

TOSHIBA Transistor Silicon-Germanium NPN Epitaxial Planer Type

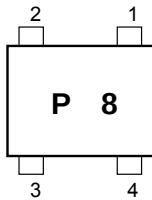
MT4S102U

UHF-SHF Low Noise Amplifier Application

FEATURES

- Low Noise Figure :NF=0.58dB (@f=2GHz)
- High Gain: $|S_{21e}|^2=15.0\text{dB}$ (@f=2GHz)

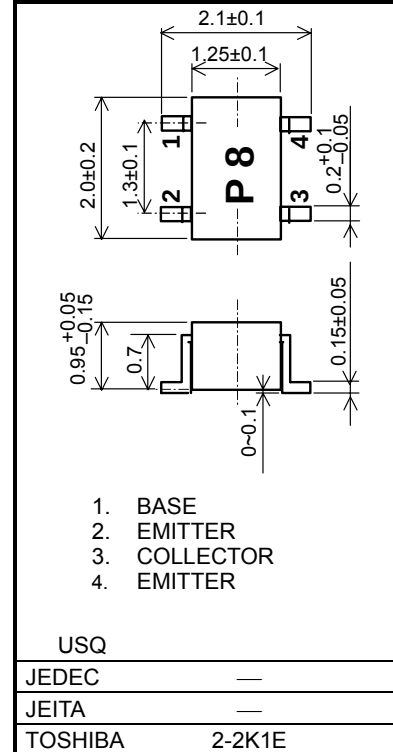
Marking



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	20	mA
Base-Current	I_B	10	mA
Collector Power dissipation	P_C	60	mW
Junction temperature	T_j	150	°C
Storage temperature Range	T_{stg}	-55~150	°C

Unit:mm



Weight: 0.006 g

Microwave Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition Frequency	f_T	$V_{CE}=2V, I_C=15mA, f=2GHz$	20	24	—	GHz
Insertion Gain	$ S_{21e} ^2(1)$	$V_{CE}=2V, I_C=15mA, f=2GHz$	12.5	15.0	—	dB
	$ S_{21e} ^2(2)$	$V_{CE}=2V, I_C=15mA, f=5.2GHz$	—	8.0	—	dB
Noise Figure	NF(1)	$V_{CE}=2V, I_C=10mA, f=2GHz$	—	0.58	0.85	dB
	NF(2)	$V_{CE}=2V, I_C=10mA, f=5.2GHz$	—	1.4	—	dB

