

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC3098

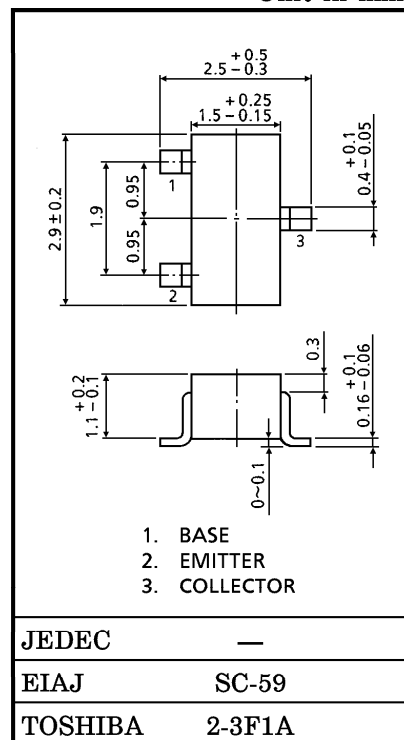
UHF~C BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

- Low Noise Figure
- $NF = 2.5dB, |S_{21e}|^2 = 14.5dB (f = 500MHz)$
- $NF = 3.0dB, |S_{21e}|^2 = 9.0dB (f = 1GHz)$

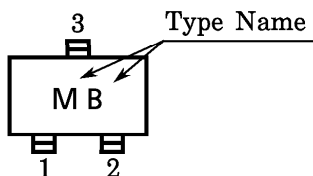
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V _{CB0}	30	V
Collector-Emitter Voltage	V _{CEO}	20	V
Emitter-Base Voltage	V _{EB0}	3	V
Collector Current	I _C	50	mA
Base Current	I _B	25	mA
Collector Power Dissipation	P _C	150	mW
Junction Temperature	T _j	125	°C
Storage Temperature Range	T _{stg}	-55~125	°C



Weight : 0.012g

Marking



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f _T	V _{CE} = 10V, I _C = 10mA	—	3.5	—	GHz
Insertion Gain	S _{21e} ² (1)	V _{CE} = 10V, I _C = 10mA, f = 500MHz	—	14.5	—	dB
	S _{21e} ² (2)	V _{CE} = 10V, I _C = 10mA, f = 1GHz	—	9	—	dB
Noise Figure	NF (1)	V _{CE} = 10V, I _C = 5mA, f = 500MHz	—	2.5	—	dB
	NF (2)	V _{CE} = 10V, I _C = 5mA, f = 1GHz	—	3	—	dB

