

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC3607

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

Unit in mm

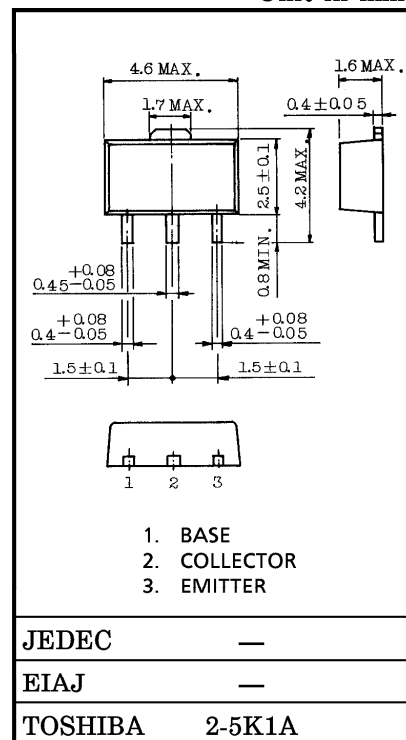
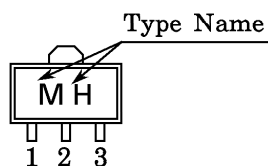
- Low Noise Figure, High Gain.
- $NF = 1.1dB$ ,  $|S_{21e}|^2 = 9.5dB$  ( $f = 1GHz$ )

MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

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
Base Current	$I_B$	40	mA
Collector Current	$I_C$	80	mA
Collector Power Dissipation	$P_C$	400	mW
		(*) 800	
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55~125	$^\circ C$

(\*) When mounted ceramic substrate of  $250mm^2 \times 0.8t$

Marking



JEDEC	—
EIAJ	—
TOSHIBA	2-5K1A

Weight : 0.05g

MICROWAVE CHARACTERISTICS ( $T_a = 25^\circ C$ )

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)	$V_{CE} = 10V, I_C = 20mA, f = 500MHz$	—	15	—	dB
	$ S_{21e} ^2$ (2)	$V_{CE} = 10V, I_C = 20mA, f = 1GHz$	6	9.5	—	
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	