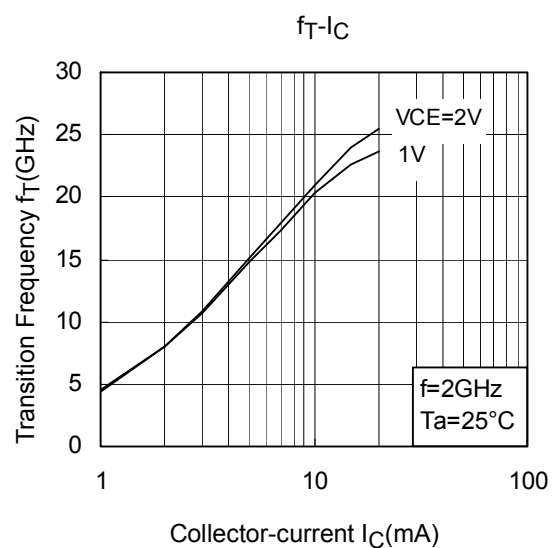
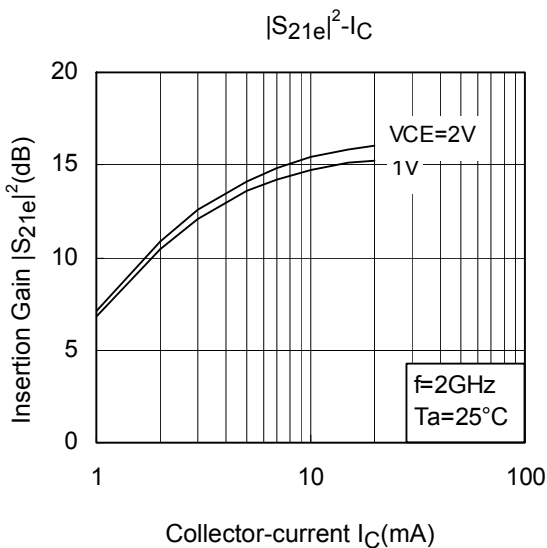
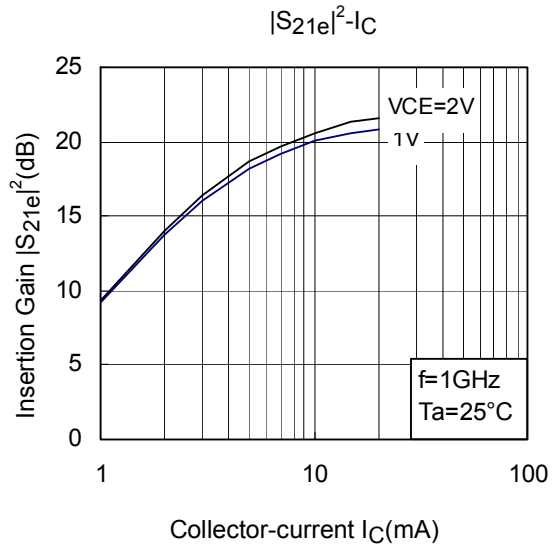
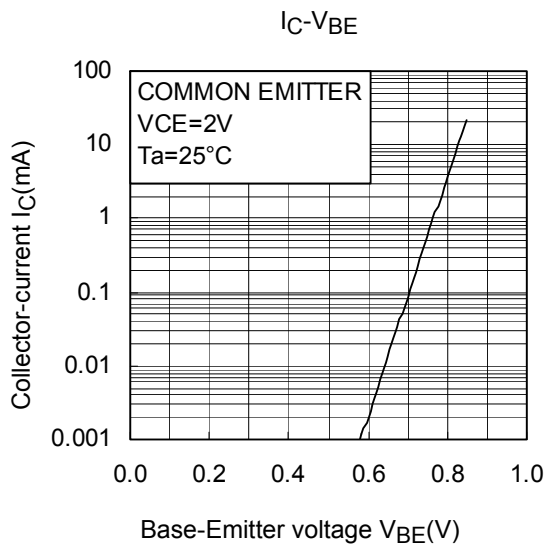
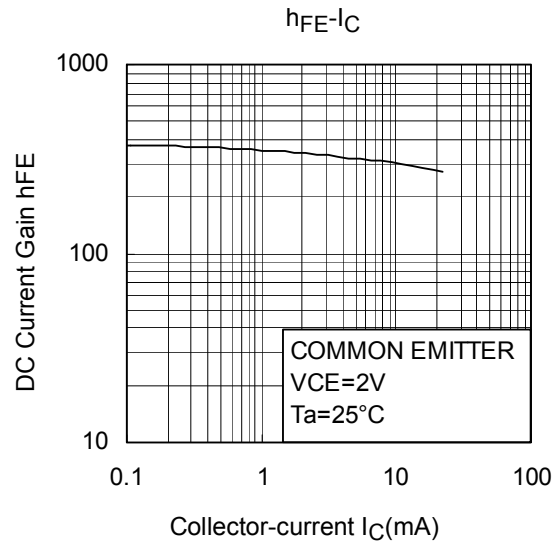
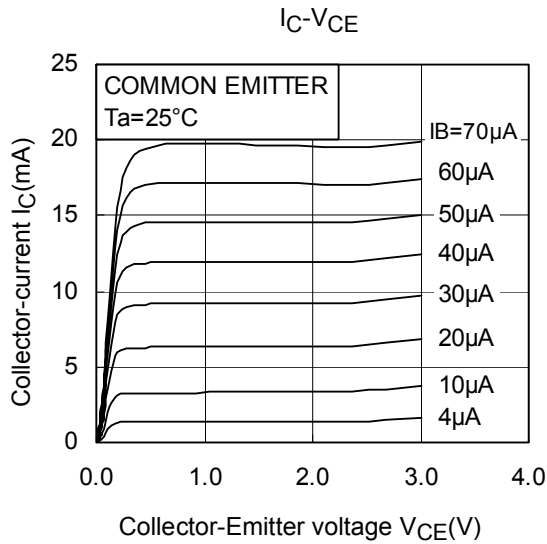
Electrical Characteristics (Ta = 25°C)

