

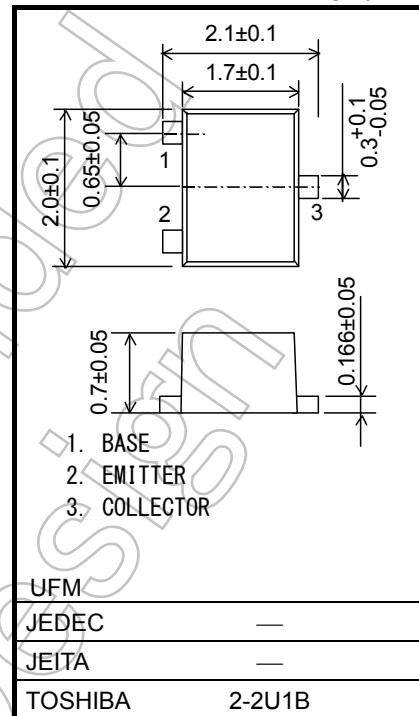
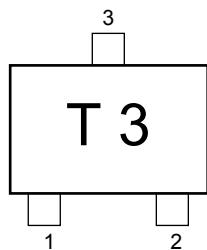
MT3S15TU

VHF-UHF Low-Noise, Low-Distortion Amplifier Application

Unit: mm

Features

- Low-Noise Figure: $NF=1.6$ dB (typ.) (@ $f=1$ GHz)
- High Gain: $|S_{21e}|^2=13.5$ dB (typ.) (@ $f=1$ GHz)

Marking

Weight: 6.6 mg (typ.)

Absolute Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	12	V
Collector-emitter voltage	V_{CEO}	6	V
Emitter-base voltage	V_{EBO}	2	V
Collector-current	I_C	80	mA
Base-current	I_B	10	mA
Collector power dissipation	P_C (Note 1)	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.).

Start of commercial production
2007-06

Microwave Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition frequency	f _T	V _{CE} =5 V, I _C =50 mA	9.5	11.5	—	GHz
Insertion gain	S _{21el} ² (1)	V _{CE} =5 V, I _C =50 mA, f=500 MHz	—	19.5	—	dB
	S _{21el} ² (2)	V _{CE} =5 V, I _C =50 mA, f=1 GHz	11.5	13.5	—	
Noise figure	NF	V _{CE} =5 V, I _C =20 mA, f=1 GHz	—	1.6	2	dB
3 rd order intermodulation distortion output intercept point	OIP ₃	V _{CE} =5 V, I _C =50 mA, f=500 MHz, Δf=1 MHz	28.5	32.5	—	dBmW

Electrical Characteristics (Ta = 25°C)

