

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC3605

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

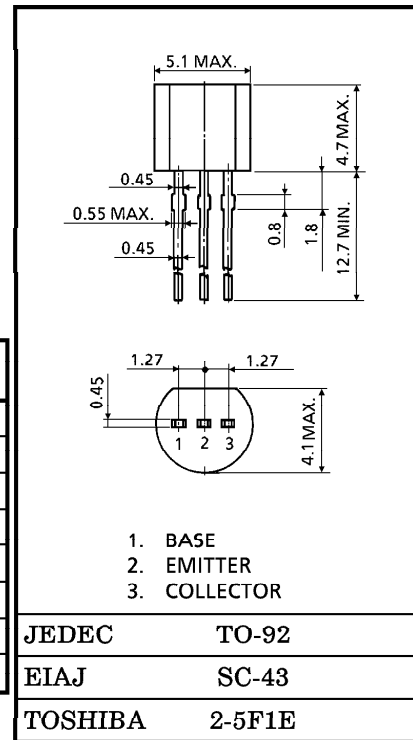
Unit in mm

FEATURES :

- Low Noise Figure, High Gain
- $NF = 1.1dB, |S_{21e}|^2 = 10dB (f = 1GHz)$

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V _{CBO}	20	V
Collector-Emitter Voltage	V _{CEO}	12	V
Emitter-Base Voltage	V _{EBO}	3	V
Collector Current	I _C	80	mA
Base Current	I _B	40	mA
Collector Power Dissipation	P _C	600	mW
Junction Temperature	T _j	150	°C
Storage Temperature Range	T _{stg}	-55~150	°C



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f _T	V _{CE} = 10V, I _C = 20mA	5	6.5	—	GHz
Insertion Gain	S _{21e} ² (1)	V _{CE} = 10V, I _C = 20mA, f = 500MHz	—	16	—	dB
	S _{21e} ² (2)	V _{CE} = 10V, I _C = 20mA, f = 1GHz	7.5	10	—	
Noise Figure	NF (1)	V _{CE} = 10V, I _C = 5mA, f = 1GHz	—	1.1	—	dB
	NF (2)	V _{CE} = 10V, I _C = 40mA, f = 1GHz	—	1.8	3	

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CBO}	V _{CE} = 10V, I _E = 0	—	—	1	μA
Emitter Cut-off Current	I _{EBO}	V _{EB} = 1V, I _E = 0	—	—	1	μA
DC Current Gain	h _{FE}	V _{CE} = 10V, I _C = 20mA	30	—	250	—
Output Capacitance	C _{ob}	V _{CB} = 10V, I _E = 0, f = 1MHz	—	1.2	—	pF
Reverse Transfer Capacitance	C _{re}	(Note)	—	0.75	1.2	pF