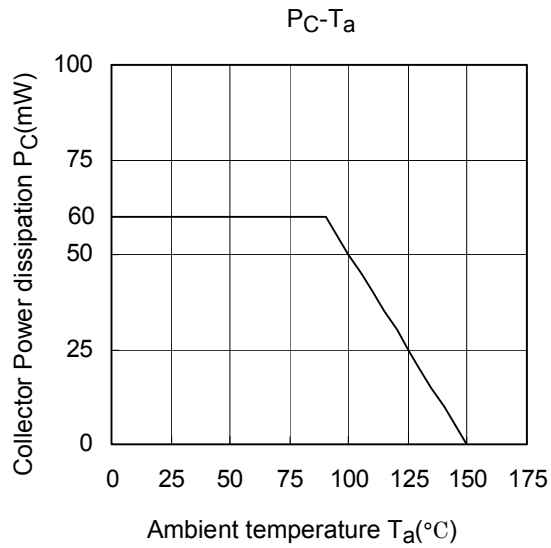
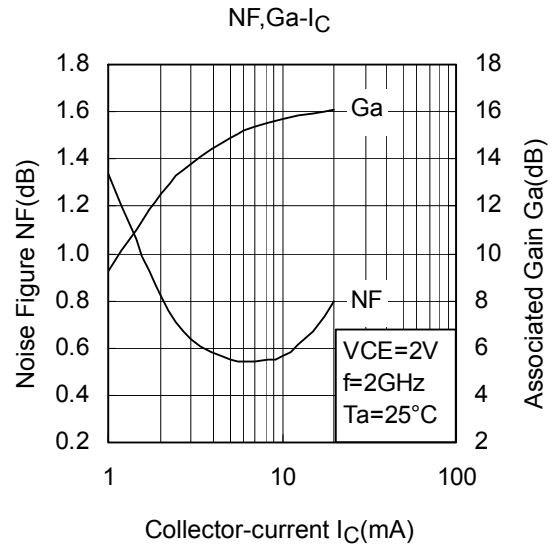
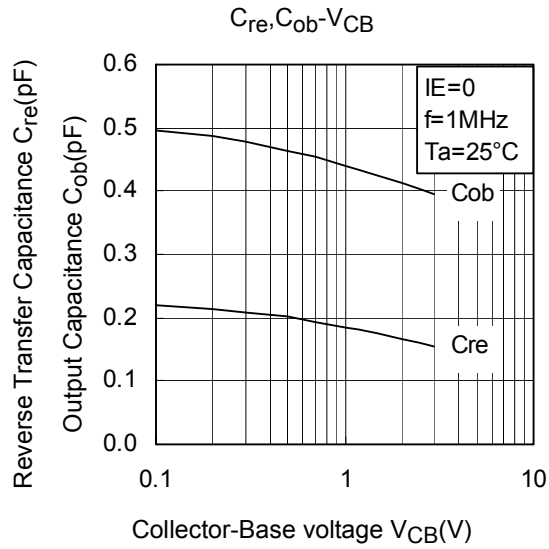
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector Cut-off Current	I_{CBO}	$V_{CB}=6V, I_E=0$	—	—	1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=1V, I_C=0$	—	—	1	μA
DC Current Gain	hFE	$V_{CE}=2V, I_C=15mA$	200	—	400	-
Output Capacitance	C_{ob}	$V_{CB}=2V, I_E=0, f=1MHz$	—	0.43	0.6	pF
Reverse Transfer Capacitance	C_{re}	$V_{CB}=2V, I_E=0, f=1MHz$ (Note 1)	—	0.17	0.25	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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