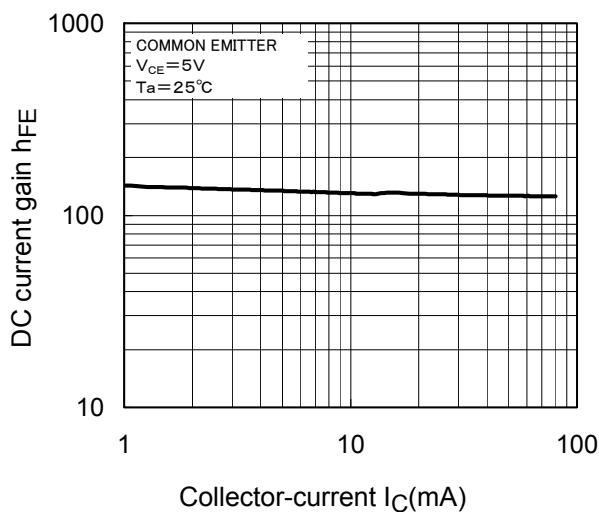
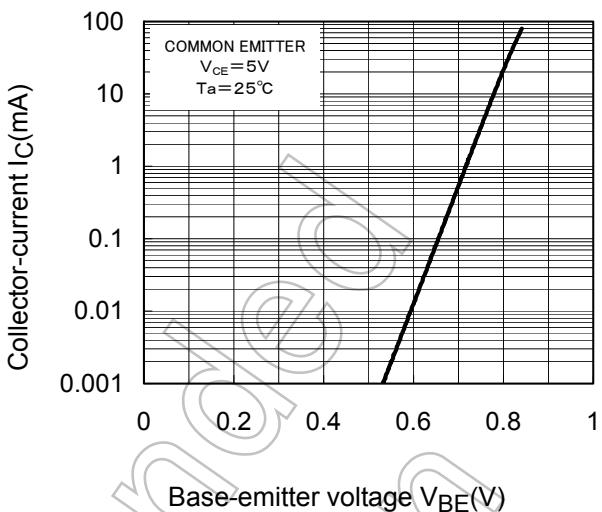
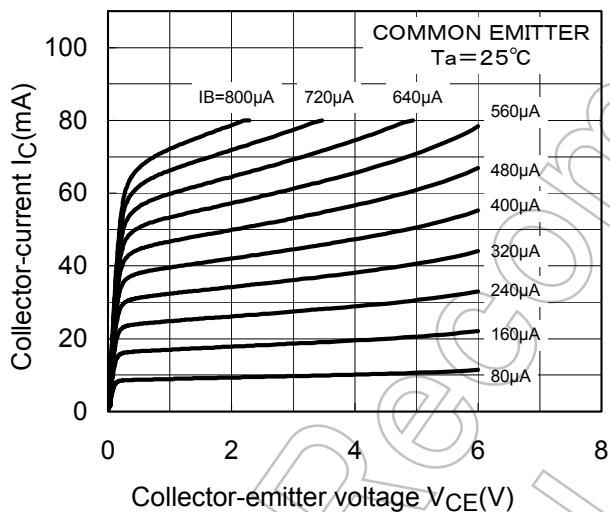
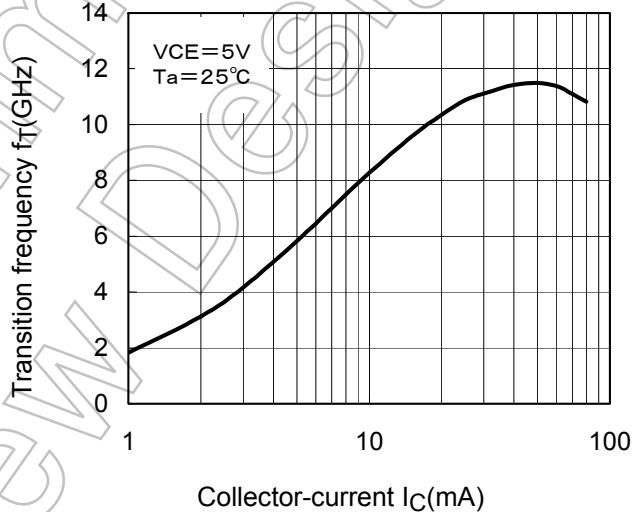
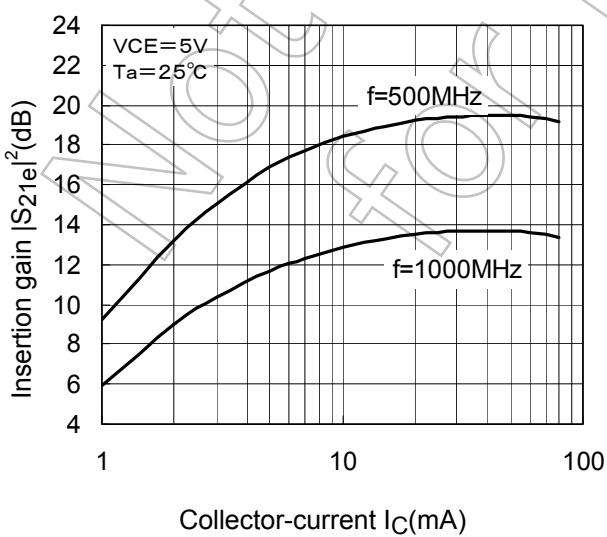
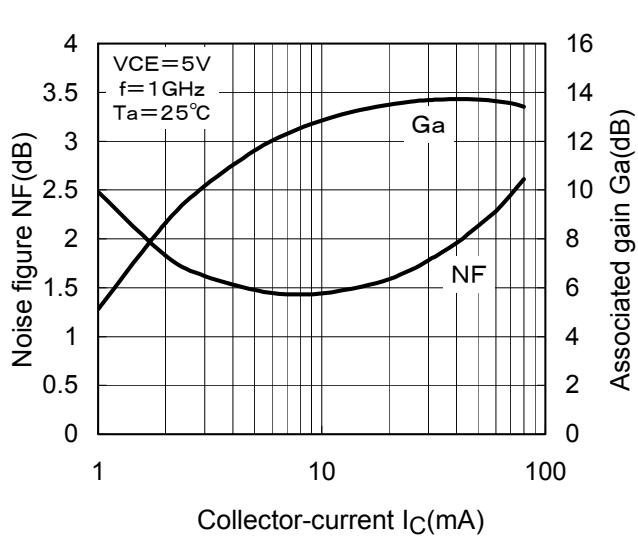
Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I _{CBO}	V _{CB} =6 V, I _E =0 A	—	—	100	nA
Emitter cut-off current	I _{EBO}	V _{EB} =1 V, I _C =0 A	—	—	100	nA
DC current gain	h _{FE}	V _{CE} =5 V, I _C =50 mA	100	160	250	—
Reverse transfer capacitance	C _{re}	V _{CB} =5 V, I _E =0 A, f=1 MHz (Note 3)	—	0.6	0.85	pF

