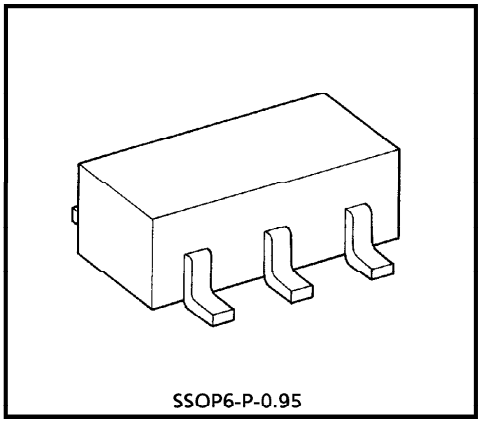
TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

# TA4100F

## UHF VHF RF, MIX APPLICATION

**FEATURES**

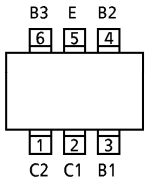
- High $f_T$. ($f_T$ = 5GHz)
- Differential Circuit is Composed of 3 Transistors.



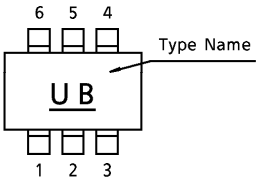
SSOP6-P-0.95

Weight : 0.013g (Typ.)

**PIN ASSIGNMENT** (TOP VIEW)




**MARKING**




C ... COLLECTOR
B ... BASE
E ... EMITTER

**MAXIMUM RATING** (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|---|---|---|
| Collector-Base Voltage | $V_{CBO}$ | 10 | V |
| Collector-Emitter Voltage | $V_{CEO}$ | 5 | V |
| Collector Current | $I_C$ | 15 (*1) , 30 (*2) | mA |
| Total Power Dissipation | $P_D$ (*3) | 300 | mW |
| Operating Temperature | $T_{opr}$ | −40~85 | °C |
| Storage Temperature Range | $T_{stg}$ | −55~125 | °C |

(*1) Q1, Q2 (*2) Q3

(*3) When mounted on the glass epoxy board of 2.5cm$^2$ × 1.6t

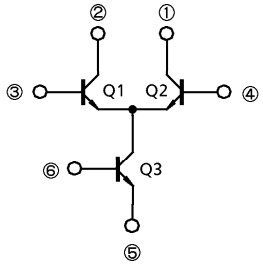
961001EBA2

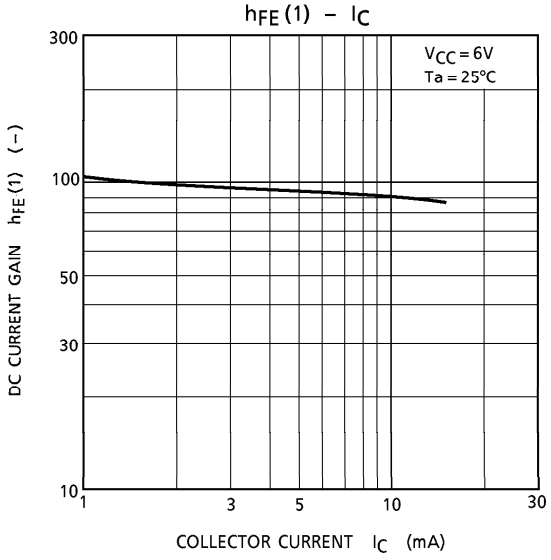
**ELECTRICAL CHARACTERISTICS** (Ta = 25°C)

