

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANER TYPE

MT3S35FS

VCO OSCILLETOR STAGE

UHF LOW NOISE AMPLIFIER APPLICATION

FEATURES

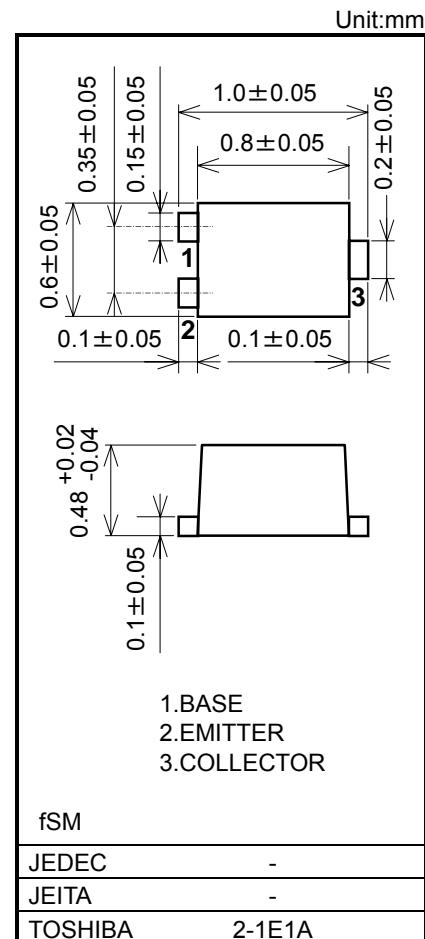
- Low Noise Figure : $NF=1.4\text{dB}$ (@ $f=2\text{GHz}$)
- High Gain: $|S21e|^2=13.0\text{dB}$ (@ $f=2\text{GHz}$)

Marking



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

Characteristics	Symbol	Rating	Unit
Collector-Base voltage	V_{CBO}	8	V
Collector-Emitter voltage	V_{CEO}	4.5	V
Emitter-Base voltage	V_{EBO}	1.5	V
Collector-Current	I_C	24	mA
Base-Current	I_B	12	mA
Collector Power dissipation	P_C (Note)	100	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature Range	T_{stg}	-55~150	$^\circ\text{C}$

Note: Device mounted on a glass-epoxy PCB($0.88\text{ cm}^2 \times 0.7\text{ mm (t)}$)

Microwave Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Transition Frequency	f _T	V _{CE} =3V, I _C =10mA, f=2GHz	16	20	-	GHz
Insertion Gain	S _{21e} ² (1)	V _{CE} =3V, I _C =10mA, f=1GHz	16	18	-	dB
	S _{21e} ² (2)	V _{CE} =3V, I _C =10mA, f=2GHz	11	13	-	dB
Noise Figure	NF(1)	V _{CE} =3V, I _C =2mA, f=1GHz	-	1.1	-	dB
	NF(2)	V _{CE} =3V, I _C =2mA, f=2GHz	-	1.4	1.9	dB

