TOSHIBA TRANSISTOR SILICON-GERMANIUM NPN EPITAXIAL PLANER TYPE

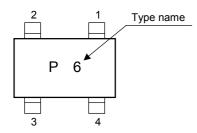
# **MT4S100U**

UHF LOW NOISE AMPLIFIER APPLICATION

#### **FEATURES**

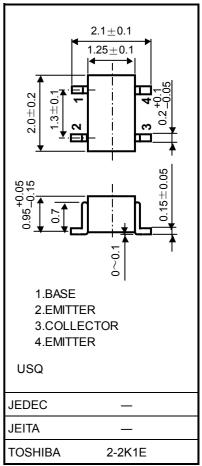
- Low Noise Figure :NF=0.72dB (@f=2GHz)
- High Gain:|S21e|<sup>2</sup>=16.0dB (@f=2GHz)

#### Marking



#### Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-Base voltage	V <sub>CBO</sub>	6	V
Collector-Emitter voltage	V <sub>CEO</sub>	3	V
Emitter-Base voltage	V <sub>EBO</sub>	1.2	V
Collector-Current	۱ <sub>C</sub>	15	mA
Base-Current	Ι <sub>Β</sub>	7	mA
Collector Power dissipation	P <sub>C</sub>	45	mW
Junction temperature	Tj	150	°C
Storage temperature Range	T <sub>stg</sub>	-55~150	°C



Weight: 0.006 g (typ.)

Unit: mm

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

Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Transition Frequency	fT	V <sub>CE</sub> =2V, I <sub>C</sub> =10mA, f=2GHz	18	22	-	GHz
Insertion Gain	S21e  <sup>2</sup>	V <sub>CE</sub> =2V, I <sub>C</sub> =10mA, f=2GHz	13.5	16	-	dB
Noise Figure	NF	V <sub>CE</sub> =2V, I <sub>C</sub> =5mA, f=2GHz	-	0.72	1.0	dB

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

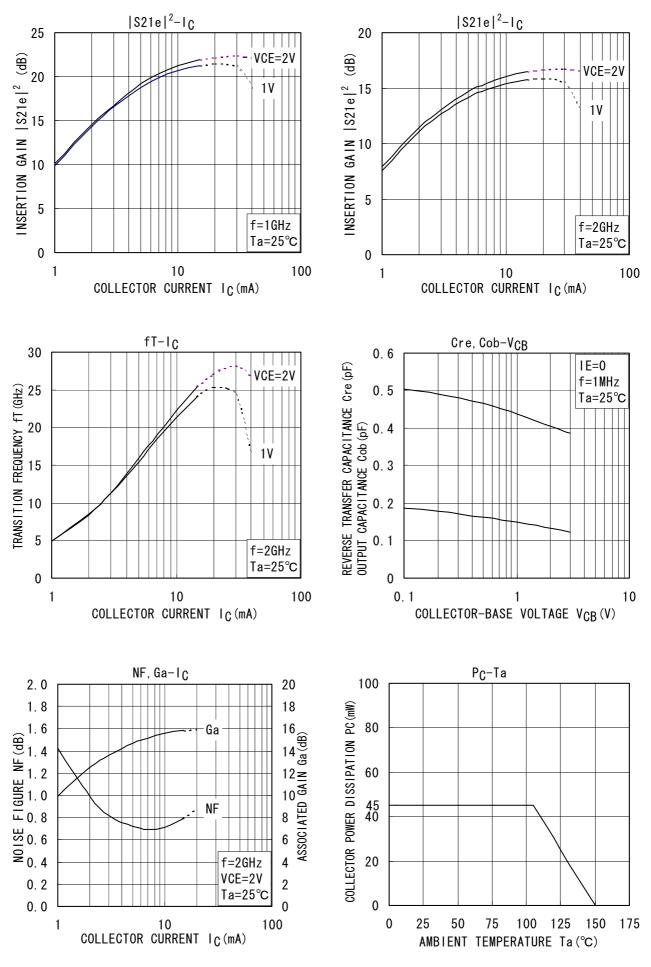
Characteristics	Symbol	Test Condition	Min	Тур.	Max	Unit
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> =6V, I <sub>E</sub> =0	-	-	1	μA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> =1V, I <sub>C</sub> =0	-	-	1	μA
DC Current Gain	hFE	V <sub>CE</sub> =2V, I <sub>C</sub> =10mA	200	-	400	-
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =2V, I <sub>E</sub> =0, f=1MHz	-	0.41	0.6	pF
Reverse Transistor Capacitance	C <sub>re</sub>	V <sub>CB</sub> =2V, I <sub>E</sub> =0, f=1MHz (Note 1)	-	0.14	0.2	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.

## TOSHIBA



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