

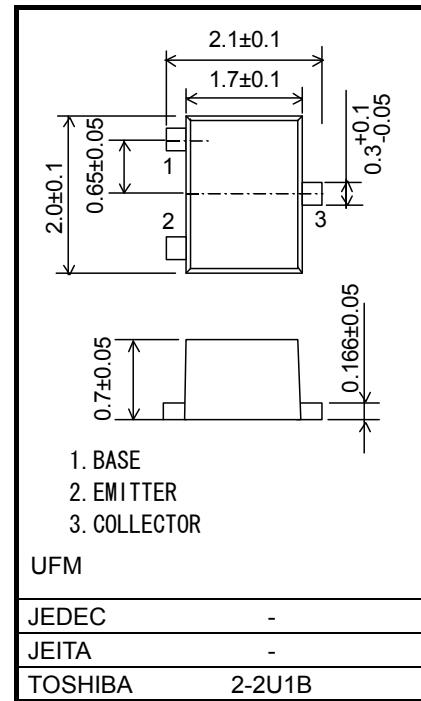
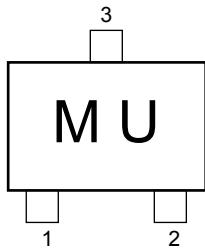
MT3S20TU

VHF-UHF Band Low-Noise, Low-Distortion Amplifier Applications

Unit: mm

FEATURES

- Low Noise Figure: $NF = 1.45\text{dB}(\text{Typ.})$ (@ $f = 1\text{GHz}$)
- High Gain: $|S_{21e}|^2 = 12\text{dB}(\text{Typ.})$ (@ $f = 1\text{GHz}$)

Marking**Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)**

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	20	V
Collector-emitter voltage	V_{CEO}	12	V
Emitter-base voltage	V_{EBO}	1.5	V
Collector current	I_C	80	mA
Base current	I_B	10	mA
Collector power dissipation	P_C (Note1)	900	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	-55 to 150	°C

Note.1 : The device is mounted on a ceramic board (25.4 mm x 25.4 mm x 0.8 mm (t))

Note.2 : 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	f _T	V _{CE} =5V, I _C =30mA	5	7	—	GHz
Insertion gain	S21e ^2(1)	V _{CE} =5V, I _C =50mA, f=500MHz	—	17.5	—	dB
	S21e ^2(2)	V _{CE} =5V, I _C =50mA, f=1GHz	10	12	—	
Noise figure	NF	V _{CE} =5V, I _C =20mA, f=1GHz	—	1.45	2	dB
3 rd order intermodulation distortion output intercept point	OIP3	V _{CE} =5V, I _C =50mA, f=500MHz, Δf=1MHz	26	30	—	dBmW

Electrical Characteristics (Ta = 25°C)

