

MT3S37T

VCO OSCILLETOR STAGE

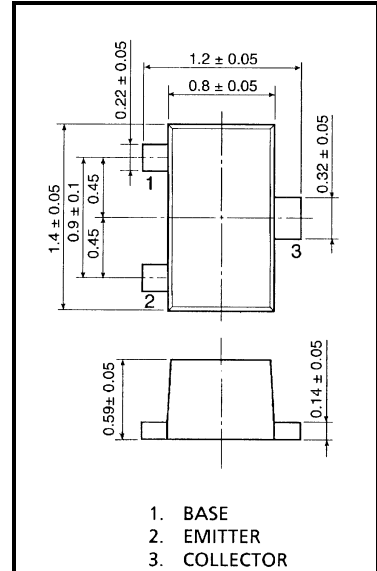
UHF LOW NOISE AMPLIFIER APPLICATION

Unit: mm

FEATURES

- Low Noise Figure :NF=1.2dB (@f=2GHz)
- High Gain:|S21e|²=12.0dB (@f=2GHz)

Marking



1. BASE
2. EMITTER
3. COLLECTOR

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-Base voltage	V _{CB0}	8	V
Collector-Emitter voltage	V _{CE0}	4.5	V
Emitter-Base voltage	V _{EBO}	1.5	V
Collector-Current	I _C	50	mA
Base-Current	I _B	25	mA
Collector Power dissipation	P _C	100	mW
Junction temperature	T _j	150	°C
Storage temperature Range	T _{stg}	-55~150	°C

TESM	
JEDEC	—
JEITA	—
TOSHIBA	2-1B1A

Weight:0.0022g (typ.)

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/“Derating Concept and Methods”) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Microwave Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition Frequency	fT	V _{CE} =3V, I _C =20mA, f=2GHz	15	19	-	GHz
Insertion Gain	S _{21e} ² (1)	V _{CE} =3V, I _C =20mA, f=1GHz	15	17	-	dB
	S _{21e} ² (2)	V _{CE} =3V, I _C =20mA, f=2GHz	10	12	-	dB
Noise Figure	NF(1)	V _{CE} =3V, I _C =3mA, f=1GHz	-	0.9	-	dB
	NF(2)	V _{CE} =3V, I _C =3mA, f=2GHz	-	1.2	1.8	dB

