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

## 2SC4081UB

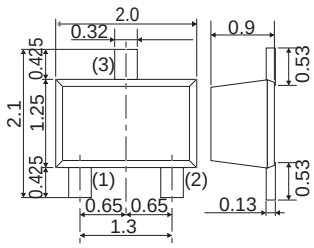
### ●Applications
General purpose small signal amplifier

### ●Features
1) Low Cob.
Cob=2.0pF (Typ.)
2) Complements the 2SA4081.

### ●Structure
NPN silicon epitaxial planar transistor

### ●Dimensions (Unit : mm)

**UMT3F**




Each lead has same dimensions

(1) Base
(2) Emitter
(3) Collector
* = Denotes $h_{FE}$

Abbreviated symbol : B*

### ●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 | Tj | 150 | °C |
| Range of storage temperature | Tstg | −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 | $BV_{CEO}$ | 50 | – | – | V | $I_C$=1mA |
| Collector-base breakdown voltage | $BV_{CBO}$ | 60 | – | – | V | $I_C$=50μA |
| Emitter-base breakdown voltage | $BV_{EBO}$ | 7 | – | – | V | $I_E$=50μA |
| Collector cutoff current | $I_{CBO}$ | – | – | 100 | nA | $V_{CB}$=60V |
| Emitter cutoff current | $I_{EBO}$ | – | – | 100 | nA | $V_{EB}$=7V |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | – | – | 400 | mV | $I_C/I_B$=50mA/5mA |
| DC current gain | $h_{FE}$ | 82 | – | 560 | – | $V_{CE}$=6V, $I_C$=1mA |
| Transition frequency | $f_T$ | – | 180 | – | MHz | $V_{CE}$=12V, $I_E$=−2mA, f=100MHz |
| Output capacitance | Cob | – | 2.0 | 3.5 | pF | $V_{CB}$=12V, $I_E$=0A, f=1MHz |

### $h_{FE}$ rank categories

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

## ●Electrical characterristic curves

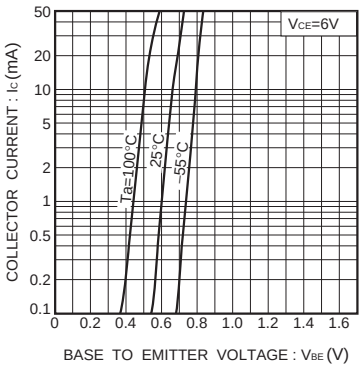



Fig.1 Grounded emitter propagation characteristics

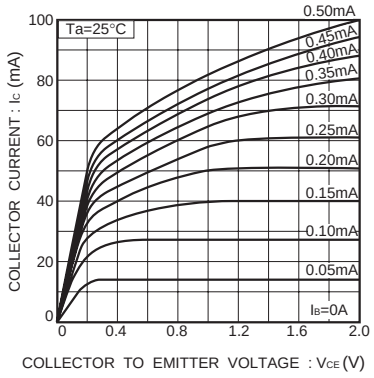



Fig.2 Grounded emitter output characteristics ( I )

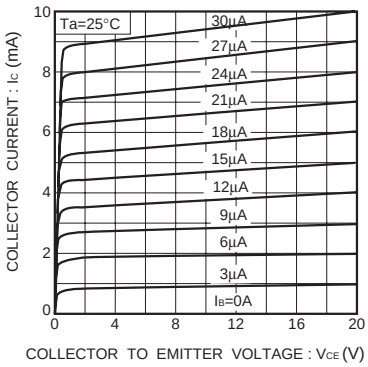



Fig.3 Grounded emitter output characteristics ( II )

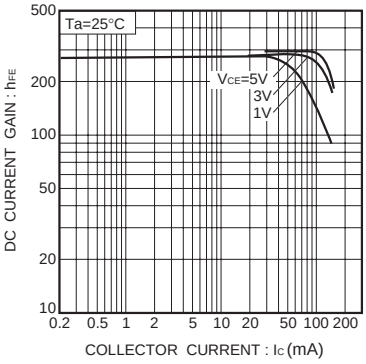



Fig.4 DC current gain vs. collector current ( I )

