

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

**2SC4081UB**

## ●Applications

General purpose small signal amplifier

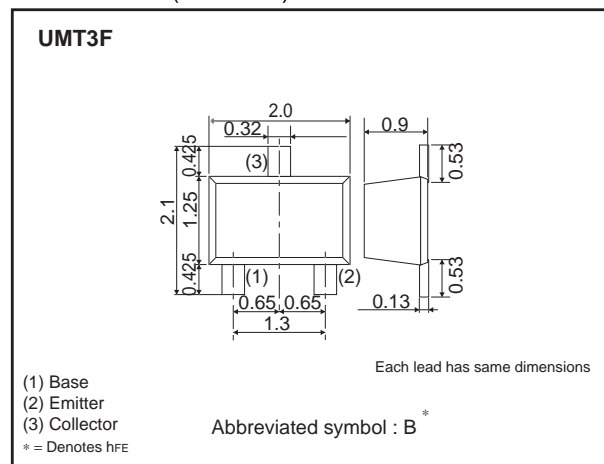
## ●Features

- 1) Low Cob.  
Cob=2.0pF (Typ.)
- 2) Complements the 2SA1576UB.

## ●Structure

NPN silicon epitaxial planar transistor

## ●Dimensions (Unit : mm)



## ●Absolute maximum (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CBO</sub>	60	V
Collector-emitter voltage	V <sub>CEO</sub>	50	V
Emitter-base voltage	V <sub>EBO</sub>	7	V
Collector current	I <sub>C</sub>	150	mA
	I <sub>CP</sub> *1	200	mA
Power dissipation	P <sub>D</sub> *2	200	mW
Junction temperature	T <sub>j</sub>	150	°C
Range of storage temperature	T <sub>stg</sub>	-55 to +150	°C

\*1 Pw=1ms Single pulse

\*2 Each terminal mounted on a recommended land

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	50	—	—	V	I <sub>C</sub> =1mA
Collector-base breakdown voltage	BV <sub>CBO</sub>	60	—	—	V	I <sub>C</sub> =50μA
Emitter-base breakdown voltage	BV <sub>EBO</sub>	7	—	—	V	I <sub>E</sub> =50μA
Collector cutoff current	I <sub>CBO</sub>	—	—	100	nA	V <sub>CB</sub> =60V
Emitter cutoff current	I <sub>EBO</sub>	—	—	100	nA	V <sub>EB</sub> =7V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	—	—	400	mV	I <sub>C</sub> /I <sub>B</sub> =50mA/5mA
DC current gain	h <sub>FE</sub>	120	—	390	—	V <sub>CE</sub> =6V, I <sub>C</sub> =1mA
Transition frequency	f <sub>T</sub>	—	180	—	MHz	V <sub>CE</sub> =12V, I <sub>E</sub> =-2mA, f=100MHz
Output capacitance	Cob	—	2.0	3.5	pF	V <sub>CB</sub> =12V, I <sub>E</sub> =0A, f=1MHz

## h<sub>FE</sub> rank categories

Rank	Q	R
h <sub>FE</sub>	120 to 270	180 to 390

# **Electrical characteristic curves**

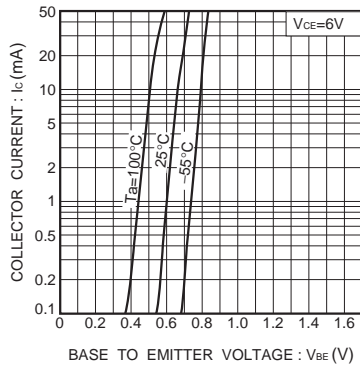


Fig.1 Grounded emitter propagation characteristics

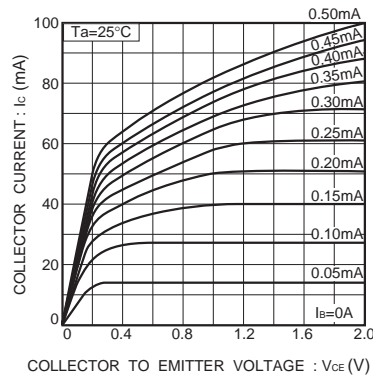


Fig.2 Grounded emitter output characteristics ( I )

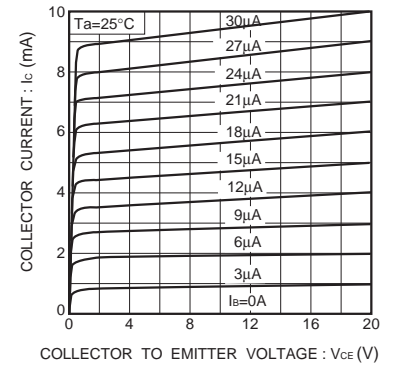


Fig.3 Grounded emitter output characteristics ( II )