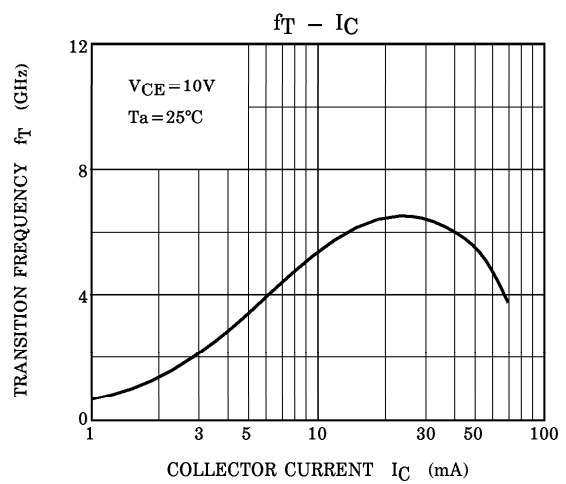
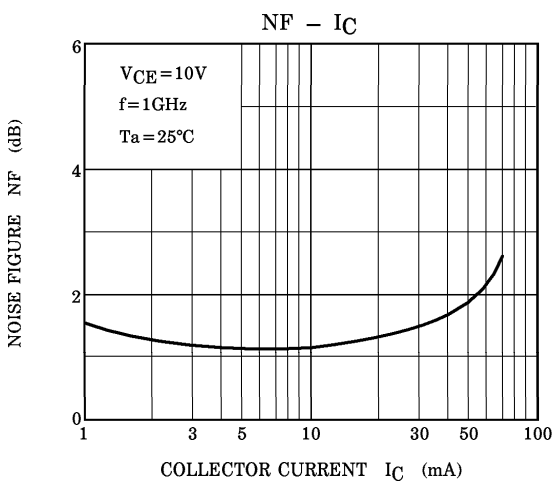
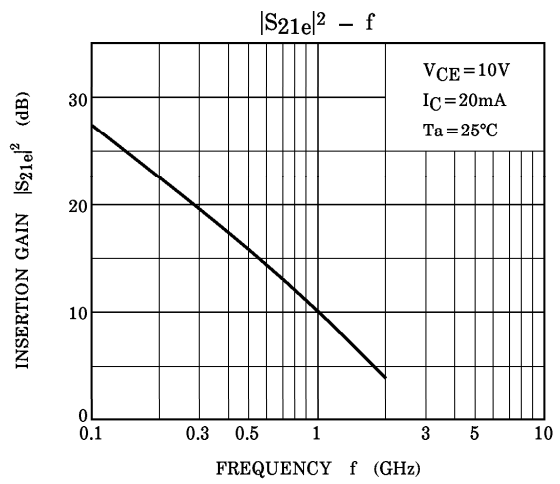
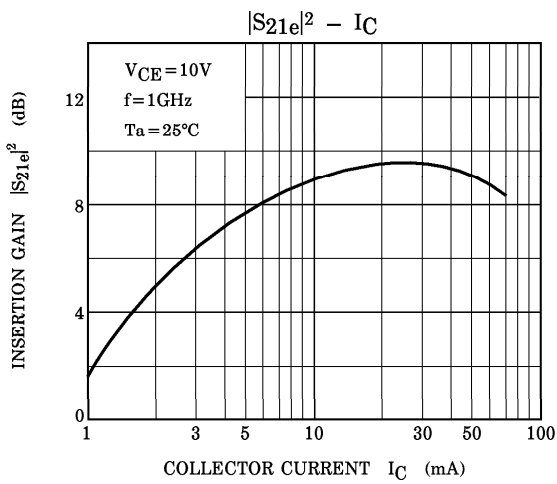
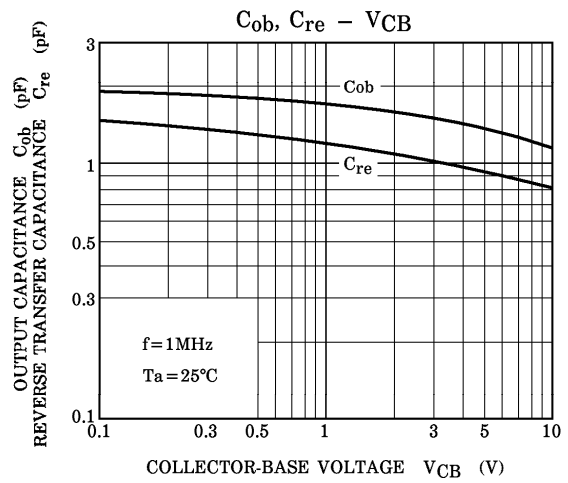
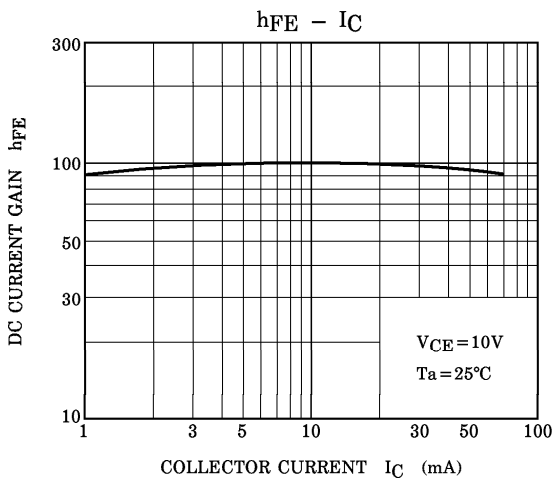
ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

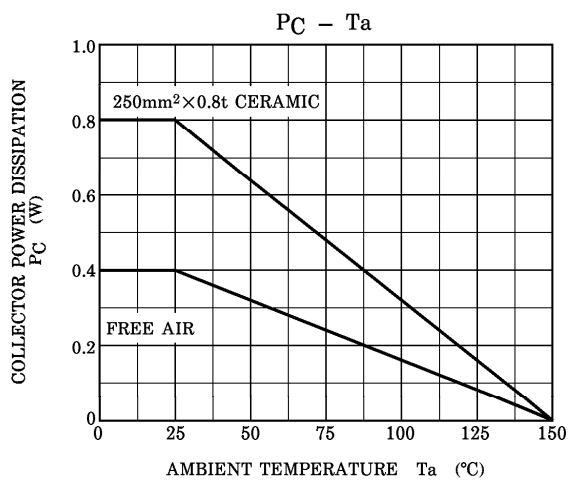
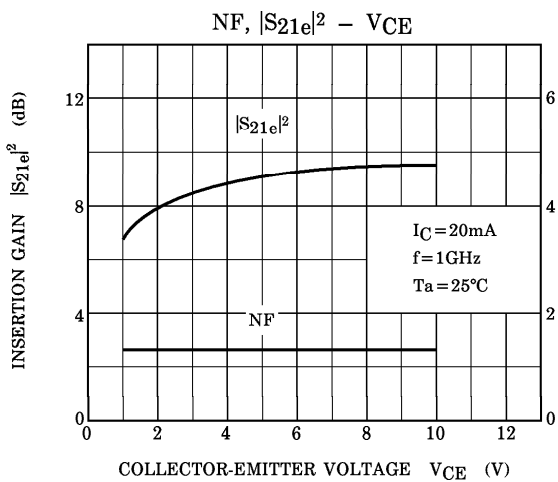
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 10V, I_E = 0$	—	—	1	$\mu A$
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 1V, I_C = 0$	—	—	1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE} = 10V, I_C = 20mA$	30	—	250	—
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 10V, I_E = 0,$	—	1.15	—	pF
Reverse Transfer Capacitance	$C_{re}$	$f = 1MHz$ (Note)	—	0.8	1.25	

