TOSHIBA Bipolar Linear Integrated Circuit Silicon Monolithic

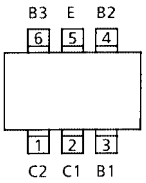
TA4100F

UHF VHF RF, MIX Application

Features

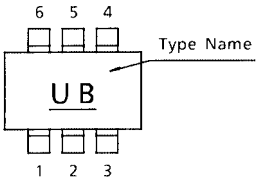
- High f_T. (f_T = 5 GHz)
- Differential circuit is composed of 3 transistors.

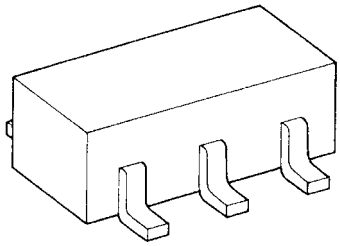
Pin Assignment (top view)



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

Marking





SSOP6-P-0.95

Weight: 0.013 g (typ.)

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Maximum Ratings (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 (Note 1)	mA
		30 (Note 2)	
Total power dissipation	P_D (Note3)	300	mW
Operating temperature	T_{opr}	−40~85	°C
Storage temperature range	T_{stg}	−55~125	°C

Note 1: Q1, Q2

Note 2: Q3

Note 3: When mounted on the glass epoxy board of 2.5 cm^2 × 1.6 t

Electrical Characteristics (Ta = 25°C)

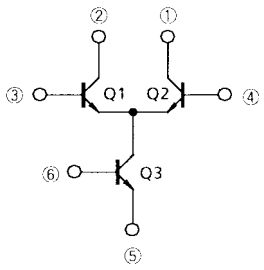
Characteristics	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector-emitter voltage	V_{CEO} (1)	—	I_{C1} = 1.0 mA, (I_{B3} = 1 mA) (Note 4)	5	—	—	V
	V_{CEO} (2)	—	I_{C2} = 1.0 mA, (I_{B3} = 1 mA) (Note 5)	5	—	—	
	V_{CEO} (3)	—	I_{B1} (I_{C3} = 1.0 mA) (Note 6)	5	—	—	
DC Current gain	h_{FE} (1)	—	V_{C1} = 6 V, I_{C1} = 5 mA, (I_{B3} = 1 mA) (Note 4)	50	100	160	—
	h_{FE} (2)	—	V_{C2} = 6 V, I_{C1} = 5 mA, (I_{B3} = 1 mA) (Note 5)	50	100	160	
	h_{FE} (3)	—	V_{B1} (V_{C3}) = 6 V, I_{B1} (I_{C3}) = 10 mA (Note 6)	70	140	250	
Transition Frequency	f_T (1)	—	V_{C1} = 6 V, I_{C1} = 5 mA, (I_{B3} = 1 mA) (Note 4)	3.5	5.0	7.0	GHz
	f_T (2)	—	V_{C2} = 6 V, I_{C2} = 5 mA, (I_{B3} = 1 mA) (Note 5)	3.5	5.0	7.0	
	f_T (3)	—	V_{B1} (V_{C3}) = 4 V, I_{B1} (I_{C3}) = 10 mA (Note 6)	3.5	5.0	7.0	