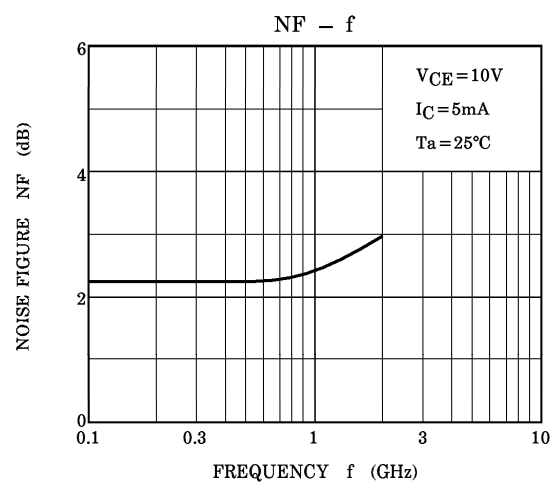
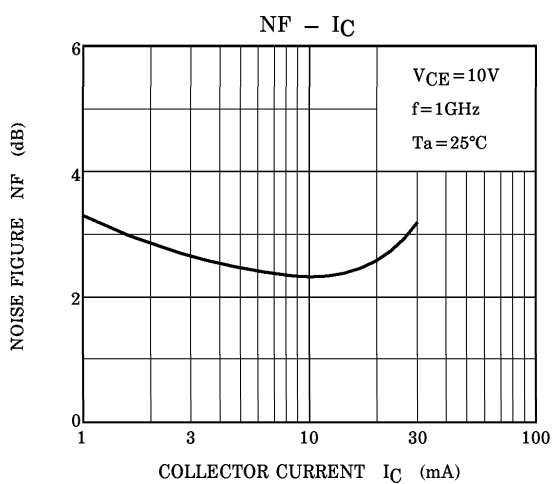
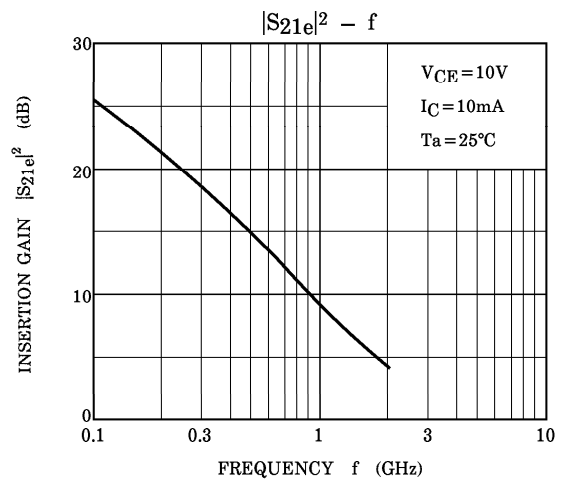
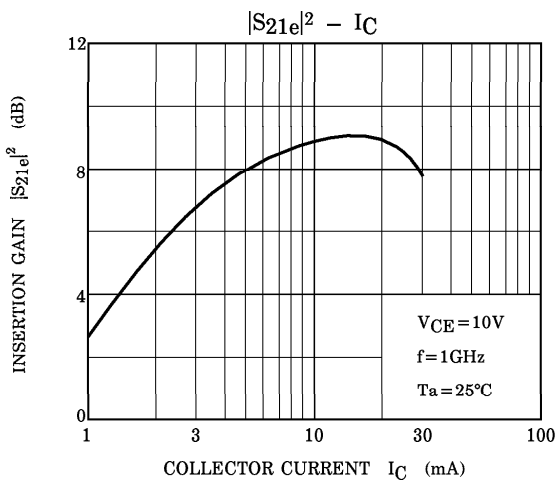
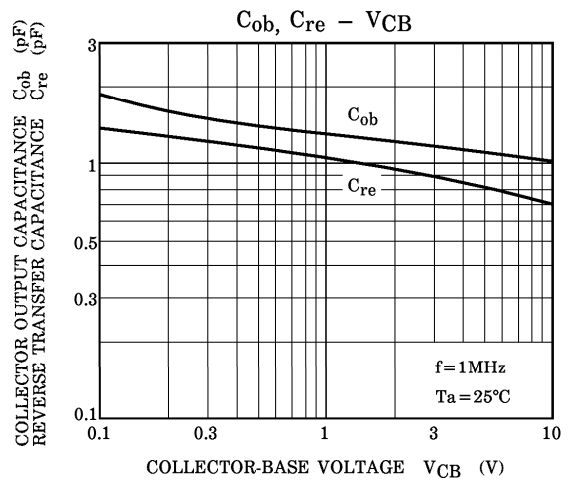
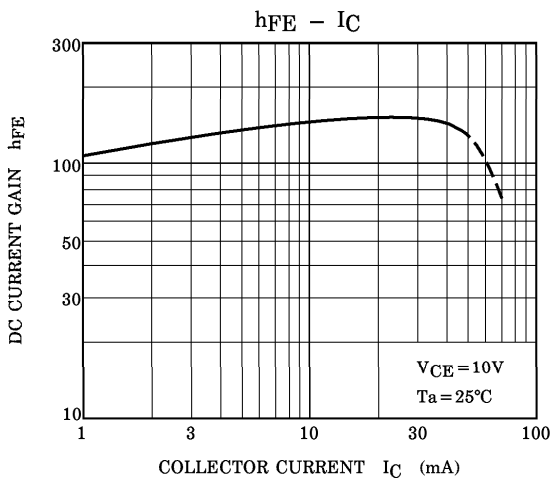
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CB0}	V _{CB} = 10V, I _E = 0	—	—	1	μA
Emitter Cut-off Current	I _{EB0}	V _{EB} = 1V, I _C = 0	—	—	1	μA
DC Current Gain	h _{FE}	V _{CE} = 10V, I _C = 10mA	30	80	300	—
Collector Output Capacitance	C _{ob}	V _{CB} = 10V, I _E = 0,	—	1.15	—	pF
Reverse Transfer Capacitance	C _{re}	f = 1MHz (Note)	—	0.75	—	pF

