

TOSHIBA TRANSISTOR SILICON-GERMANIUM NPN EPITAXIAL PLANER TYPE

MT4S100U

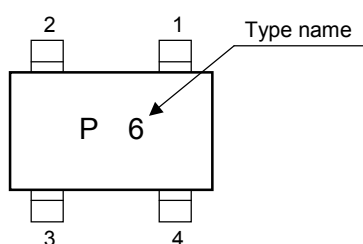
UHF LOW NOISE AMPLIFIER APPLICATION

Unit: mm

FEATURES

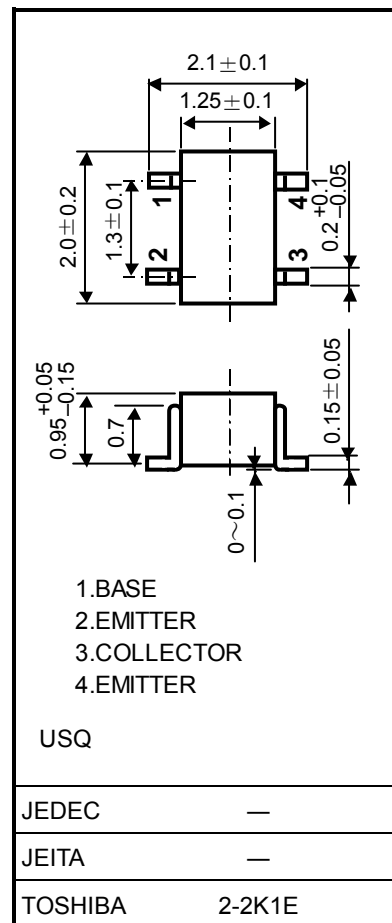
- Low Noise Figure :NF=0.72dB (@f=2GHz)
- High Gain:|S_{21e}|²=16.0dB (@f=2GHz)

Marking



Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-Base voltage	V _{CBO}	6	V
Collector-Emitter voltage	V _{CEO}	3	V
Emitter-Base voltage	V _{EBO}	1.2	V
Collector-Current	I _C	15	mA
Base-Current	I _B	7	mA
Collector Power dissipation	P _C	45	mW
Junction temperature	T _j	150	°C
Storage temperature Range	T _{stg}	-55~150	°C



Weight: 0.006 g (typ.)

Microwave Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition Frequency	f_T	$V_{CE}=2V, I_C=10mA, f=2GHz$	18	22	-	GHz
Insertion Gain	$ S_{21e} ^2$	$V_{CE}=2V, I_C=10mA, f=2GHz$	13.5	16	-	dB
Noise Figure	NF	$V_{CE}=2V, I_C=5mA, f=2GHz$	-	0.72	1.0	dB

