

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANER TYPE

MT3S36T

VCO Oscillator Stage

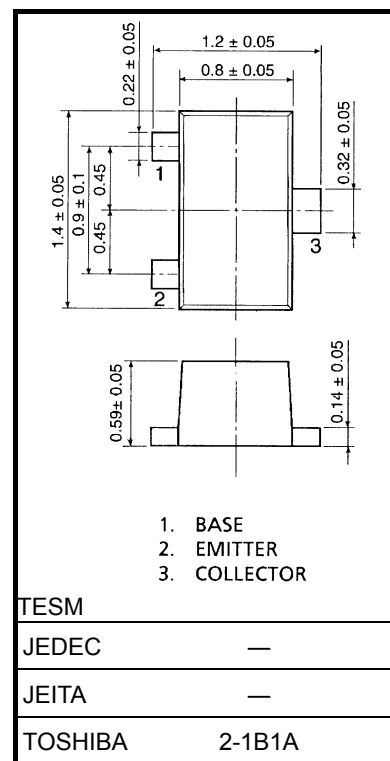
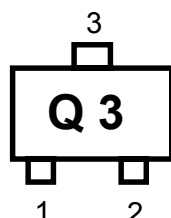
UHF Low Noise Amplifier Application

Unit: mm

Features

- Low Noise Figure :NF=1.3dB (@f=2GHz)
- High Gain:|S_{21e}|²=12.5dB (@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	36	mA
Base-Current	I _B	18	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	fT	VCE=3V, IC=15mA, f=2GHz	15	19	-	GHz
Insertion Gain	S21e ² (1)	VCE=3V, IC=15mA, f=1GHz	15	17.5	-	dB
	S21e ² (2)	VCE=3V, IC=15mA, f=2GHz	10	12.5	-	dB
Noise Figure	NF(1)	VCE=3V, IC=3mA, f=1GHz	-	1.1	-	dB
	NF(2)	VCE=3V, IC=3mA, f=2GHz	-	1.3	1.8	dB