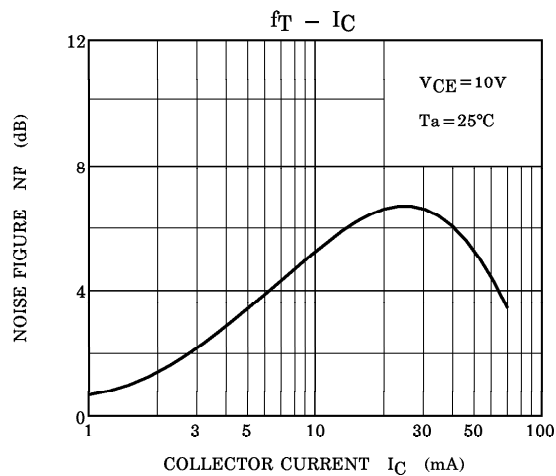
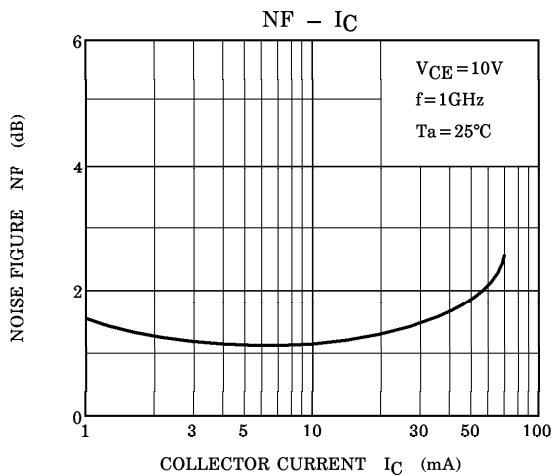
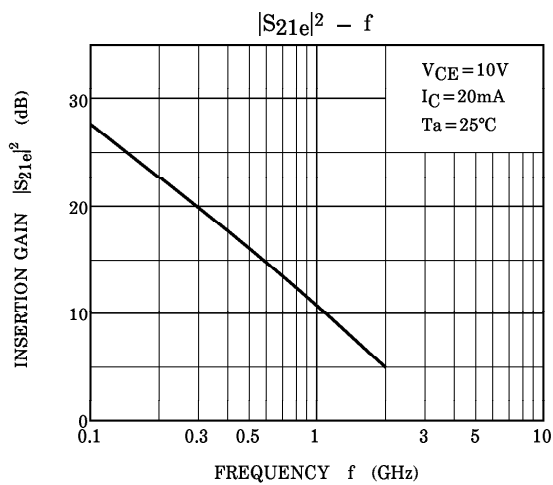
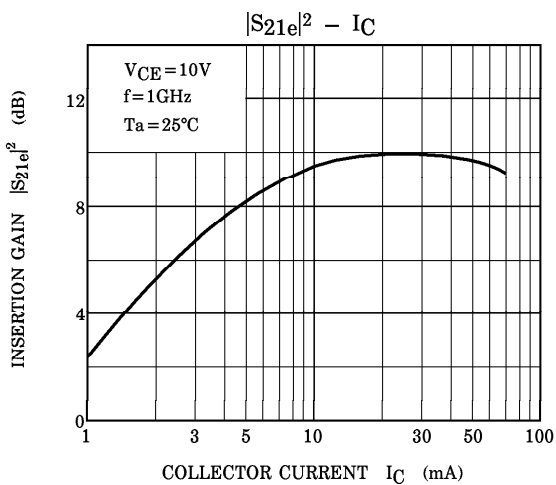
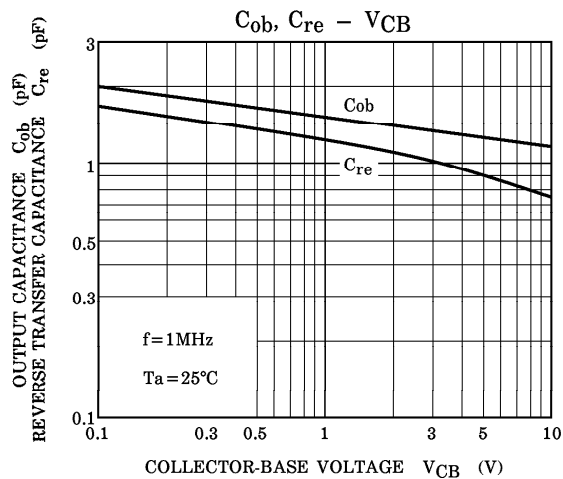
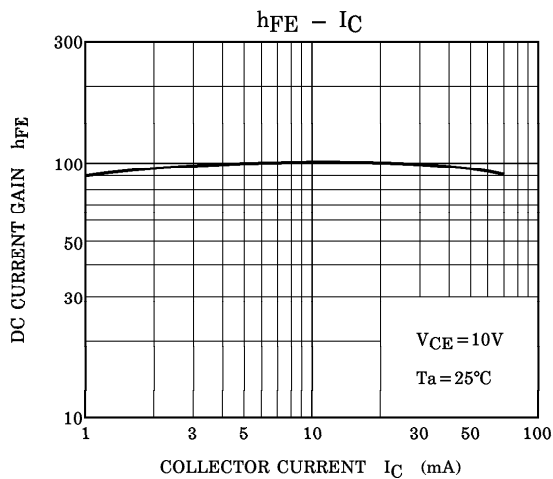
(Note) C_{re} is measured by 3-terminal method with Capacitance Bridge.

