

# Low Frequency Transistor (20V, 3A)

## 2SC4115S

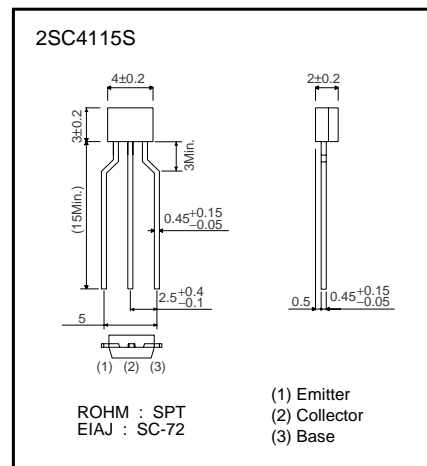
### ●Features

- 1) Low  $V_{CE(sat)}$ .  
 $V_{CE(sat)} = 0.2V$  (Typ.)  
 $(I_c / I_B = 2A / 0.1A)$
- 2) Excellent current gain characteristics.
- 3) Complements the 2SA1585S.

### ●Structure

Epitaxial planar type  
 NPN silicon transistor

### ●External dimensions (Unit : mm)



\* Denotes  $h_{FE}$

### ●Absolute maximum ratings ( $T_a=25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	40	V
Collector-emitter voltage	$V_{CEO}$	20	V
Emitter-base voltage	$V_{EBO}$	6	V
Collector current	$I_c$	2	A (DC)
		5	A (Pulse) *
Collector power dissipation	$P_c$	0.4	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

\* Single pulse  $P_w=10\text{ms}$

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	40	–	–	V	I <sub>C</sub> =50μA
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	20	–	–	V	I <sub>C</sub> =1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	6	–	–	V	I <sub>E</sub> =50μA
Collector cutoff current	I <sub>CB0</sub>	–	–	0.1	μA	V <sub>CB</sub> =30V
Emitter cutoff current	I <sub>E0</sub>	–	–	0.1	μA	V <sub>EB</sub> =5V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	–	0.2	0.5	V	I <sub>C</sub> /I <sub>B</sub> =2A/0.1A *
DC current transfer ratio	h <sub>FE</sub>	120	–	390	–	V <sub>CE</sub> =2V, I <sub>C</sub> =0.1A
Transition frequency	f <sub>T</sub>	–	290	–	MHz	V <sub>CE</sub> =2V, I <sub>E</sub> =–0.5A, f=100MHz
Output capacitance	C <sub>ob</sub>	–	25	–	pF	V <sub>CE</sub> =10V, I <sub>E</sub> =0A, f=1MHz

\* Measured using pulse current.

●Packaging specifications and h<sub>FE</sub>

Type	h <sub>FE</sub>	Package	Taping
		Code	TP
		Basic ordering unit (pieces)	5000
2SC4115S	QRS		○

h<sub>FE</sub> values are classified as follows :

Item	Q	R	S
h <sub>FE</sub>	120 to 270	180 to 390	270 to 560

●Electrical characteristic curves

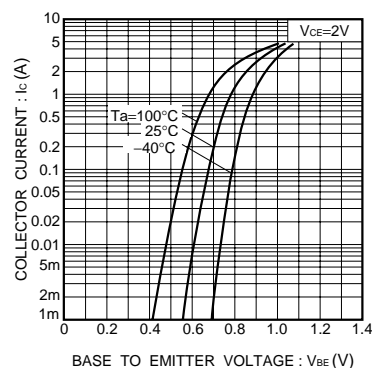


Fig.1 Grounded emitter propagation characteristics

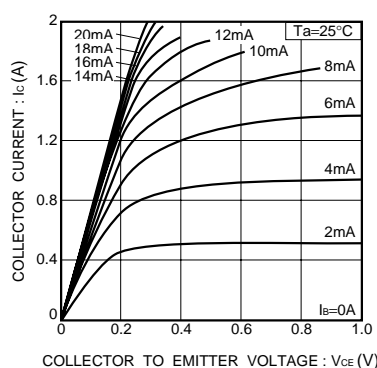


Fig.2 Grounded emitter output characteristics ( I )