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

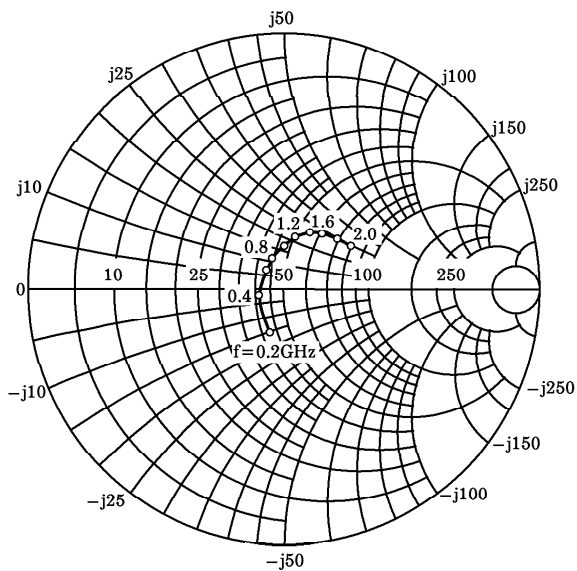
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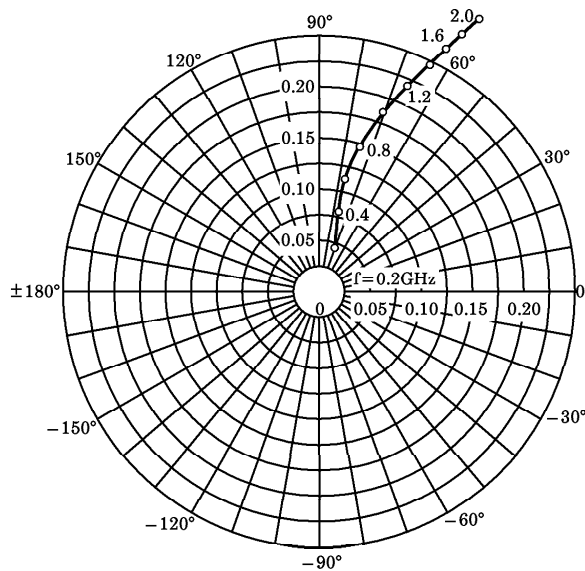




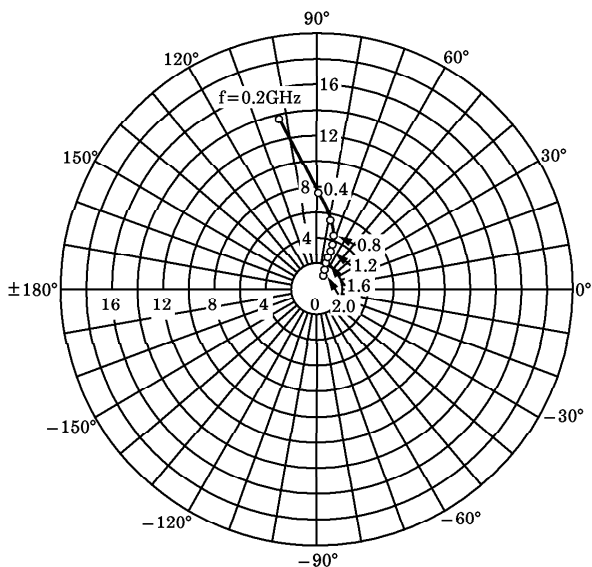
**S<sub>11e</sub>**  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 20mA  
 T<sub>a</sub> = 25°C  
 (UNIT : Ω)