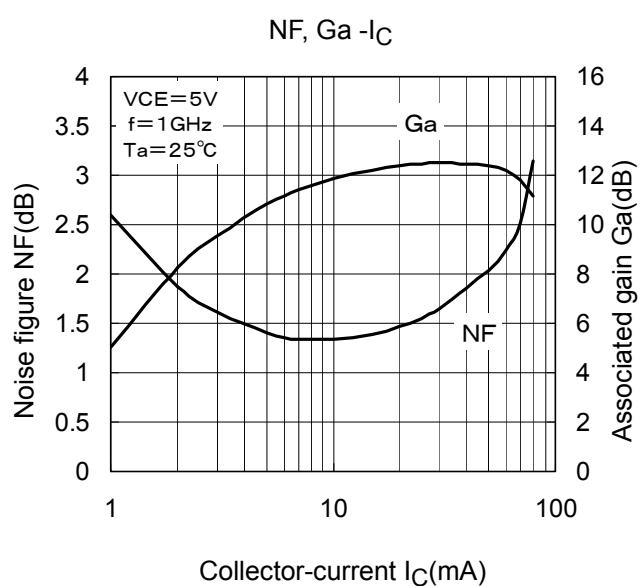
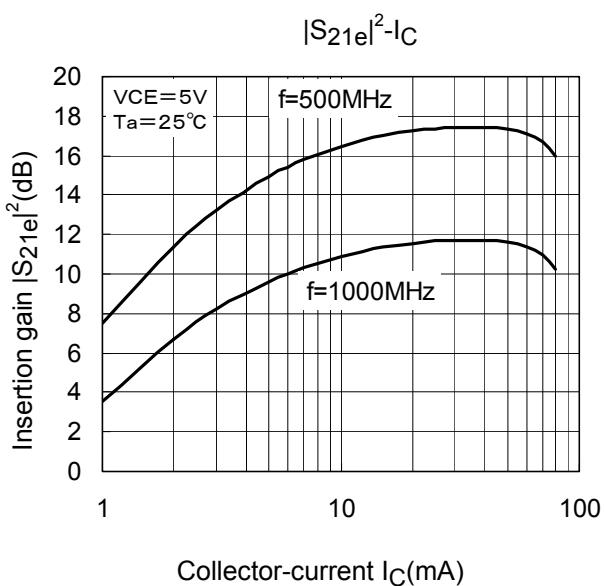
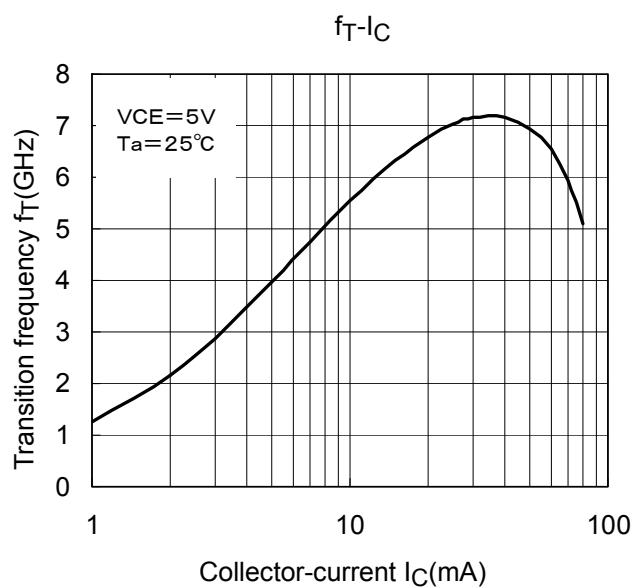
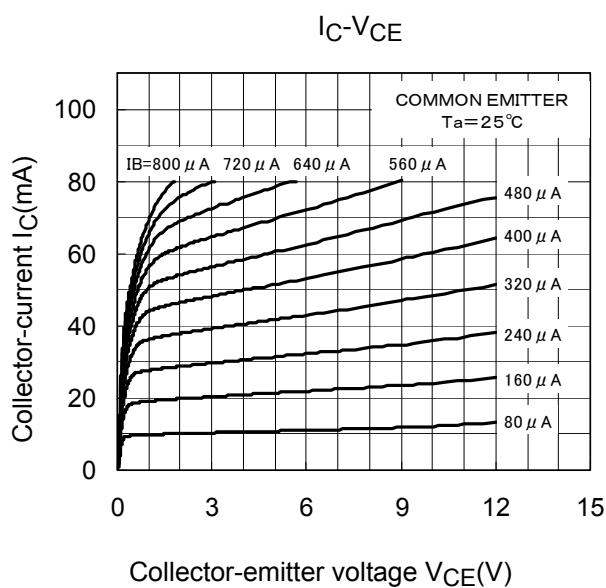
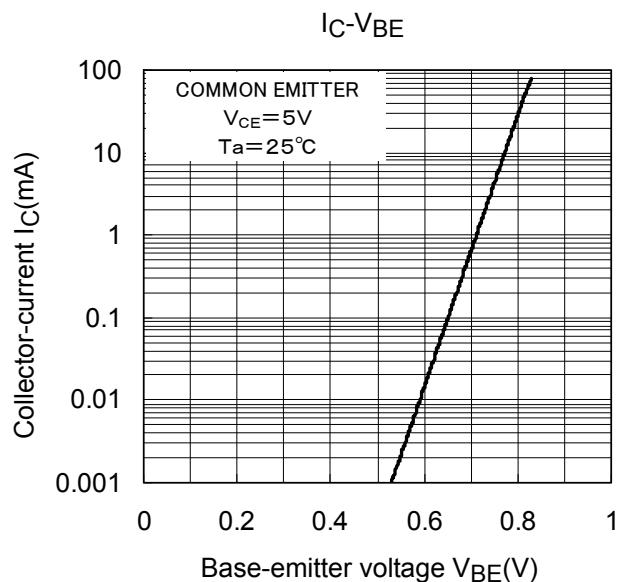
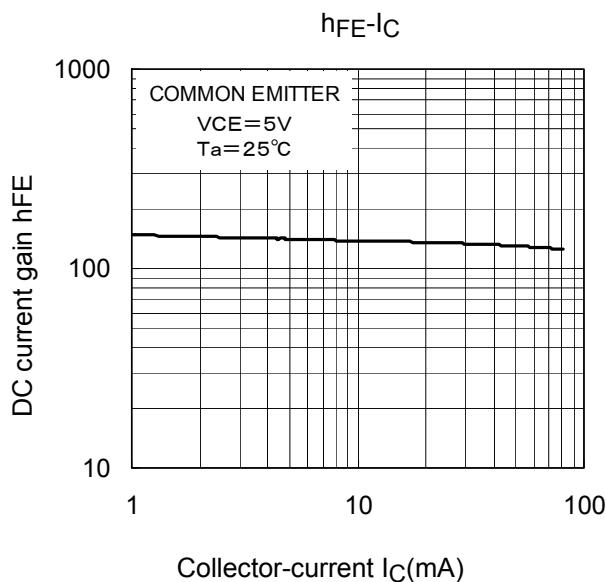
Characteristics	Symbol	Test Condition	Min	Typ	Max	Unit
Collector cut-off current	I _{CBO}	V _{CB} =10V, I _E =0	—	—	0.1	μA
Emitter cut-off current	I _{EBO}	V _{EB} =1V, I _C =0	—	—	0.5	μA
DC current gain	h _{FE}	V _{CE} =5V, I _C =50mA	100	150	200	—
Reverse transfer capacitance	C _{re}	V _{CB} =5V, I _E =0, f=1MHz (Note3)	—	0.75	1	pF