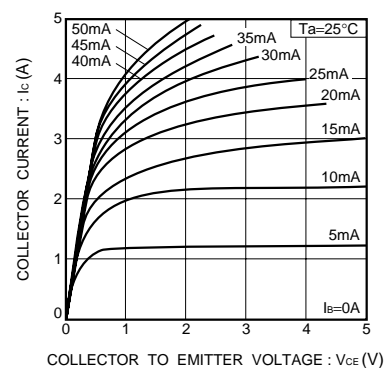


Fig.3 Grounded emitter output characteristics ( II )

Transistors

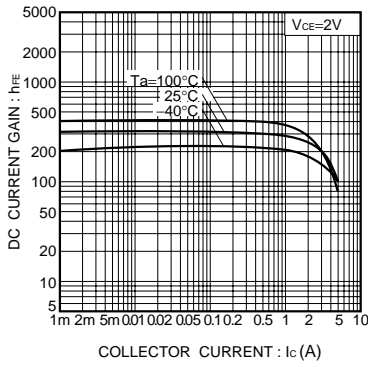


Fig.4 DC current gain vs. collector current

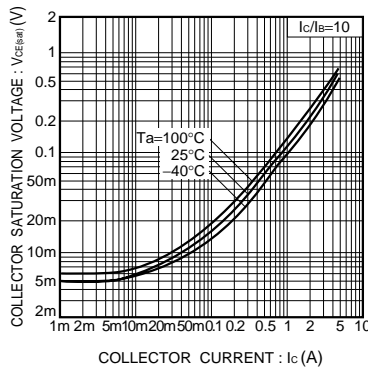


Fig.5 Collector-emitter saturation voltage vs. collector current ( I )

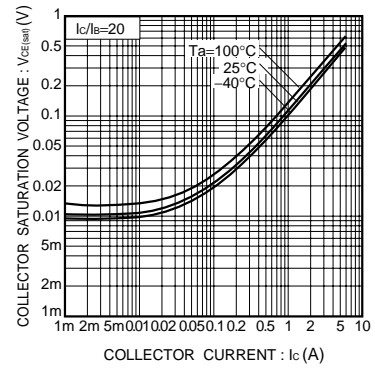


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

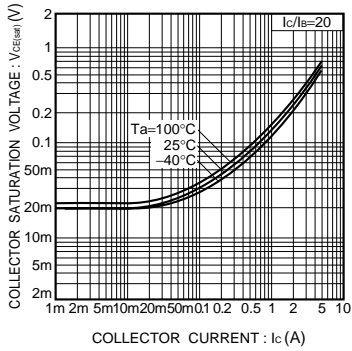


Fig.7 Collector-emitter saturation voltage vs. collector current (III)

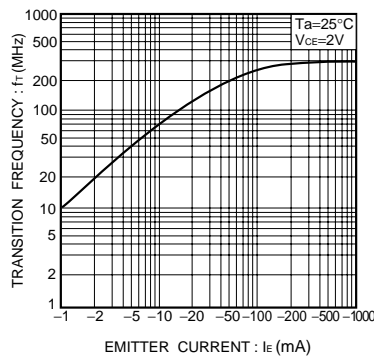


Fig.8 Gain bandwidth product vs. emitter current

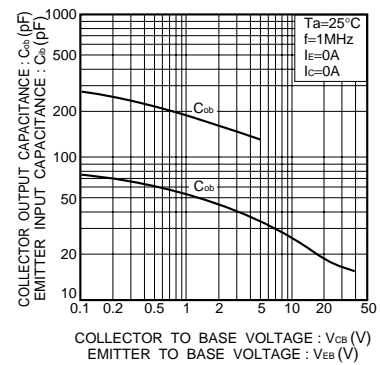


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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