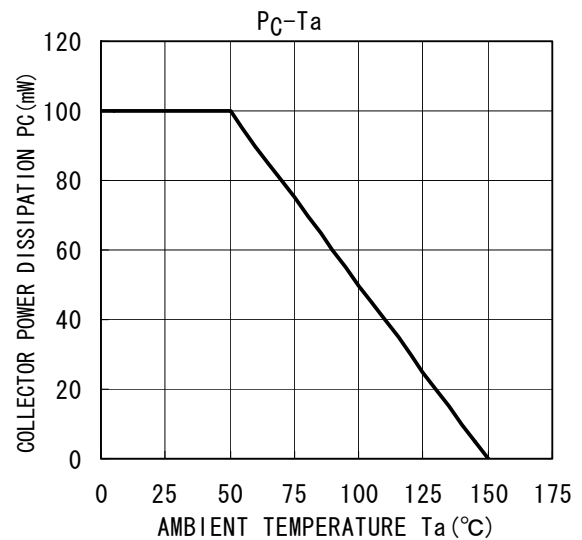
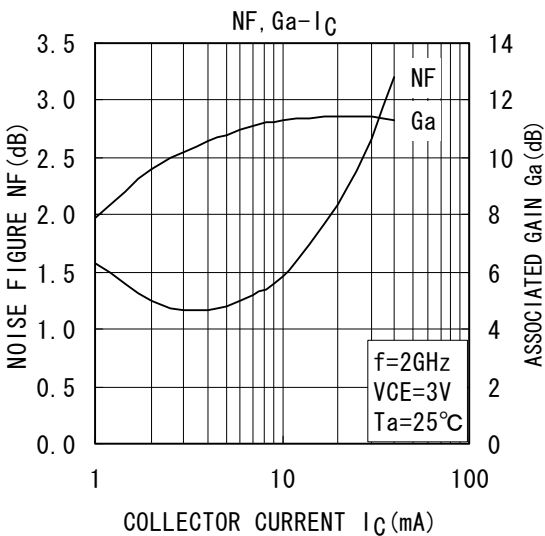
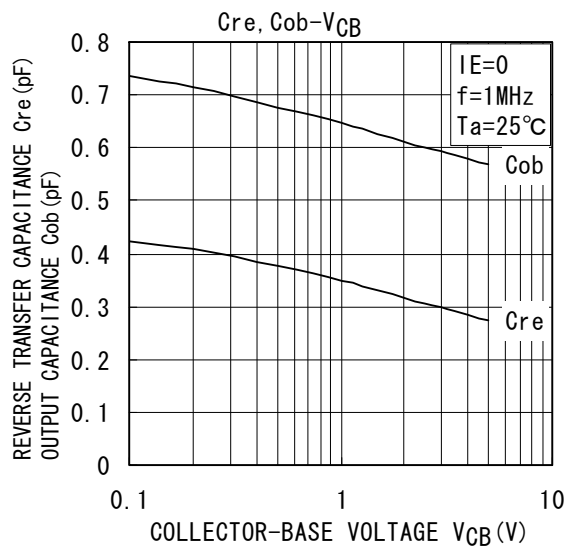
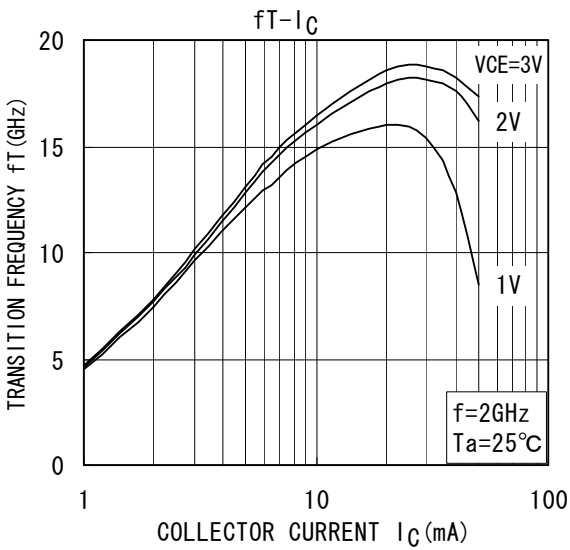
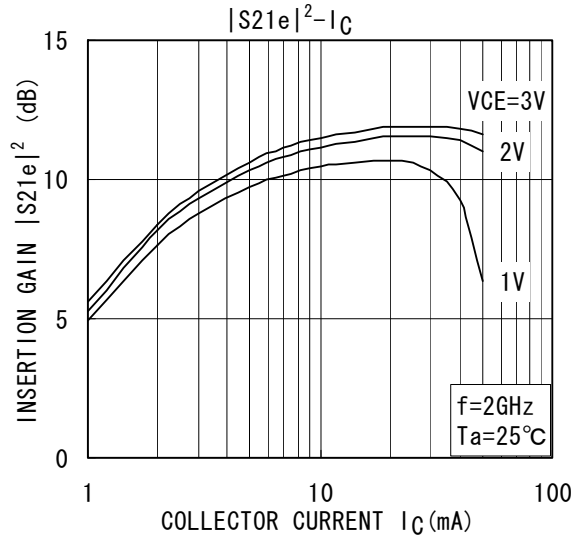
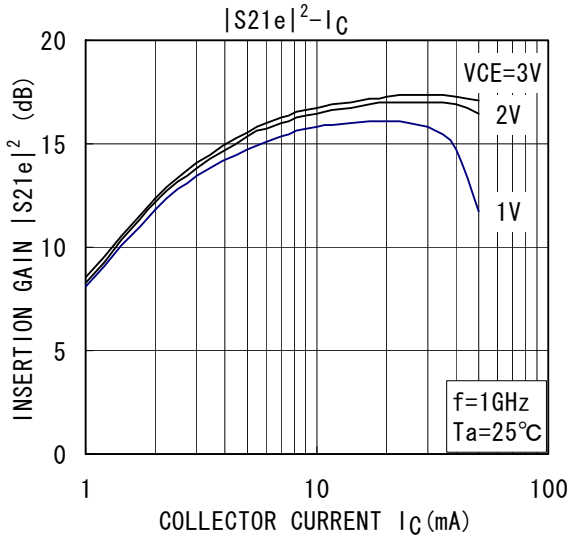
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector Cut-off Current	I _{CBO}	V _{CB} =8V, I _E =0	-	-	1	μA
Emitter Cut-off Current	I _{EBO}	V _{EB} =1V, I _C =0	-	-	1	μA
DC Current Gain	hFE	V _{CE} =3V, I _C =20mA	70	-	140	-
Output Capacitance	C _{ob}	V _{CB} =1V, I _E =0, f=1MHz	-	0.66	1.0	pF
Reverse Transistor Capacitance	C _{re}	V _{CB} =1V, I _E =0, f=1MHz (Note 1)	-	0.35	0.65	pF

Note 1: Cre is measured by 3 terminal method with capacitance bridge.

Caution: This device is sensitive to electrostatic discharge.

Please make enough tool and equipment earthed when you handle.



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20070701-EN GENERAL

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