Note 4: Characteristics of Q1

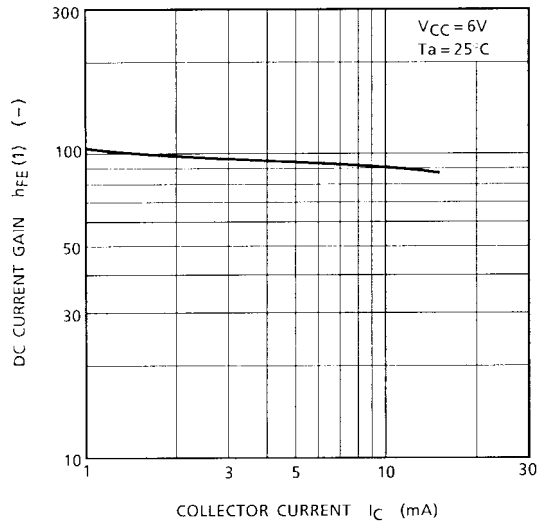
Note 5: Characteristics of Q2

Note 6: Characteristics of Q3

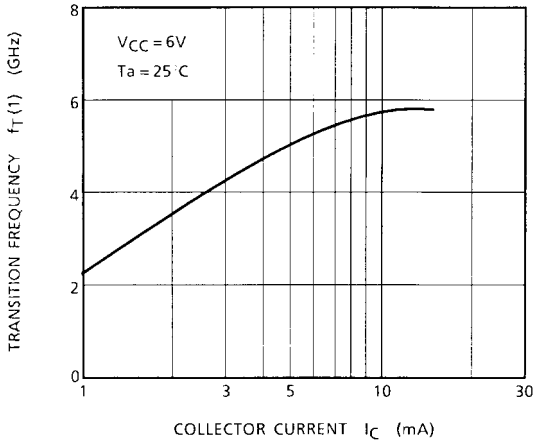
Equivalent Circuit



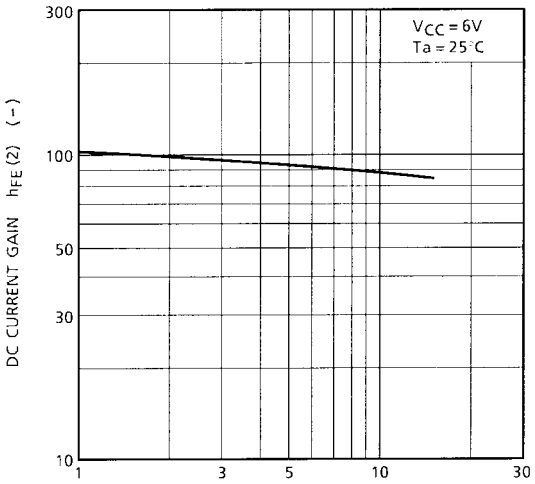
h_{FE} (1) — I_C



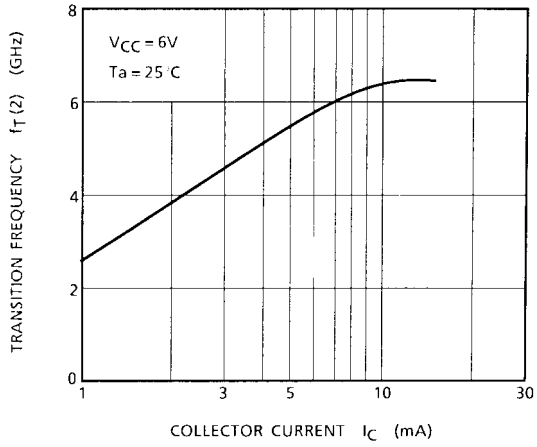
f_T (1) — I_C



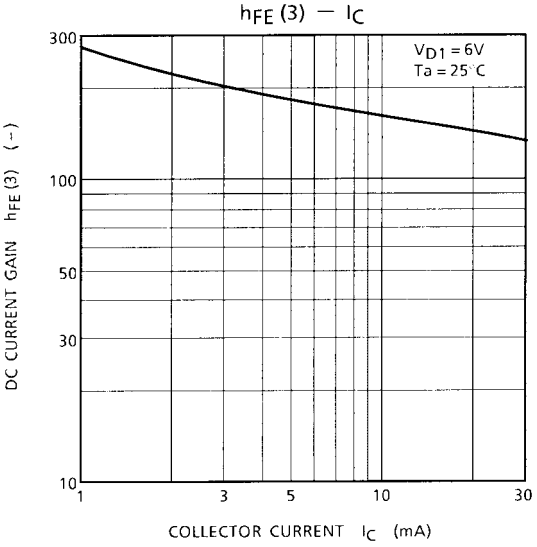
h_{FE} (2) — I_C



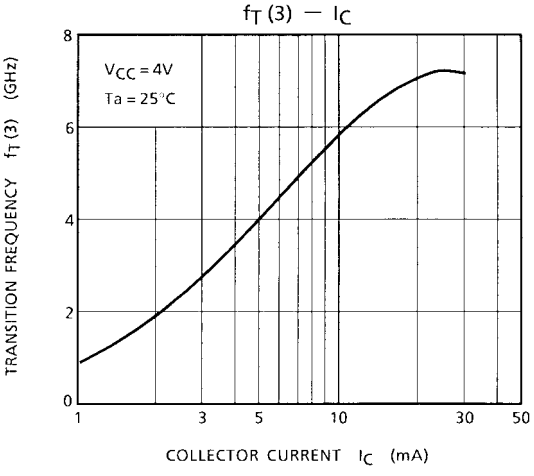
f_T (2) — I_C



h_{FE} (3) — I_C

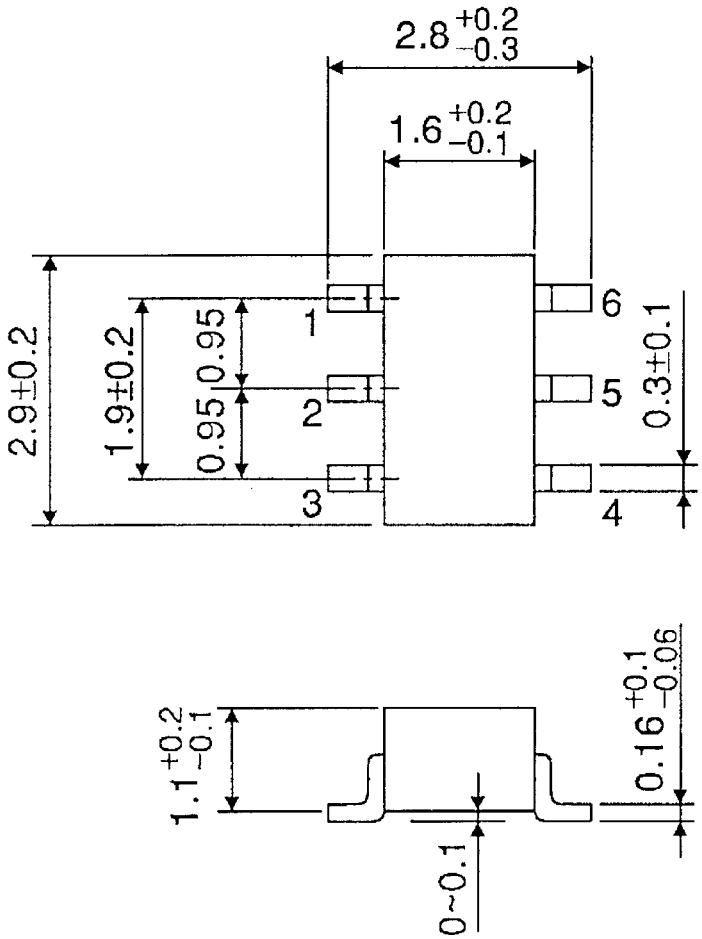


f_T (3) — I_C



Package Dimensions

SSOP6-P-0.95 Unit : mm



Weight : 0.013g (Typ.)