

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

## 2SC4081UB

### ● Applications

General purpose small signal amplifier

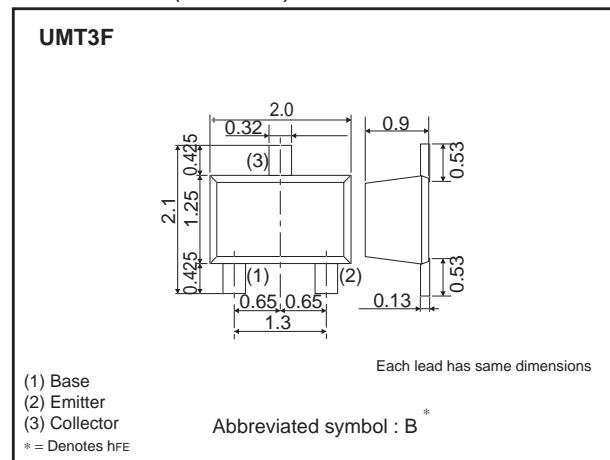
### ● Features

- 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	$V_{CBO}$	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	mA
Power dissipation	$P_D$ *2	200	mW
Junction temperature	$T_j$	150	°C
Range of storage temperature	$T_{stg}$	-55 to +150	°C

\*1  $P_w=1\text{ms}$  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	$BV_{CEO}$	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	$V_{CE(\text{sat})}$	—	—	400	mV	$I_C/I_B=50\text{mA}/5\text{mA}$
DC current gain	$h_{FE}$	120	—	390	—	$V_{CE}=6\text{V}$ , $I_C=1\text{mA}$
Transition frequency	$f_T$	—	180	—	MHz	$V_{CE}=12\text{V}$ , $I_E=-2\text{mA}$ , $f=100\text{MHz}$
Output capacitance	Cob	—	2.0	3.5	pF	$V_{CB}=12\text{V}$ , $I_E=0\text{A}$ , $f=1\text{MHz}$

### $h_{FE}$ rank categories

Rank	Q	R
$h_{FE}$	120 to 270	180 to 390

### ●Electrical characteristic curves

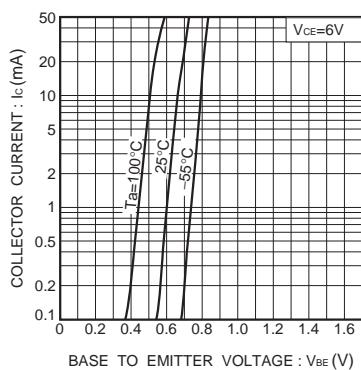


Fig.1 Grounded emitter propagation characteristics

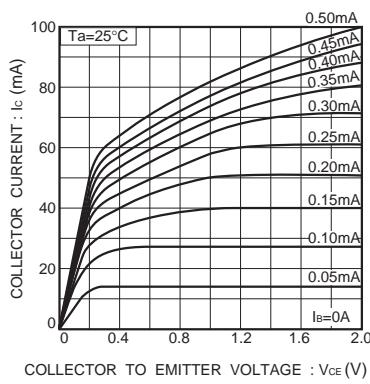


Fig.2 Grounded emitter output characteristics (I)

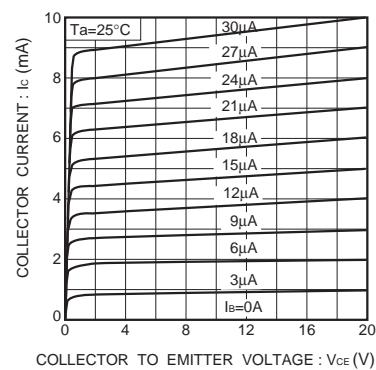


Fig.3 Grounded emitter output characteristics (II)

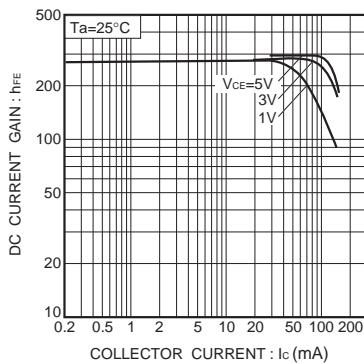


Fig.4 DC current gain vs. collector current (I)

