Low $V_{CE(sat)}$ Transistor (–20V, –3A)

2SB1424 / 2SA1585S

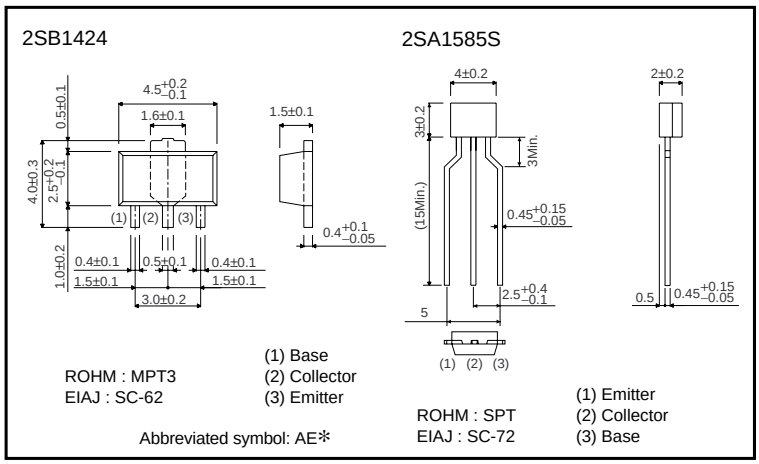
●Features

1) Low $V_{CE(sat)}$.
   $V_{CE(sat)}$ = –0.2V (Typ.)
   (I_C/I_B = –2A / –0.1A)
2) Excellent DC current gain characteristics.
3) Complements the 2SD2150 / 2SC4115S.

●Structure

Epitaxial planar type
PNP silicon transistor

●External dimensions (Unit : mm)



* Denotes h_{FE}

●Absolute maximum ratings (Ta=25°C)

Parameter		Symbol	Limits	Unit
Collector-base voltage		V_{CBO}	–20	V
Collector-emitter voltage		V_{CEO}	–20	V
Emitter-base voltage		V_{EBO}	–6	V
Collector current	2SB1424	I_C	–3	A
	2SA1585S		–2	
		I_{CP}	–5	A(Pulse) *
Collector power dissipation	2SB1424	P_C	0.5	W
	2SA1585S		0.4	
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–55 to 150	°C

* Single pulse Pw=10ms

●**Electrical characteristics** (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	–20	–	–	V	I_C= –50μA
Collector-emitter breakdown voltage	BV_{CEO}	–20	–	–	V	I_C= –1mA
Emitter-base breakdown voltage	BV_{EBO}	–6	–	–	V	I_E= –50μA
Collector cutoff current	I_{CBO}	–	–	–0.1	μA	V_{CB}= –20V
Emitter cutoff current	I_{EBO}	–	–	–0.1	μA	V_{EB}= –5V
Collector-emitter saturation voltage	$V_{CE(sat)}$	–	–	–0.5	V	I_C/I_B= –2A/ –0.1A
DC current transfer ratio	h_{FE}	120	–	390	–	V_{CE}= –2V, I_C= –0.1A
Transition frequency	f_T	–	240	–	MHz	V_{CE}= –2V, I_E=0.5A, f=100MHz
Output capacitance	Cob	–	35	–	pF	V_{CB}= –10V, I_E=0A, f=1MHz

●**Packaging specifications and h_{FE}**

Type	h_{FE}	Package	Taping	
		Code	TP	T100
		Basic ordering unit (pieces)	5000	1000
2SA1585S	QR		○	–
2SB1424	QR		–	○

h_{FE} values are classified as follows :

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

●**Electrical characteristic curves**

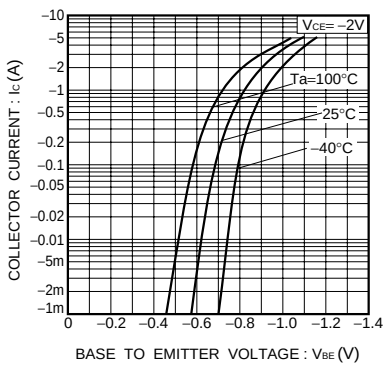


Fig.1 Grounded emitter propagation characteristics

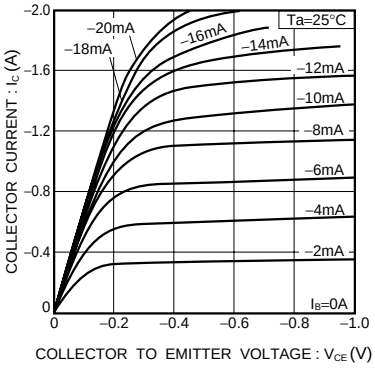


Fig.2 Grounded emitter output characteristics (I)