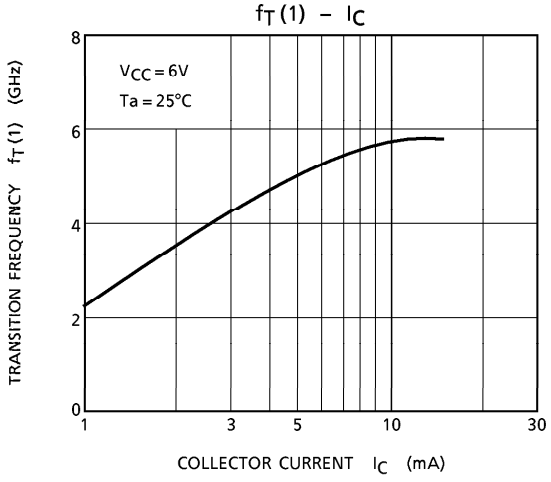
| CHARACTERISTIC | SYMBOL | TEST CIR-CUIT | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|---|
| Collector-Emitter Voltage | $V_{CEO}$ (1) | — | $I_{C1}$ = 1.0mA, ($I_{B3}$ = 1mA) | 5 | — | — | V |
| | $V_{CEO}$ (2) | — | $I_{C2}$ = 1.0mA, ($I_{B3}$ = 1mA) | 5 | — | — | |
| | $V_{CEO}$ (3) | — | $I_{B1}$ ($I_{C3}$) = 1.0mA | 5 | — | — | |
| DC Current Gain | $h_{FE}$ (1) | — | $V_{C1}$ = 6V, $I_{C1}$ = 5mA, ($I_{B3}$ = 1mA) | 50 | 100 | 160 | — |
| | $h_{FE}$ (2) | — | $V_{C2}$ = 6V, $I_{C1}$ = 5mA, ($I_{B3}$ = 1mA) | 50 | 100 | 160 | |
| | $h_{FE}$ (3) | — | $V_{B1}$ ($V_{C3}$) = 6V, $I_{B1}$ ($I_{C3}$) = 10mA | 70 | 140 | 250 | |
| Transition Frequency | $f_T$ (1) | — | $V_{C1}$ = 6V, $I_{C1}$ = 5mA, ($I_{B3}$ = 1mA) | 3.5 | 5.0 | 7.0 | GHz |
| | $f_T$ (2) | — | $V_{C2}$ = 6V, $I_{C2}$ = 5mA, ($I_{B3}$ = 1mA) | 3.5 | 5.0 | 7.0 | |
| | $f_T$ (3) | — | $V_{B1}$ ($V_{C3}$) = 4V, $I_{B1}$ ($I_{C3}$) = 10mA | 3.5 | 5.0 | 7.0 | |

※ (1) ... Characteristics of Q1
(2) ... Characteristics of Q2
(3) ... Characteristics of Q3