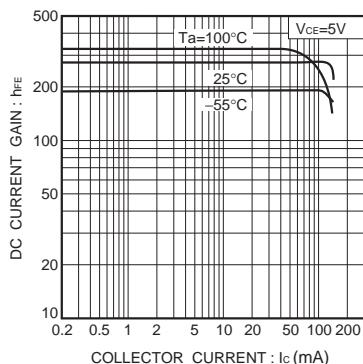


Fig.5 DC current gain vs. collector current (II)

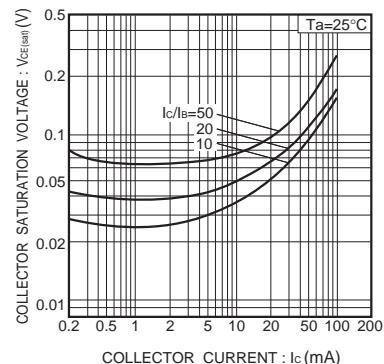


Fig.6 Collector-emitter saturation voltage vs. collector current

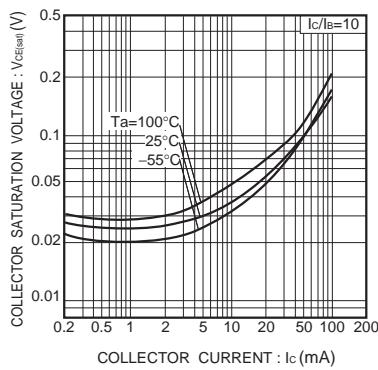


Fig.7 Collector-emitter saturation voltage vs. collector current (I)

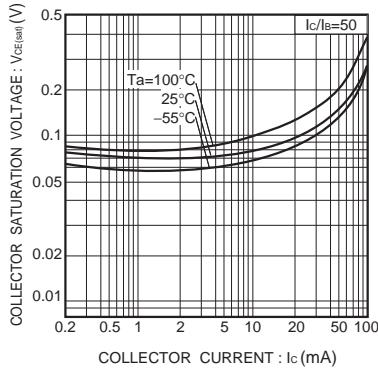


Fig.8 Collector-emitter saturation voltage vs. collector current (II)

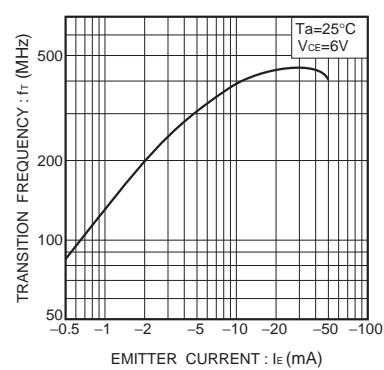


Fig.9 Gain bandwidth product vs. emitter current

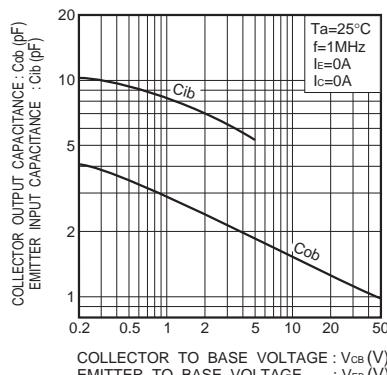


Fig.10 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

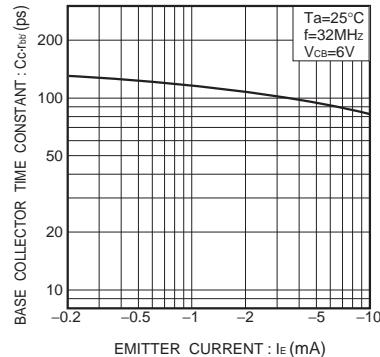


Fig.11 Base-collector time constant vs. emitter current

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