

General purpose small signal amplifier (50V, 0.15A) 2SC4617EB

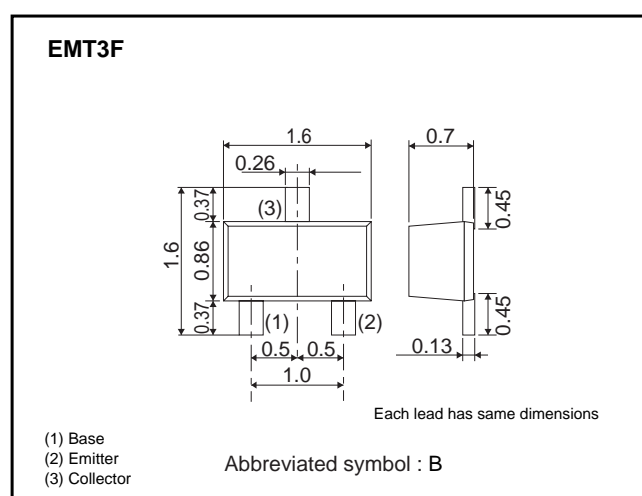
●Features

- 1) Excellent h_{FE} linearity.
- 2) Complements the 2SA1774EB.

●Structure

NPN silicon epitaxial
planar transistor

●Dimensions (Unit : mm)



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

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	60	V
Collector-emitter voltage	V_{CEO}	50	V
Emitter-base voltage	V_{EBO}	7	V
Collector current	I_C	150	mA
	I_{CP} *1	200	
Power dissipation	P_D *2	150	mW
Junction temperature	T_J	150	$^\circ\text{C}$
Range of storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

*1 $P_w=1\text{ms}$ Single pulse

*2 Each terminal mounted on a recommended land

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV_{CEO}	50	—	—	V	$I_C=1\text{mA}$
Collector-base breakdown voltage	BV_{CBO}	60	—	—	V	$I_C=50\mu\text{A}$
Emitter-base breakdown voltage	BV_{EBO}	7	—	—	V	$I_E=50\mu\text{A}$
Collector cutoff current	I_{CBO}	—	—	100	nA	$V_{CB}=60\text{V}$
Emitter cutoff current	I_{EBO}	—	—	100	nA	$V_{EB}=7\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	—	400	mV	$I_C/I_B=50\text{mA}/5\text{mA}$
DC current gain	h_{FE}	82	—	560	—	$V_{CE}=6\text{V}$, $I_C=1\text{mA}$
Transition frequency	f_r	—	180	—	MHz	$V_{CE}=12\text{V}$, $I_E=-2\text{mA}$, $f=100\text{MHz}$
Output capacitance	C_{ob}	—	2	3.5	pF	$V_{CE}=12\text{V}$, $I_E=0\text{A}$, $f=1\text{MHz}$

 h_{FE} rank categories

Rank	P	Q	R	S
h_{FE}	82 to 180	120 to 270	180 to 390	270 to 560

●Electrical characteristic curves

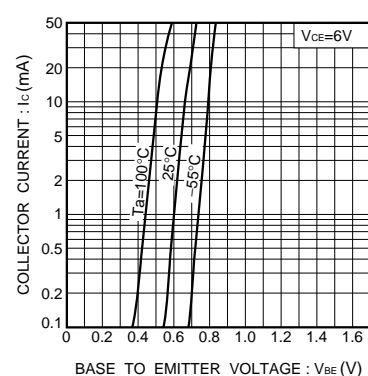


Fig.1 Grounded emitter propagation characteristics

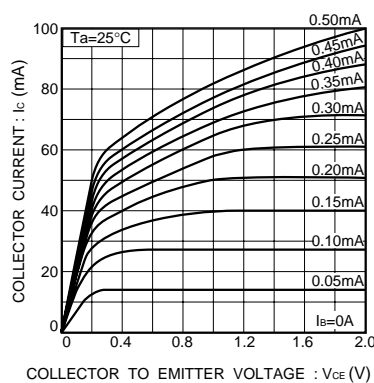


Fig.2 Grounded emitter output characteristics (I)

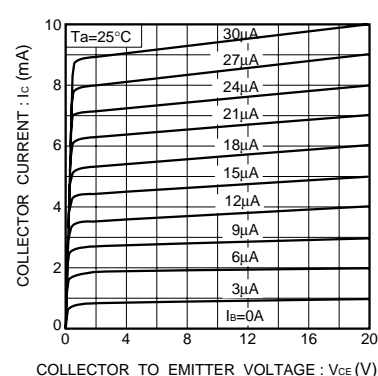


Fig.3 Grounded emitter output characteristics (II)