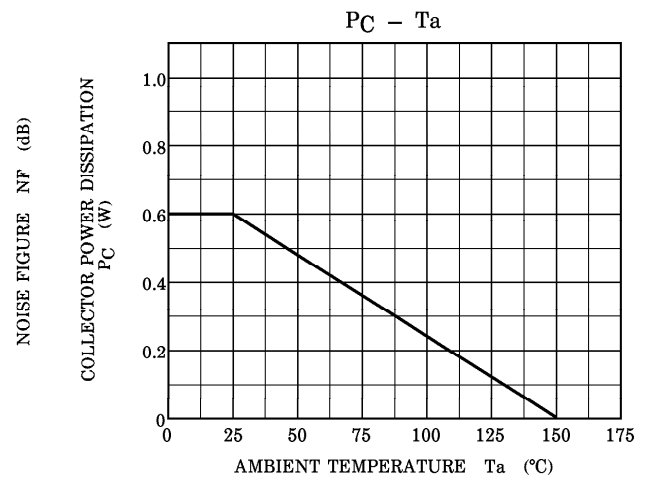
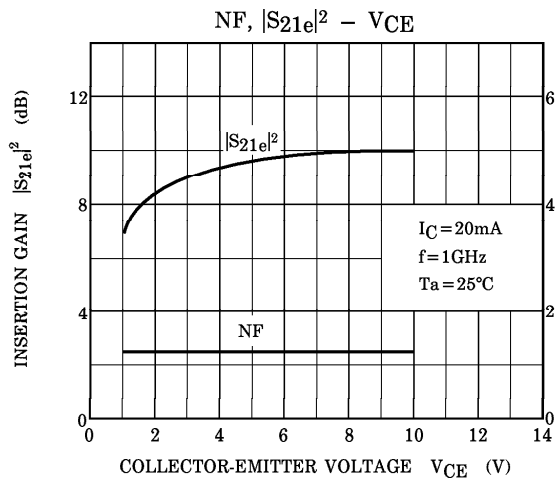
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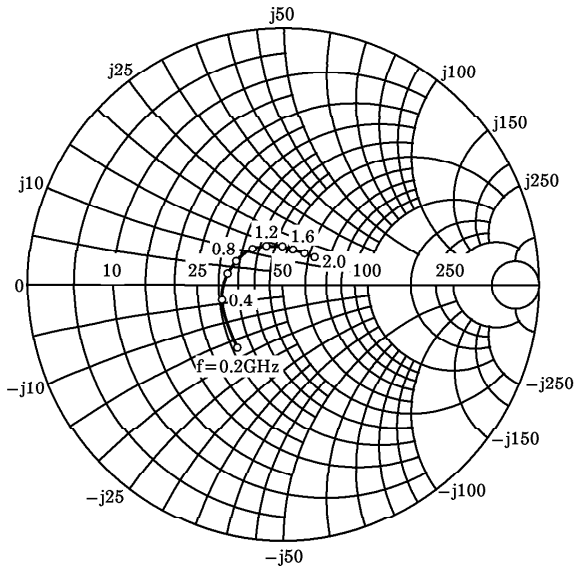
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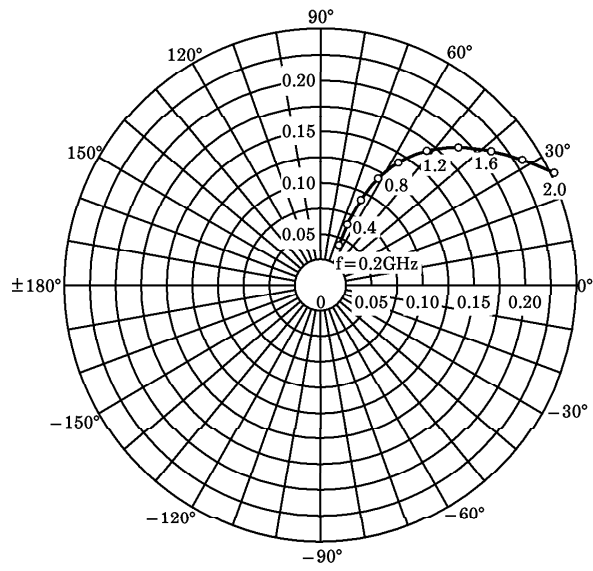




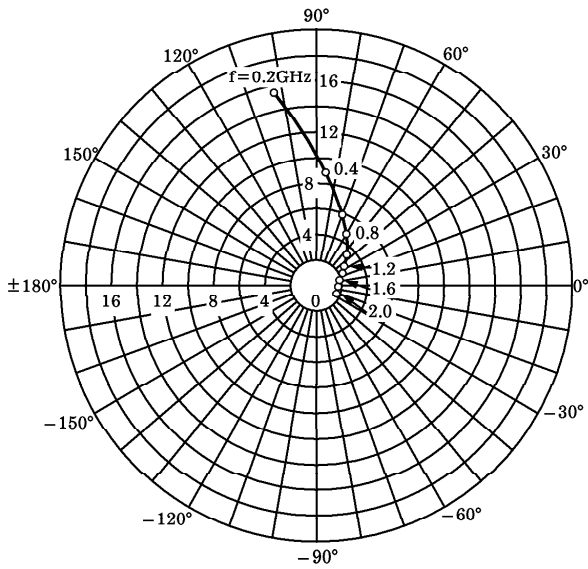
S_{11e}
 V_{CE} = 10V
 I_C = 20mA
 T_a = 25°C
 (UNIT : Ω)



