

TOSHIBA TRANSISTOR SILICON-GERMANIUM NPN EPITAXIAL PLANER TYPE

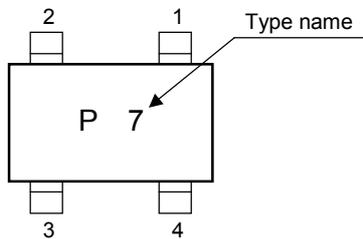
# MT4S101U

UHF LOW NOISE AMPLIFIER APPLICATION

## FEATURES

- Low Noise Figure :NF=0.8dB (@f=2GHz)
- High Gain:|S<sub>21e</sub>|<sup>2</sup>=16.0dB (@f=2GHz)

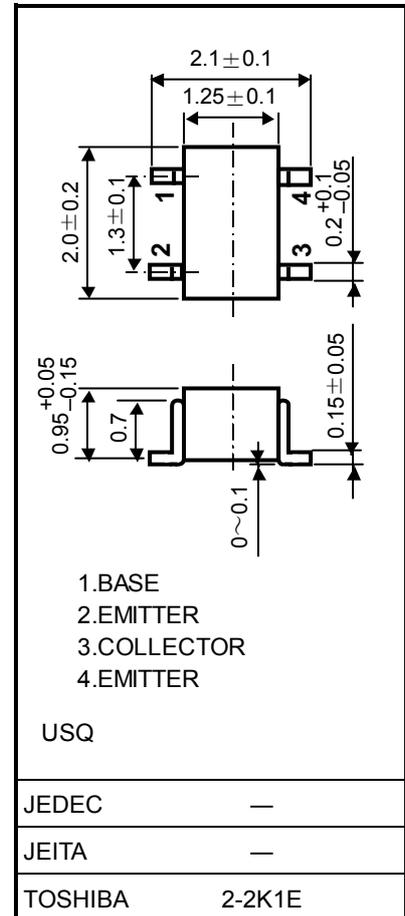
## Marking



## Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-Base voltage	V <sub>CB0</sub>	6	V
Collector-Emitter voltage	V <sub>CEO</sub>	3	V
Emitter-Base voltage	V <sub>EBO</sub>	1.2	V
Collector-Current	I <sub>C</sub>	10	mA
Base-Current	I <sub>B</sub>	5	mA
Collector Power dissipation	P <sub>C</sub>	30	mW
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature Range	T <sub>stg</sub>	-55~150	°C

Unit: mm



Weight: 0.006 g (typ.)

**Microwave Characteristics (Ta = 25°C)**

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition Frequency	$f_T$	$V_{CE}=2V, I_C=7mA, f=2GHz$	17	21	-	GHz
Insertion Gain	$ S_{21e} ^2$	$V_{CE}=2V, I_C=7mA, f=2GHz$	13.5	16	-	dB
Noise Figure	NF	$V_{CE}=2V, I_C=5mA, f=2GHz$	-	0.8	1.05	dB