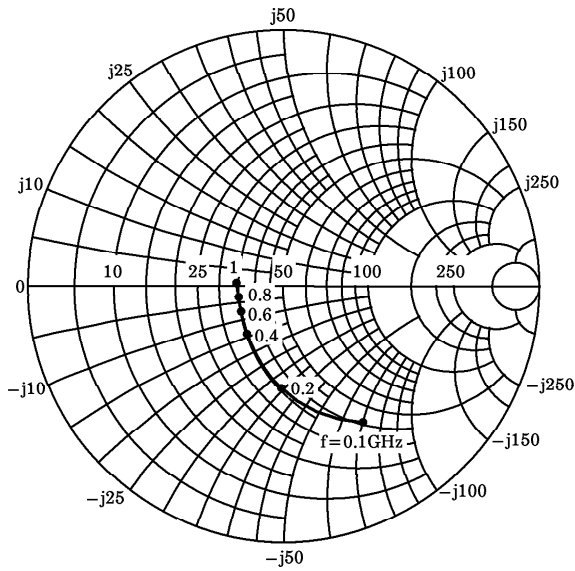
(Note) C_{re} is measured by 3-terminal method with Capacitance Bridge.

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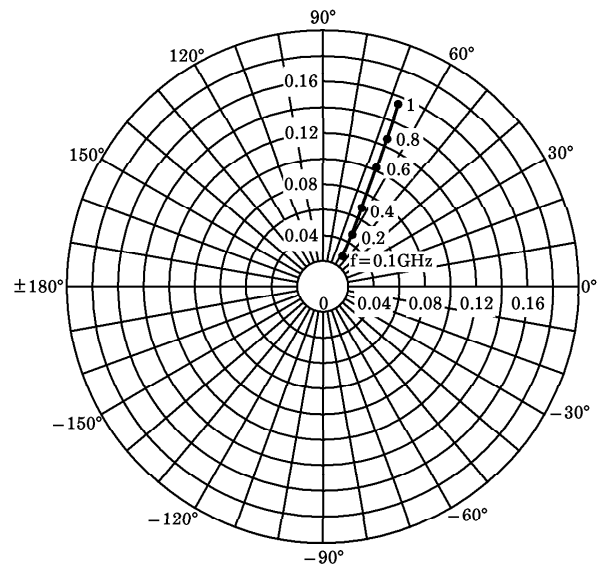
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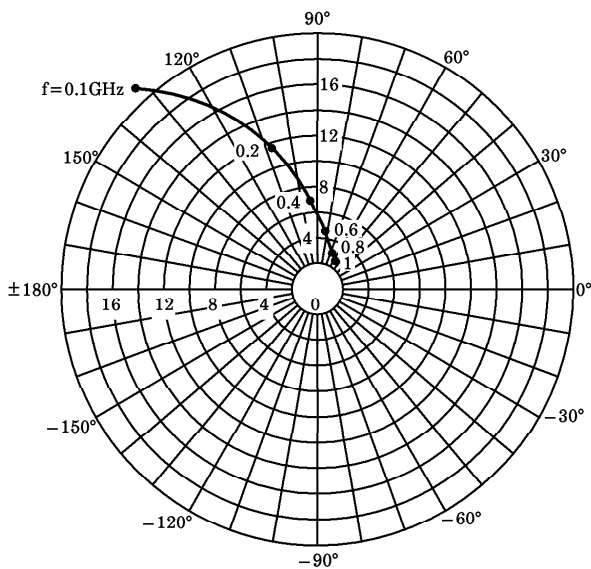
S_{11e}
 V_{CE} = 10V
 I_C = 10mA
 T_a = 25°C
 (UNIT : Ω)



S_{12e}
 V_{CE} = 10V
 I_C = 10mA
 T_a = 25°C



S_{21e}
 V_{CE} = 10V
 I_C = 10mA
 T_a = 25°C



S_{22e}
 V_{CE} = 10V
 I_C = 10mA
 T_a = 25°C
 (UNIT : Ω)

