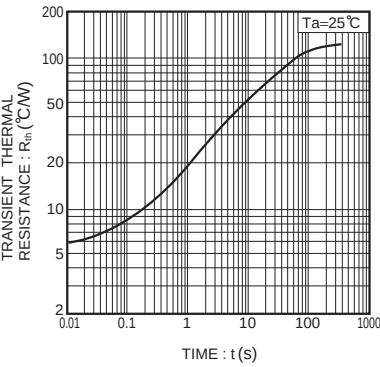


Fig.10 Transient thermal resistance (2SB1237)

Notes

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