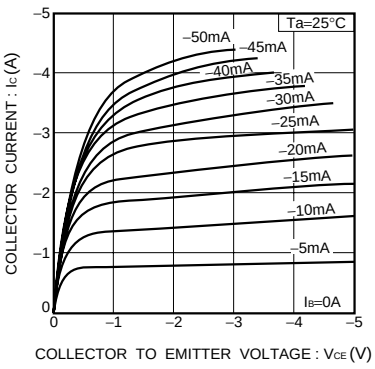


Fig.3 Grounded emitter output characteristics (II)

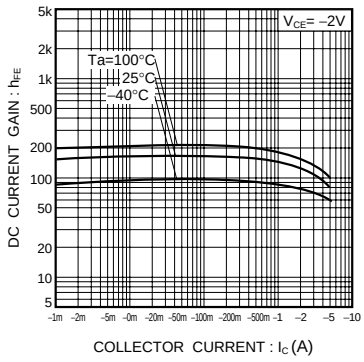


Fig.4 DC current gain vs. collector current

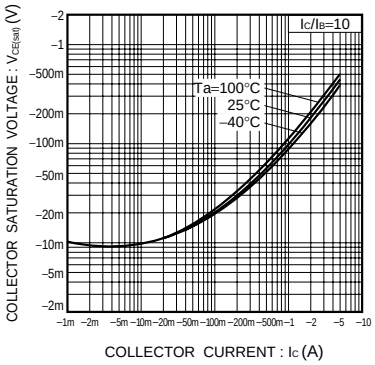


Fig.5 Collector-emitter saturation voltage vs. collector curren (Ⅰ)

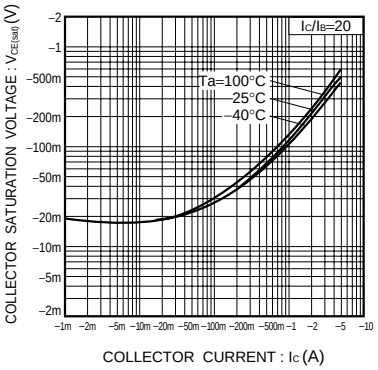


Fig.6 Collector-emitter saturation voltage vs. collector current (Ⅱ)

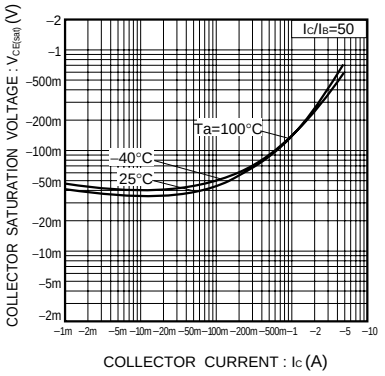


Fig.7 Collector-emitter saturation voltage vs. collector current (Ⅲ)

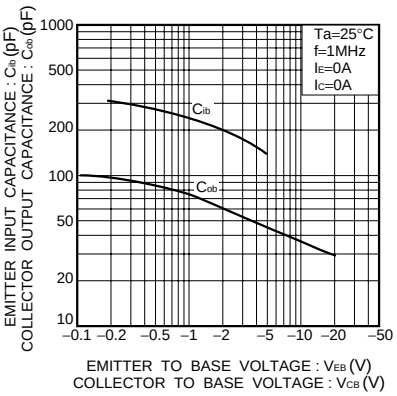


Fig.8 Gain bandwidth product vs. emitter current
Collector output capacitance vs. collector-base voltage

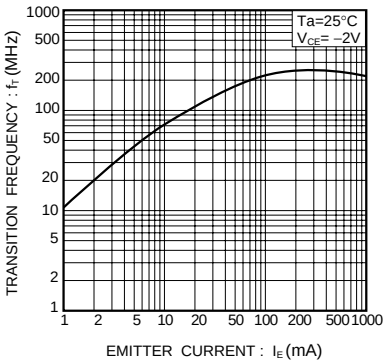


Fig.9 Emitter input capacitance vs. emitter base voltage

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