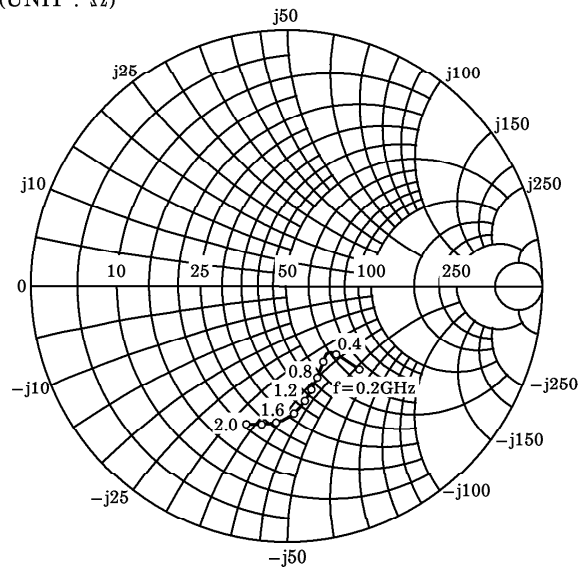
S_{12e}
 V_{CE} = 10V
 I_C = 20mA
 T_a = 25°C



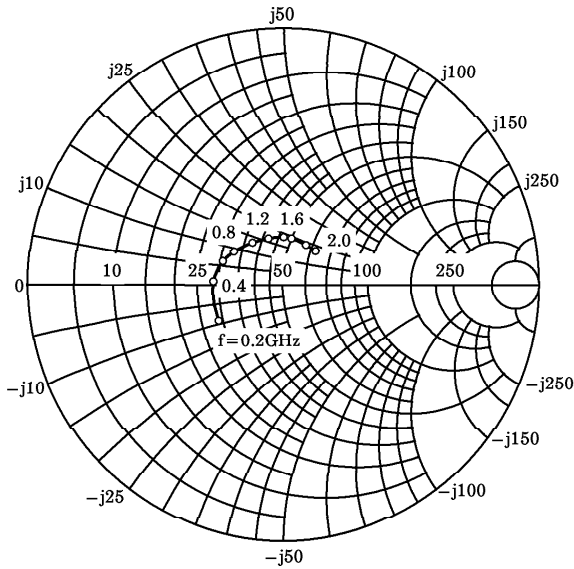
S_{21e}
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 I_C = 20mA
 T_a = 25°C



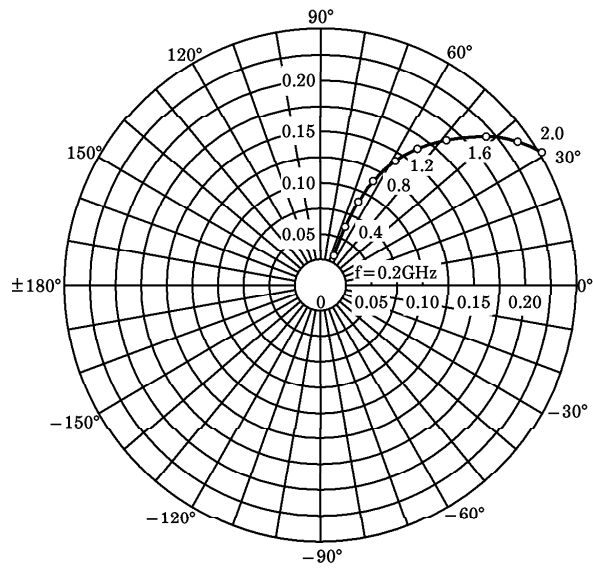
S_{22e}
 V_{CE} = 10V
 I_C = 20mA
 T_a = 25°C
 (UNIT : Ω)



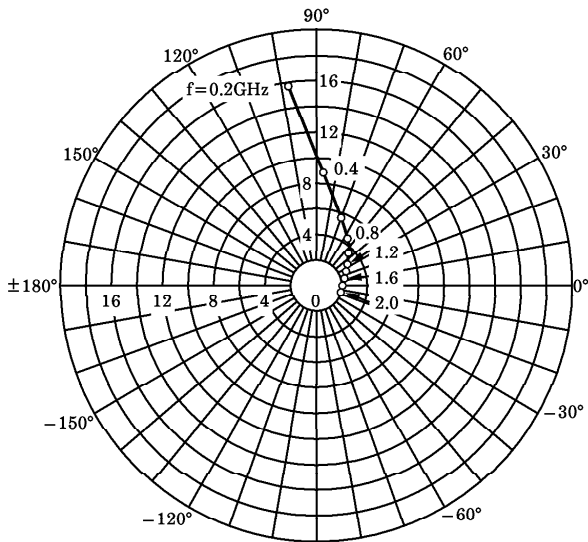
S_{11e}
 V_{CE} = 10V
 I_C = 40mA
 T_a = 25°C
 (UNIT : Ω)



S_{12e}
 V_{CE} = 10V
 I_C = 40mA
 T_a = 25°C



S_{21e}
 V_{CE} = 10V
 I_C = 40mA
 T_a = 25°C



S_{22e}
 V_{CE} = 10V
 I_C = 40mA
 T_a = 25°C
 (UNIT : Ω)