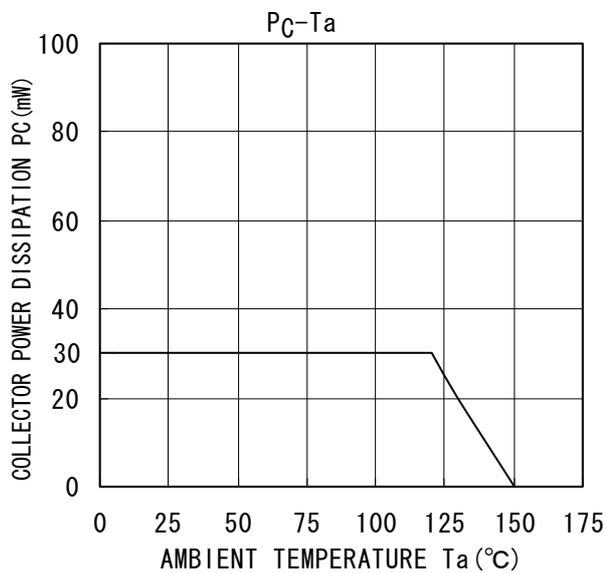
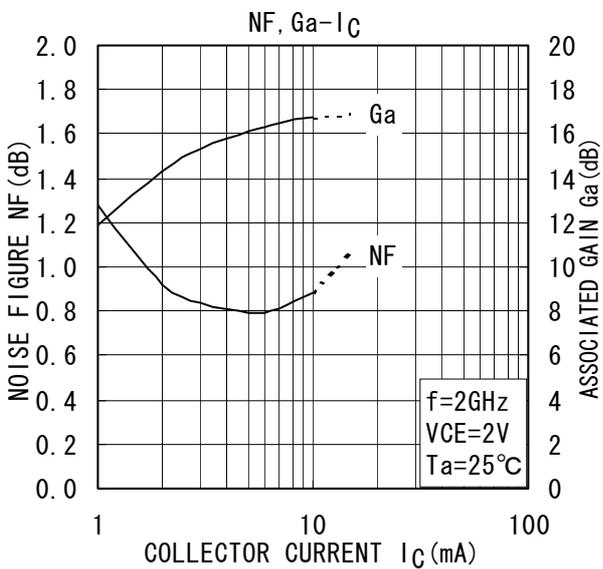
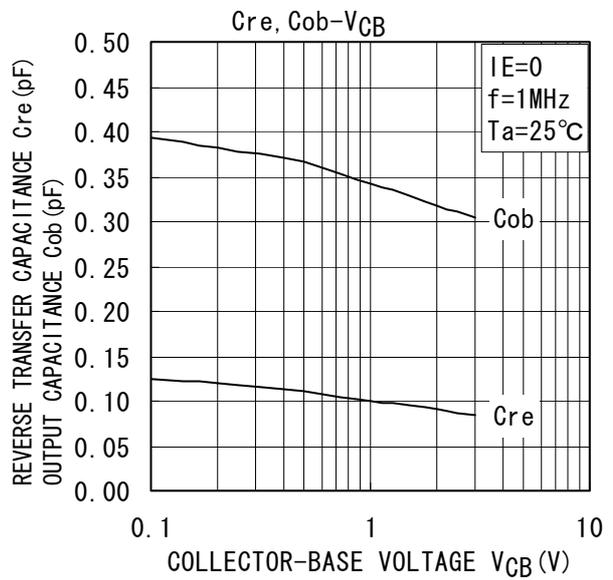
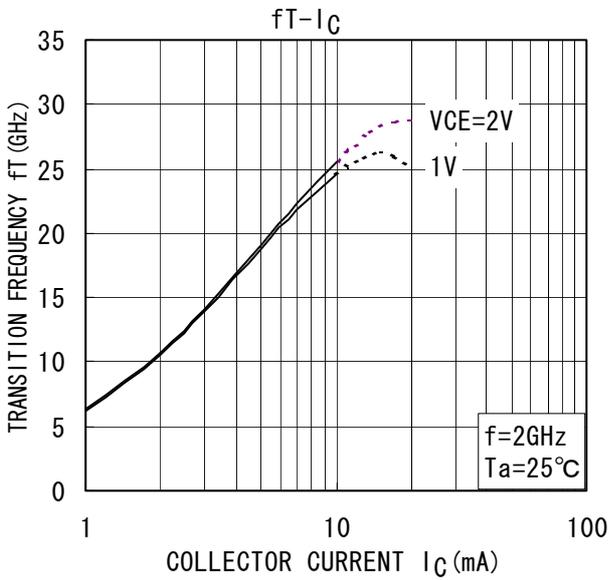
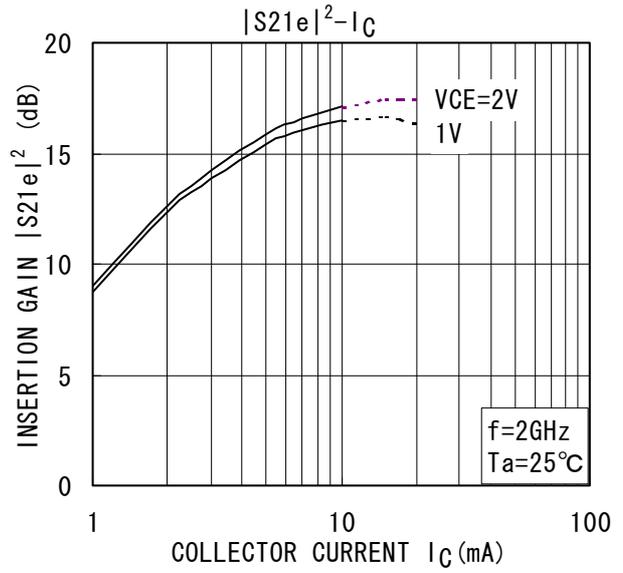
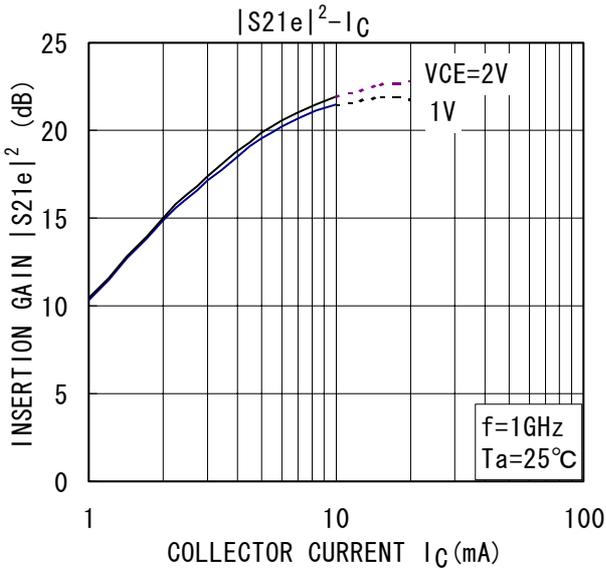
**Electrical Characteristics (Ta = 25°C)**

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector Cut-off Current	$I_{CBO}$	$V_{CB}=6V, I_E=0$	-	-	1	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB}=1V, I_C=0$	-	-	1	$\mu A$
DC Current Gain	hFE	$V_{CE}=2V, I_C=7mA$	200	-	400	-
Output Capacitance	$C_{ob}$	$V_{CB}=2V, I_E=0, f=1MHz$	-	0.34	0.6	pF
Reverse Transistor Capacitance	$C_{re}$	$V_{CB}=2V, I_E=0, f=1MHz$ (Note 1)	-	0.1	0.2	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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