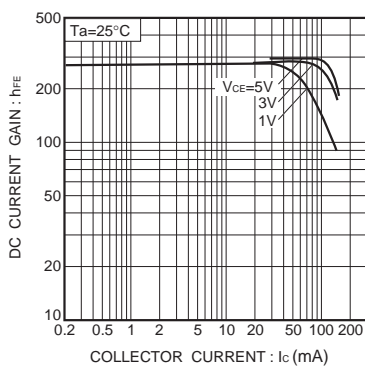


Fig.4 DC current gain vs. collector current ( I )

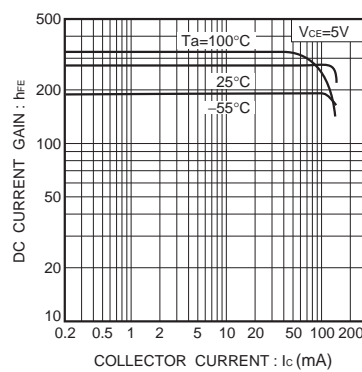


Fig.5 DC current gain vs. collector current ( II )

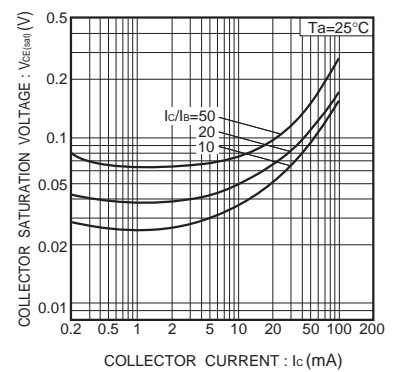


Fig.6 Collector-emitter saturation voltage vs. collector current

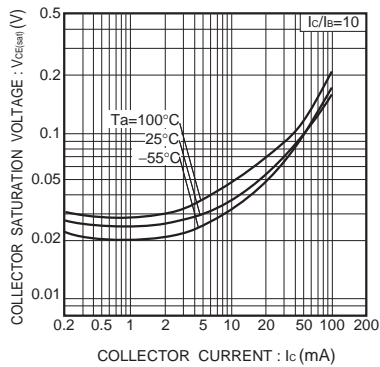


Fig.7 Collector-emitter saturation voltage vs. collector current ( I )

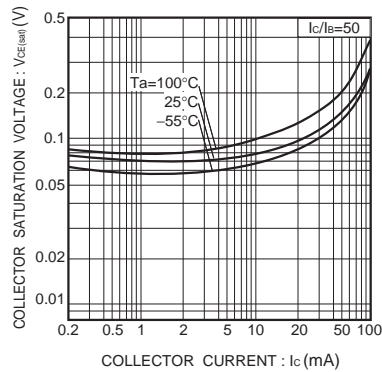


Fig.8 Collector-emitter saturation voltage vs. collector current ( II )

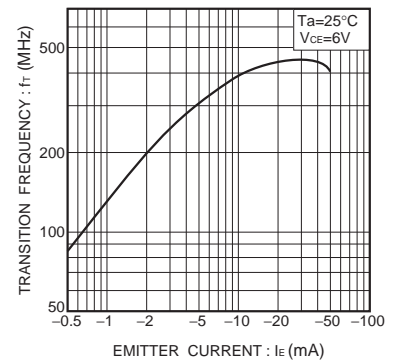


Fig.9 Gain bandwidth product vs. emitter current

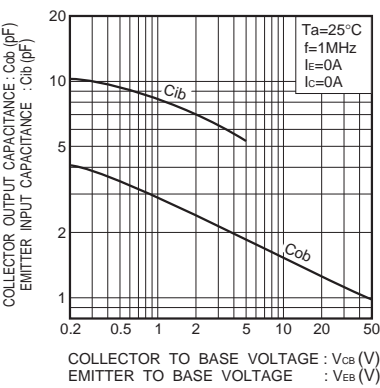


Fig.10 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

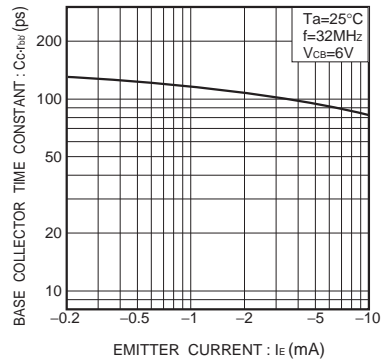


Fig.11 Base-collector time constant vs. emitter current

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