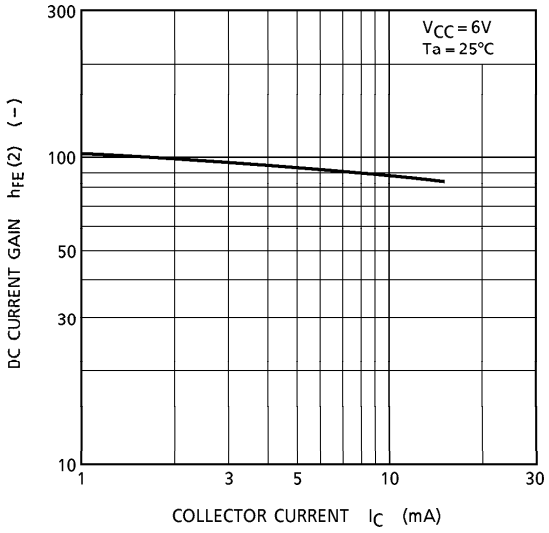
**EQUIVALENT CIRCUIT**



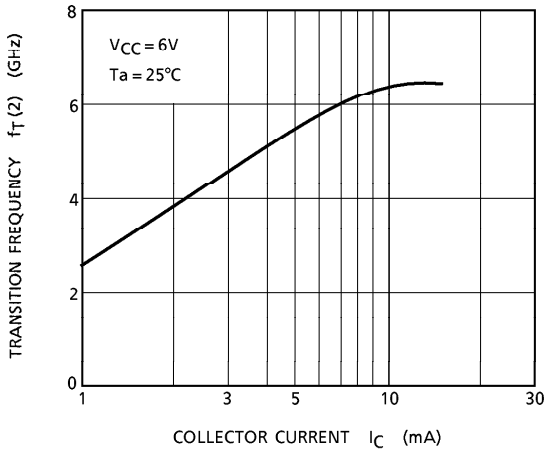



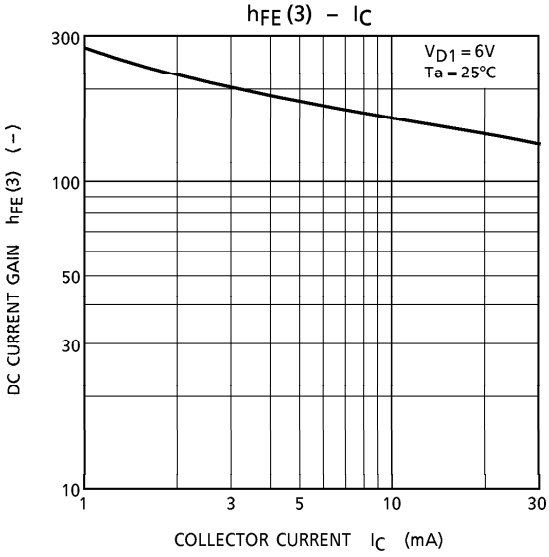
$h_{FE}$ (2) – $I_C$



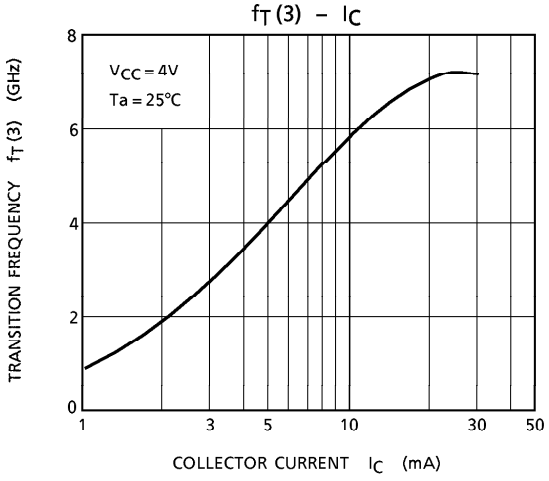

$f_T$ (2) – $I_C$




$h_{FE}$ (3) – $I_C$




$f_T$ (3) – $I_C$



**OUTLINE DRAWING**

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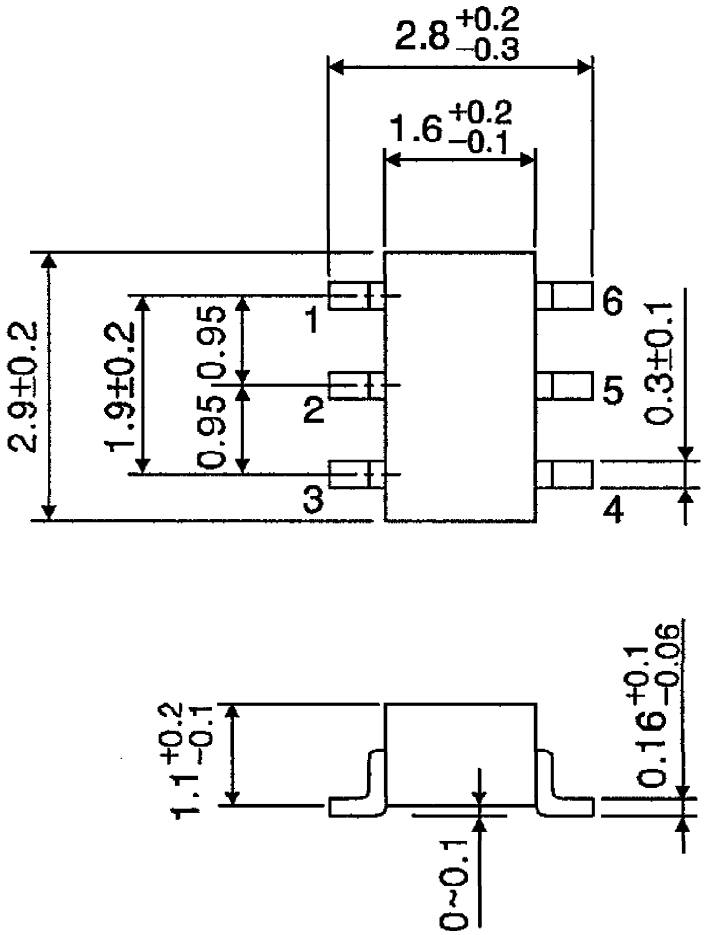
Unit : mm




Weight : 0.013g (Typ.)