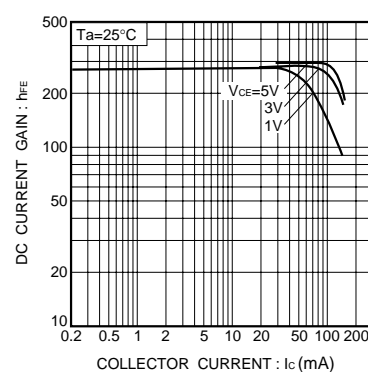


Fig.4 DC current gain vs. collector current (I)

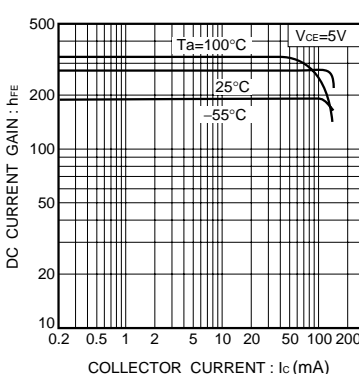


Fig.5 DC current gain vs. collector current (II)

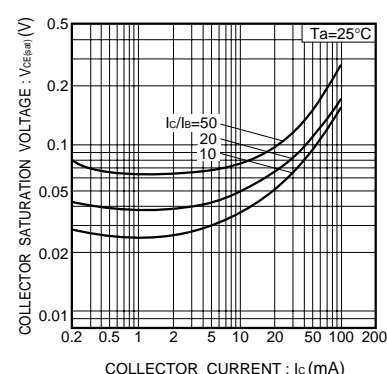


Fig.6 Collector-emitter saturation voltage vs. collector current

Transistors

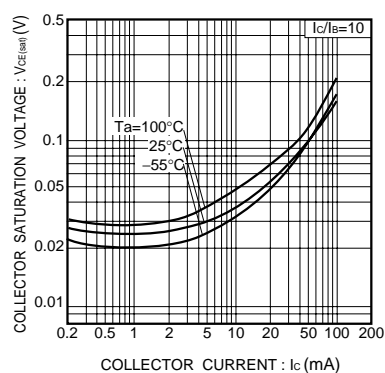


Fig.7 Collector-emitter saturation voltage vs. collector current (I)

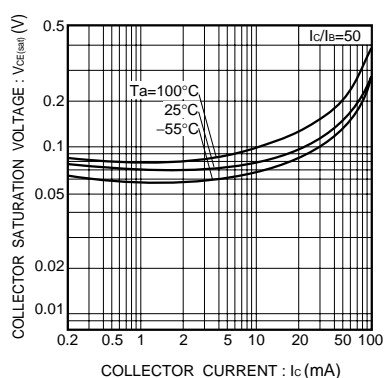


Fig.8 Collector-emitter saturation voltage vs. collector current (II)

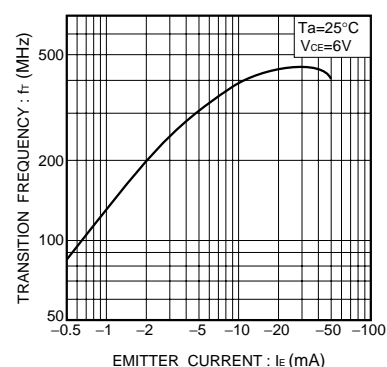


Fig.9 Gain bandwidth product vs. emitter current

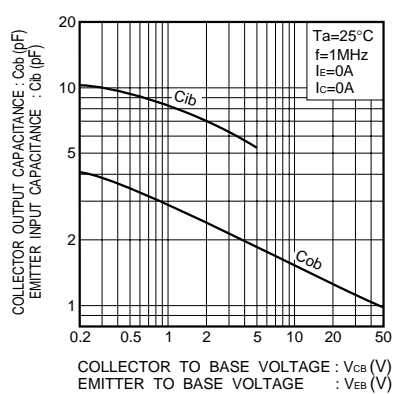


Fig.10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

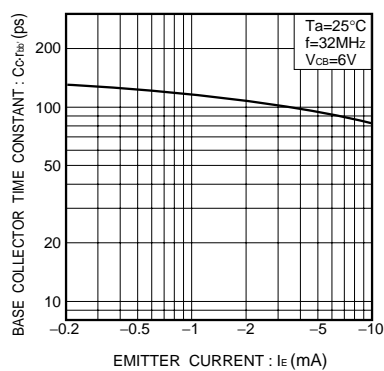


Fig.11 Base-collector time constant vs. emitter current

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