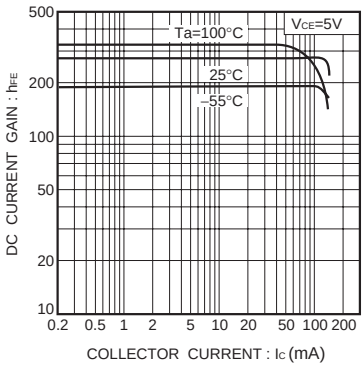



Fig.5 DC current gain vs. collector current ( II )

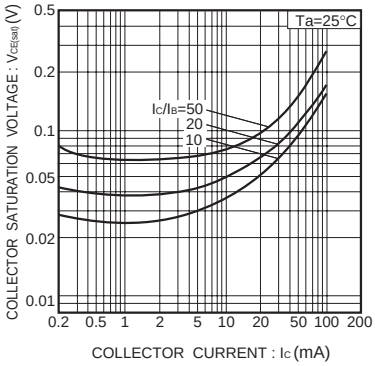



Fig. 6 Collector-emitter saturation voltage vs. collector current

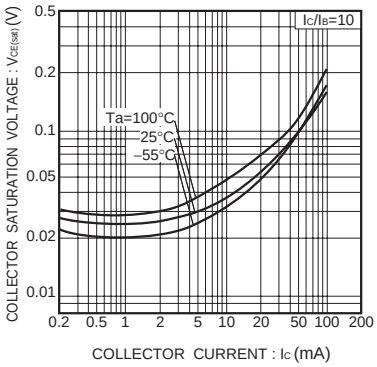



Fig.7 Collector-emitter saturation voltage vs. collector current ( I )

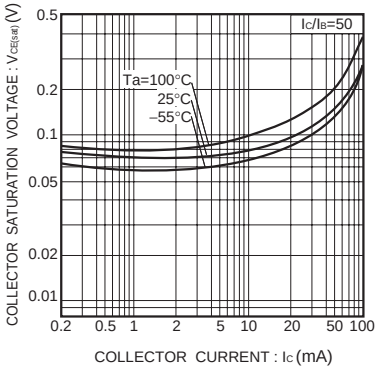



Fig.8 Collector-emitter saturation voltage vs. collector current (II)

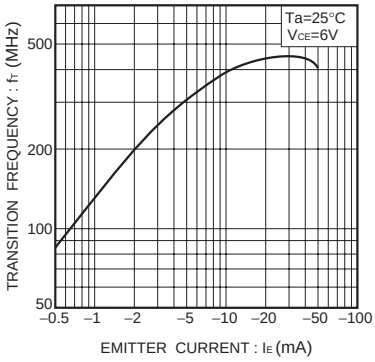



Fig.9 Gain bandwidth product vs. emitter current

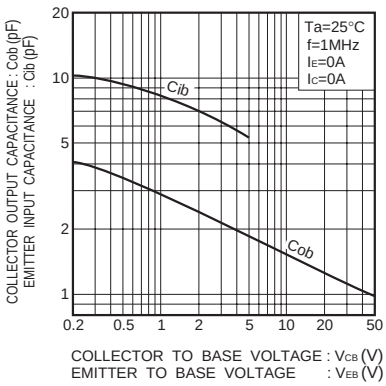



Fig.10 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

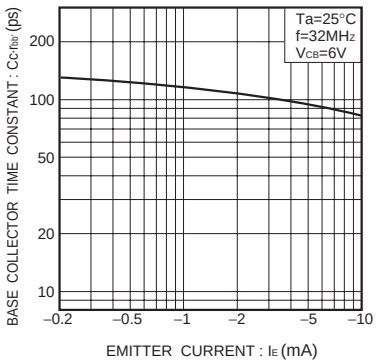



Fig.11 Base-collector time constant vs. emitter current

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