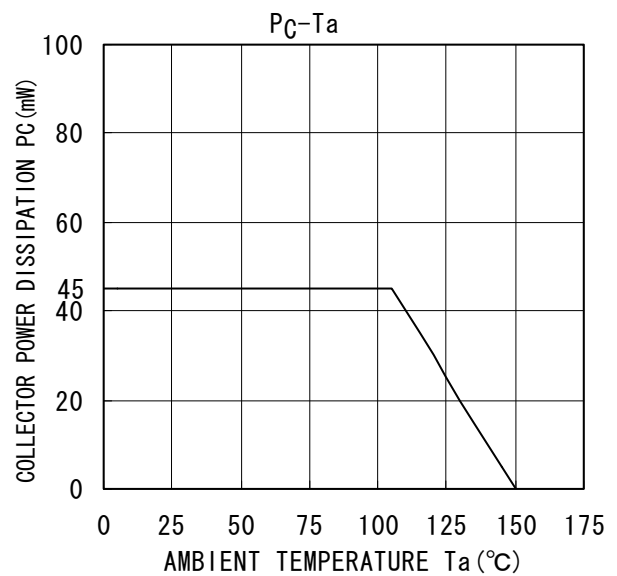
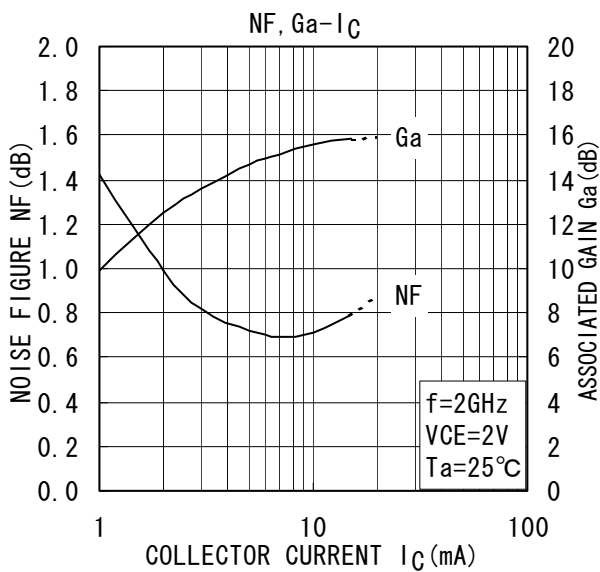
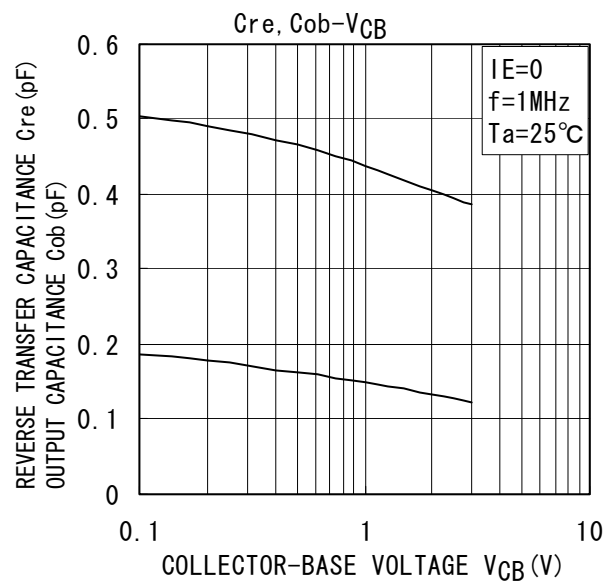
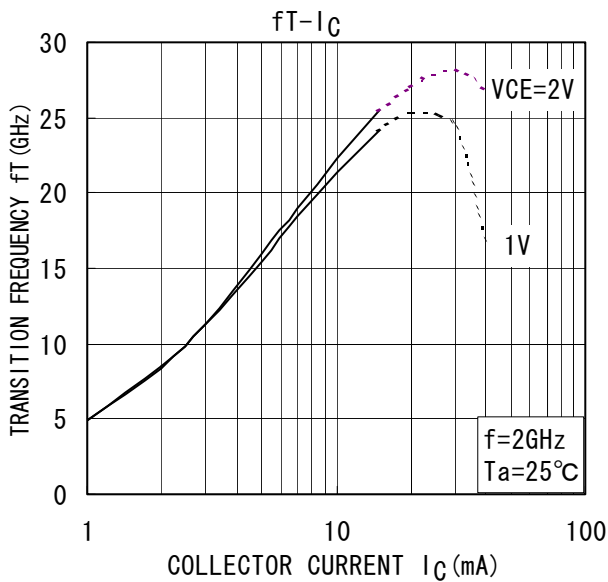
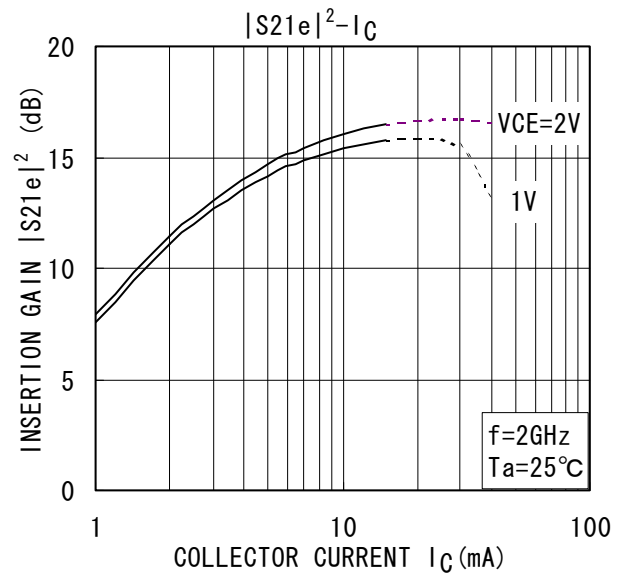
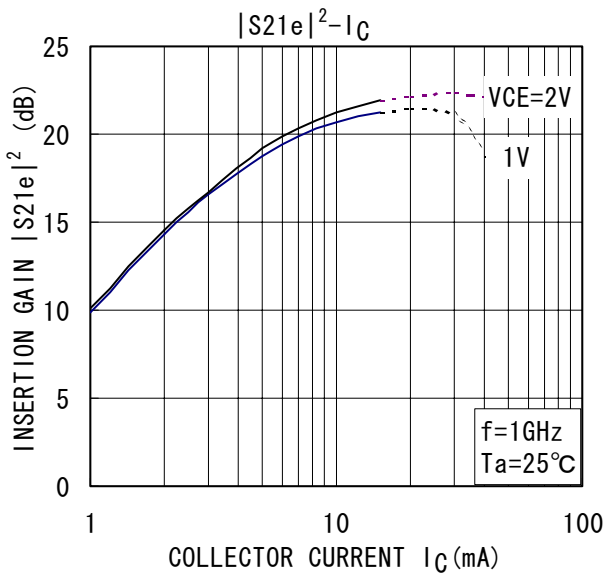
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector Cut-off Current	I_{CBO}	$V_{CB}=6V, I_E=0$	-	-	1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=1V, I_C=0$	-	-	1	μA
DC Current Gain	h_{FE}	$V_{CE}=2V, I_C=10mA$	200	-	400	-
Output Capacitance	C_{ob}	$V_{CB}=2V, I_E=0, f=1MHz$	-	0.41	0.6	pF
Reverse Transistor Capacitance	C_{re}	$V_{CB}=2V, I_E=0, f=1MHz$ (Note 1)	-	0.14	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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