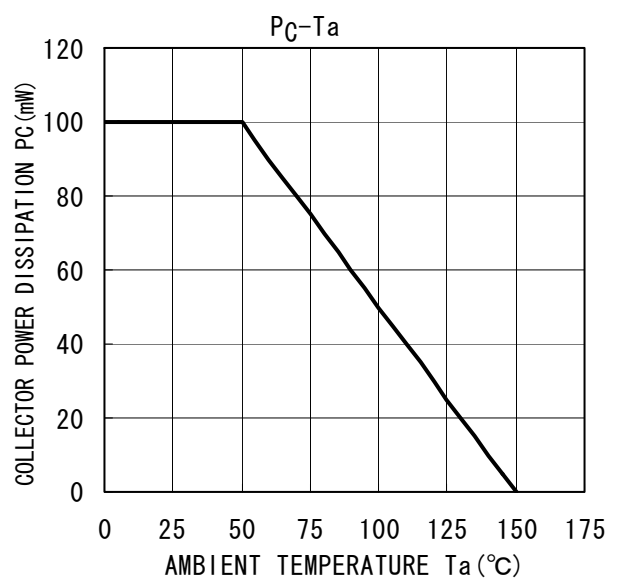
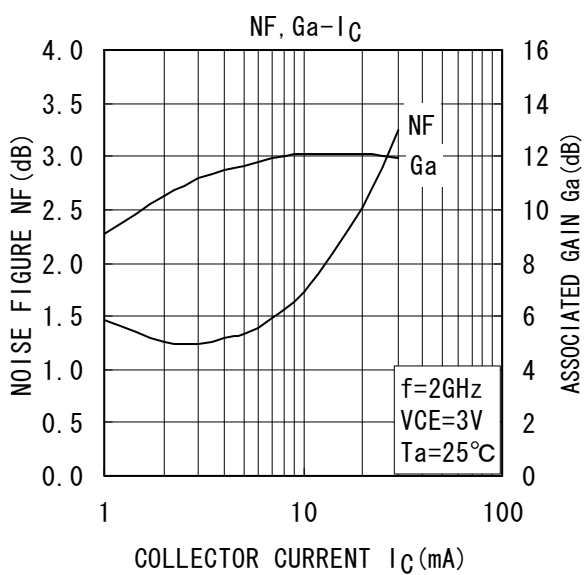
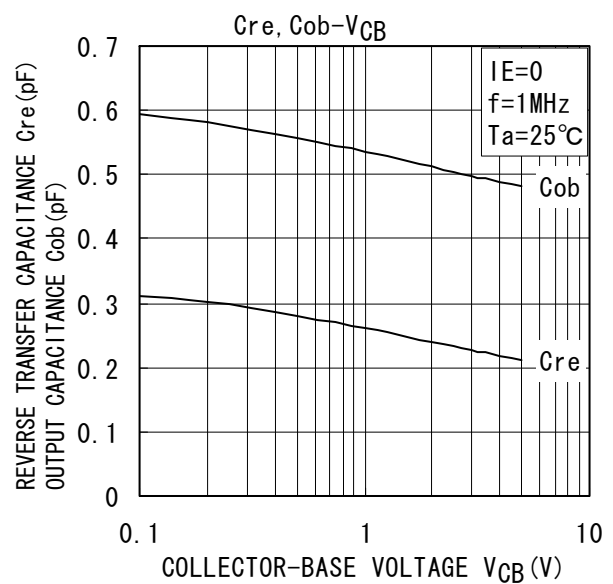
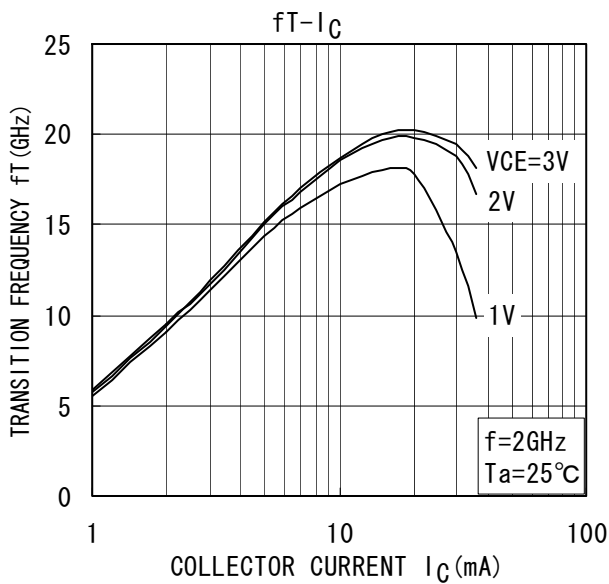
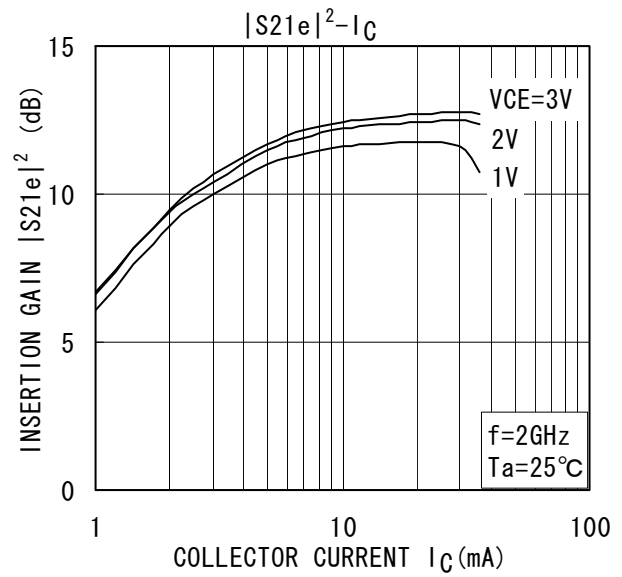
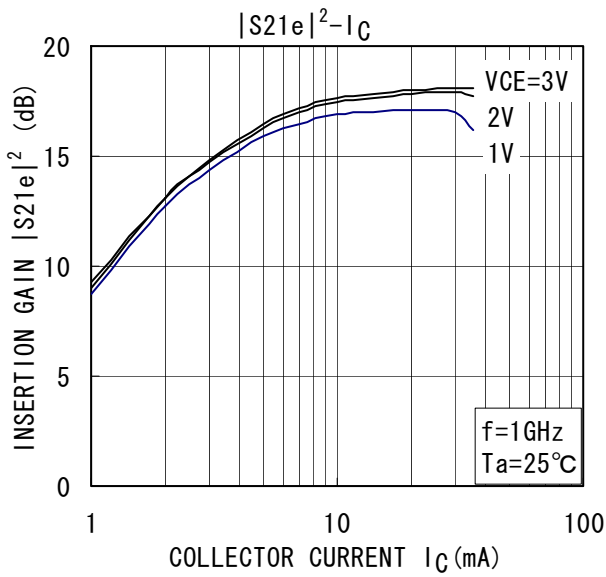
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector Cut-off Current	ICBO	VCB=8V, IE=0	-	-	1	μA
Emitter Cut-off Current	IEBO	VEB=1V, IC=0	-	-	1	μA
DC Current Gain	hFE	VCE=3V, IC=10mA	70	-	140	-
Output Capacitance	Cob	VCB=1V, IE=0, f=1MHz	-	0.55	0.85	pF
Reverse Transistor Capacitance	Cre	VCB=1V, IE=0, f=1MHz (Note 1)	-	0.26	0.5	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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