

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANER TYPE

MT3S35T

VCO Oscillator Stage

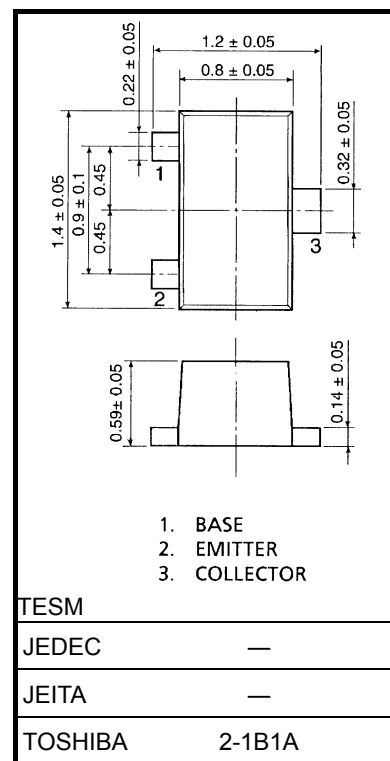
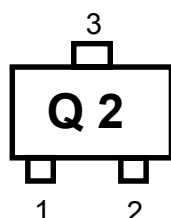
UHF Low Noise Amplifier Application

Unit: mm

Features

- Low Noise Figure :NF=1.4dB (@f=2GHz)
- High Gain:|S_{21e}|²=13.0dB (@f=2GHz)

Marking



Weight:0.0022g (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-Base voltage	V _{CBO}	8	V
Collector-Emitter voltage	V _{CEO}	4.5	V
Emitter-Base voltage	V _{EBO}	1.5	V
Collector-Current	I _C	24	mA
Base-Current	I _B	12	mA
Collector Power dissipation	P _C	100	mW
Junction temperature	T _j	150	°C
Storage temperature Range	T _{stg}	-55~150	°C

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	f _T	V _{CE} =3V, I _C =10mA, f=2GHz	16	20	-	GHz
Insertion Gain	S _{21e} ² (1)	V _{CE} =3V, I _C =10mA, f=1GHz	16	18	-	dB
	S _{21e} ² (2)	V _{CE} =3V, I _C =10mA, f=2GHz	11	13	-	dB
Noise Figure	NF(1)	V _{CE} =3V, I _C =2mA, f=1GHz	-	1.1	-	dB
	NF(2)	V _{CE} =3V, I _C =2mA, f=2GHz	-	1.4	1.9	dB