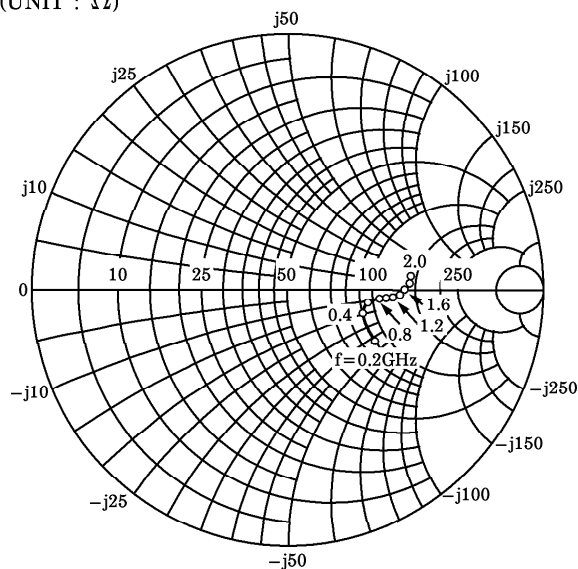
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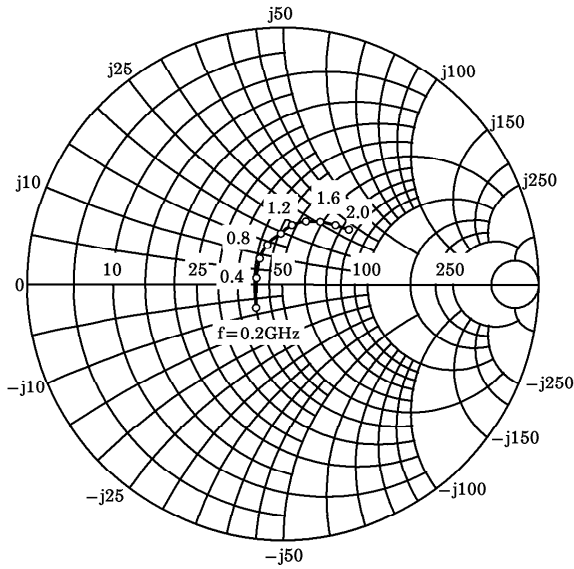
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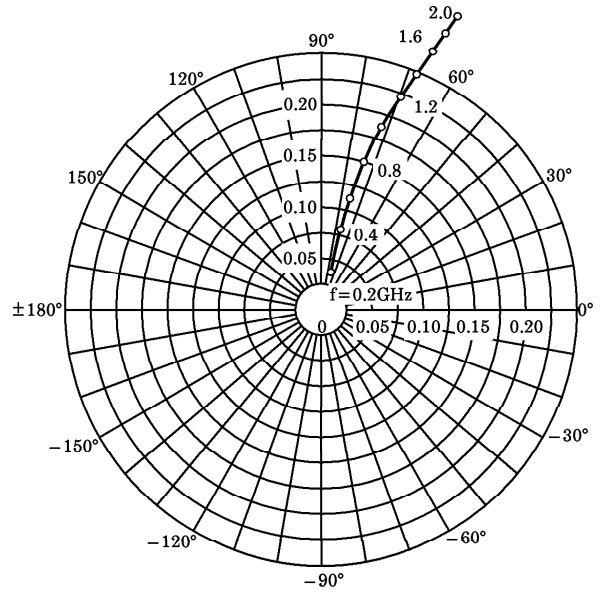
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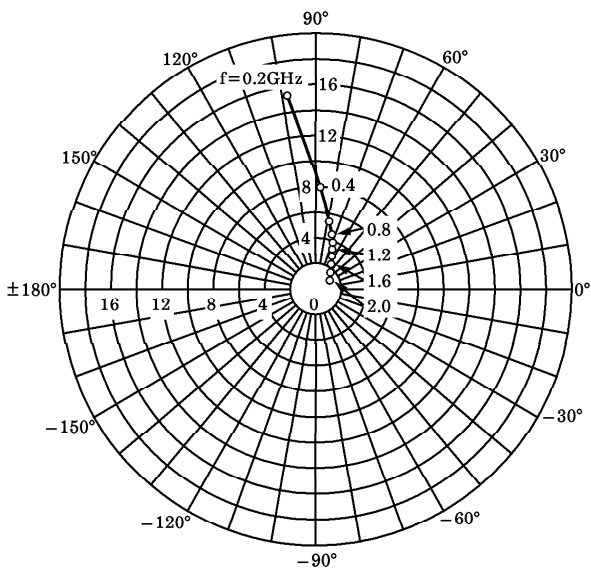
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