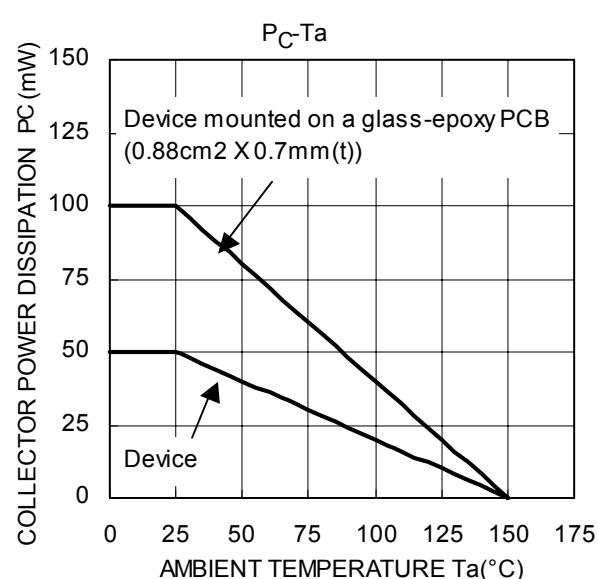
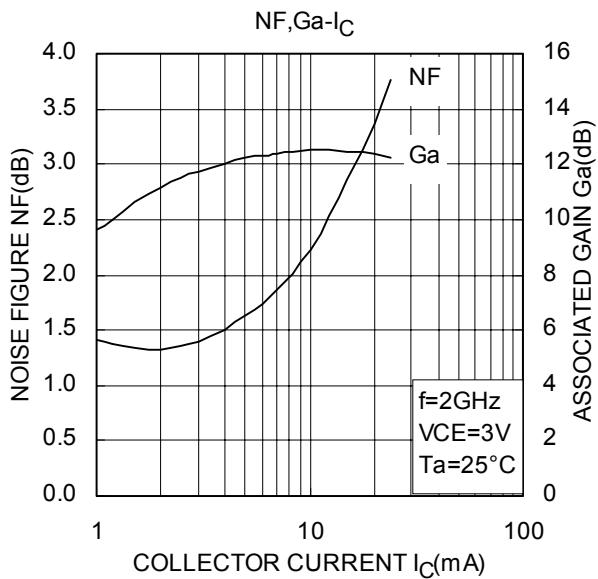
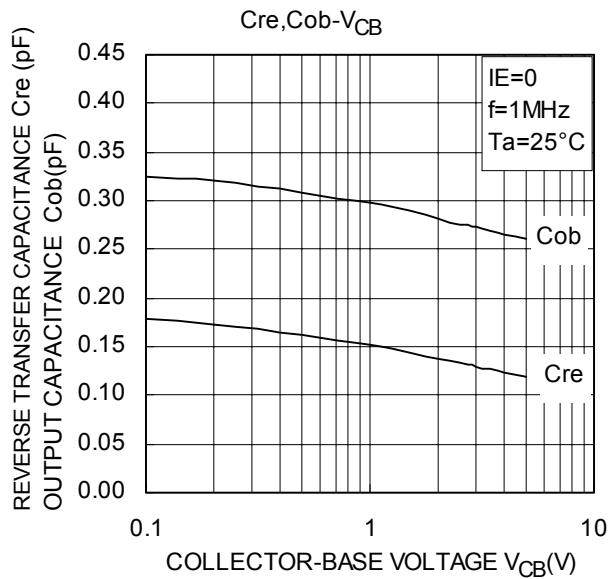
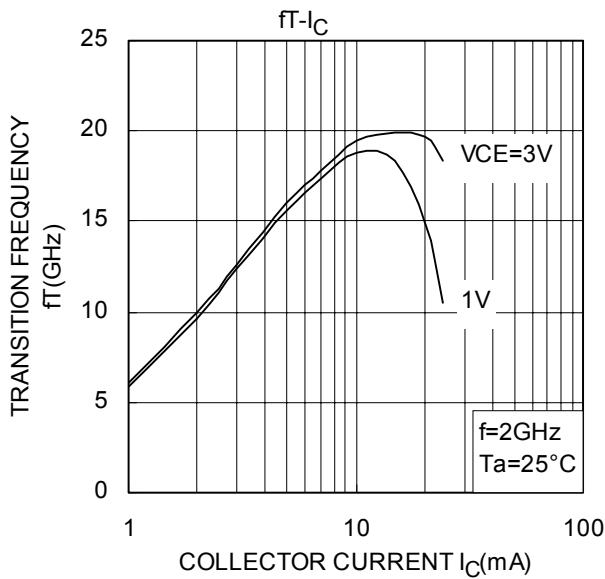
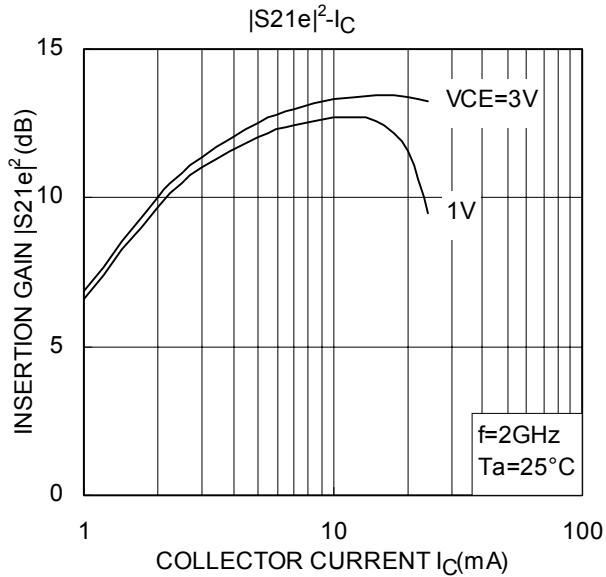
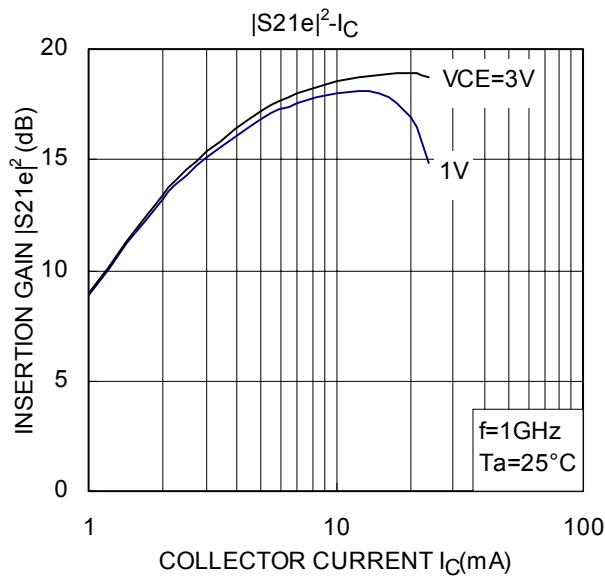
Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector Cut-off Current	I _{CBO}	V _{CB} =8V, 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} =3V, I _C =10mA	70	-	140	-
Output Capacitance	C _{ob}	V _{CB} =1V, I _E =0, f=1MHz	-	0.30	0.50	pF
Reverse Transistor Capacitance	C _{re}	V _{CB} =1V, I _E =0, f=1MHz (Note 1)	-	0.15	0.28	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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