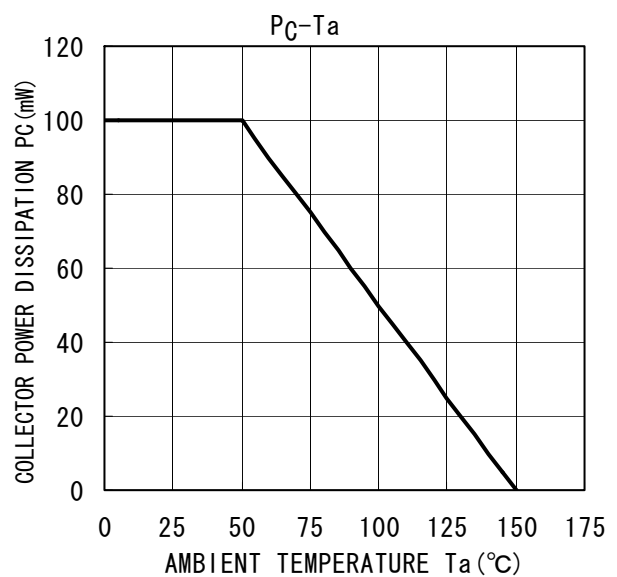
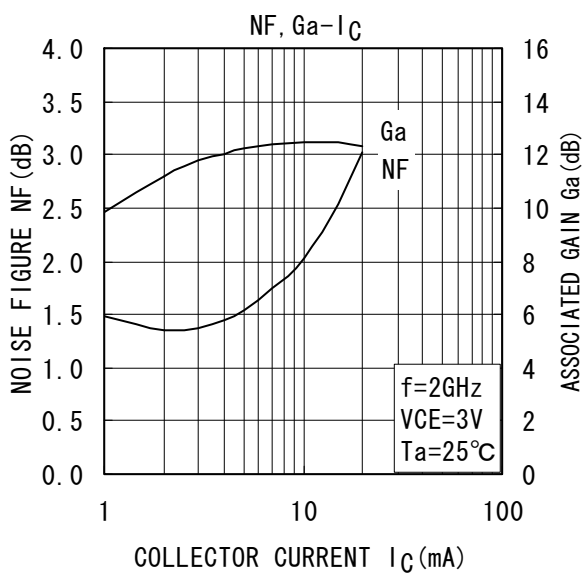
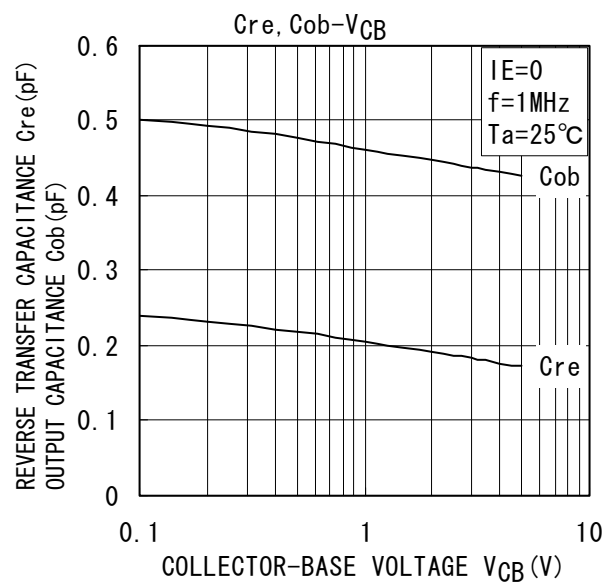
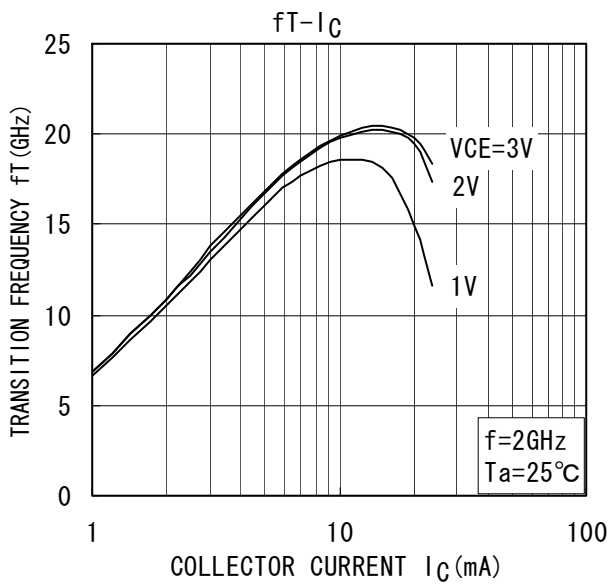
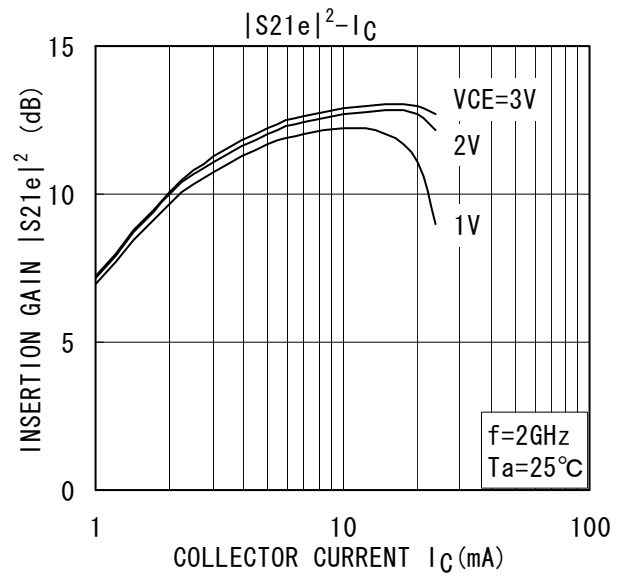
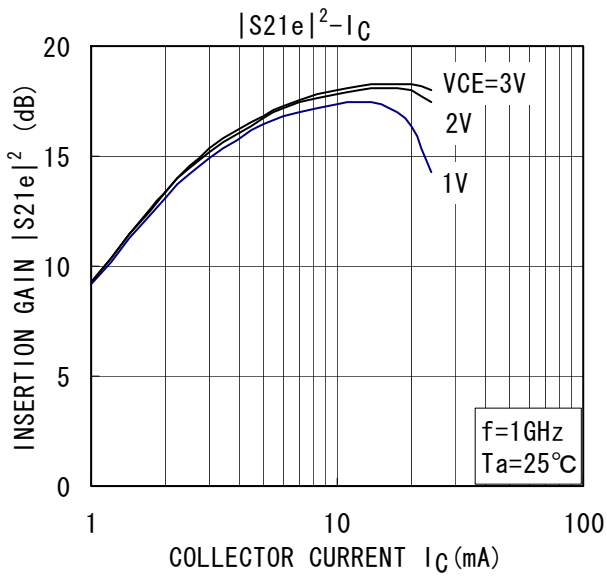
Electrical Characteristics (Ta = 25°C)

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	h _{FE}	V _{CE} =3V, I _C =10mA	70	-	140	-
Output Capacitance	C _{ob}	V _{CB} =1V, I _E =0, f=1MHz	-	0.46	0.75	pF
Reverse Transistor Capacitance	C _{re}	V _{CB} =1V, I _E =0, f=1MHz (Note 1)	-	0.21	0.4	pF

Note 1: C_{re} 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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