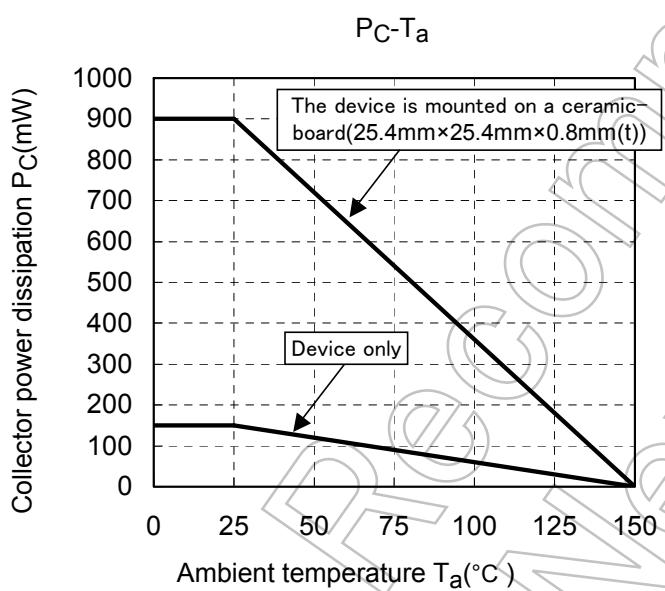
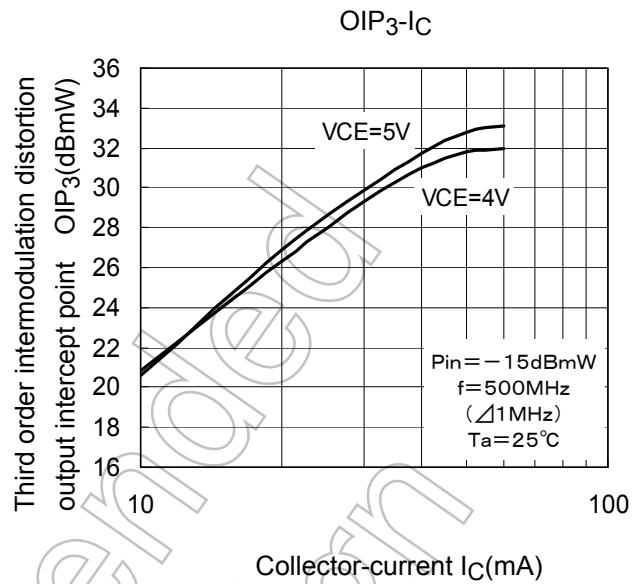
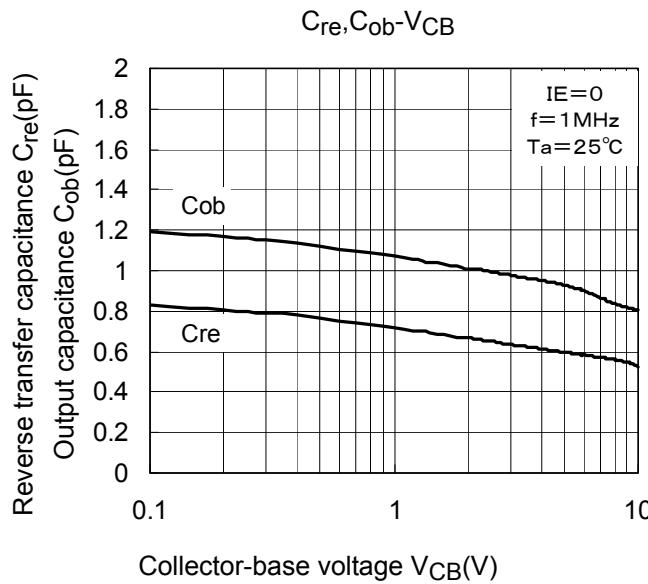
Note 3: C_{re} is measured using a 3-terminal method with capacitance bridge

Caution:

This device is sensitive to electrostatic discharge.

Please make tool and equipment earthed enough when you handle.

h_{FE} - I_C  I_C - V_{BE}  I_C - V_{CE}  f_T - I_C  $|S_{21e}|^2$ - I_C NF, Ga - I_C 



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