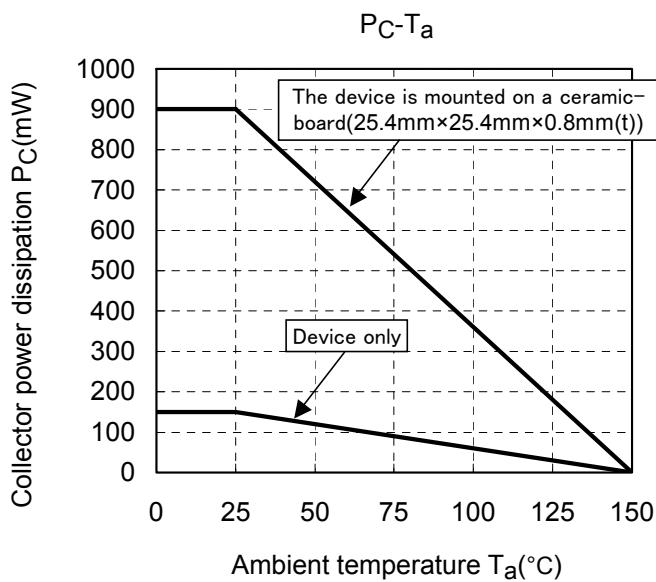
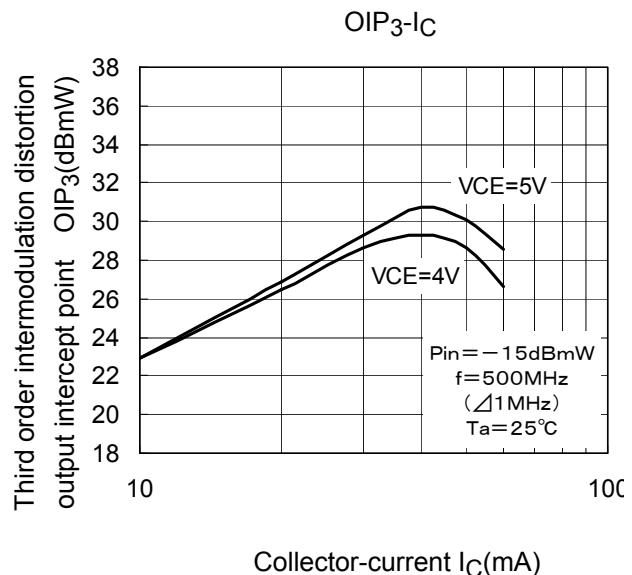
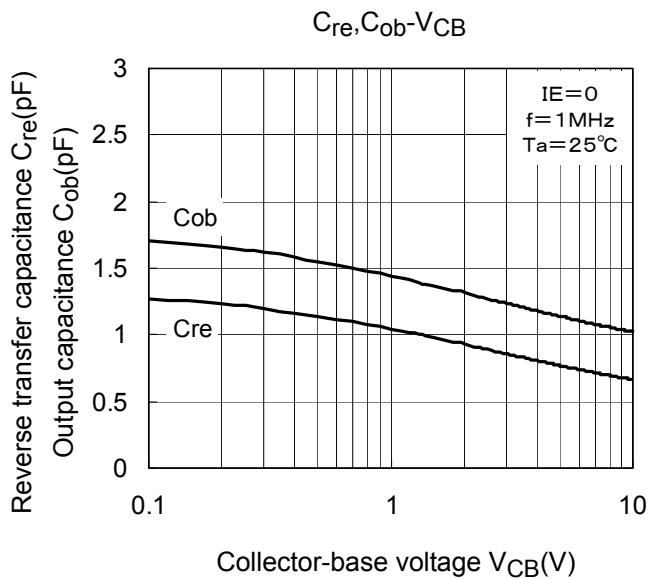
Note.3 : C_{re} is measured using a 3-terminal method with capacitance bridge

Caution:

This device is sensitive to electrostatic discharge.

Please make enough tool and equipment earthed when you handle.





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