

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC2753

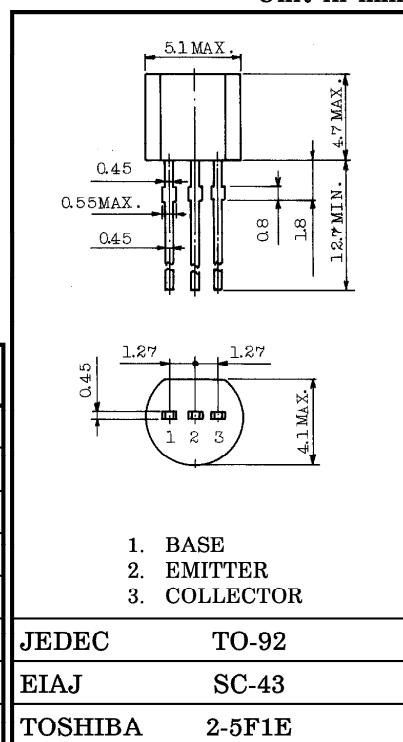
VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATION.

Unit in mm

- Low Noise Figure, High Gain
- $NF = 1.5\text{dB}$, $|S_{21e}|^2 = 16\text{dB}$ ($f = 500\text{MHz}$)
- $NF = 1.7\text{dB}$, $|S_{21e}|^2 = 10.5\text{dB}$ ($f = 1\text{GHz}$)

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CB0}	17	V
Collector-Emitter Voltage	V_{CE0}	12	V
Emitter-Base Voltage	V_{EB0}	3	V
Collector Current	I_C	70	mA
Base Current	I_B	30	mA
Collector Power Dissipation	P_C	300	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55 \sim 125$	$^\circ\text{C}$



Weight : 0.21g

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f_T	$V_{CE} = 10\text{V}$, $I_C = 20\text{mA}$	—	5	—	GHz
Insertion Gain	$ S_{21e} ^2(1)$	$V_{CE} = 10\text{V}$, $I_C = 20\text{mA}$, $f = 500\text{MHz}$	—	16	—	dB
	$ S_{21e} ^2(2)$	$V_{CE} = 10\text{V}$, $I_C = 20\text{mA}$, $f = 1\text{GHz}$	—	10.5	—	dB
Noise Figure	NF(1)	$V_{CE} = 10\text{V}$, $I_C = 5\text{mA}$, $f = 500\text{MHz}$	—	1.5	—	dB
	NF(2)	$V_{CE} = 10\text{V}$, $I_C = 5\text{mA}$, $f = 1\text{GHz}$	—	1.7	—	dB

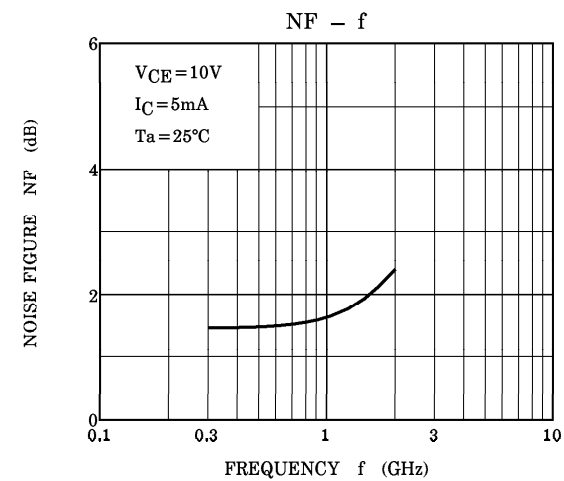
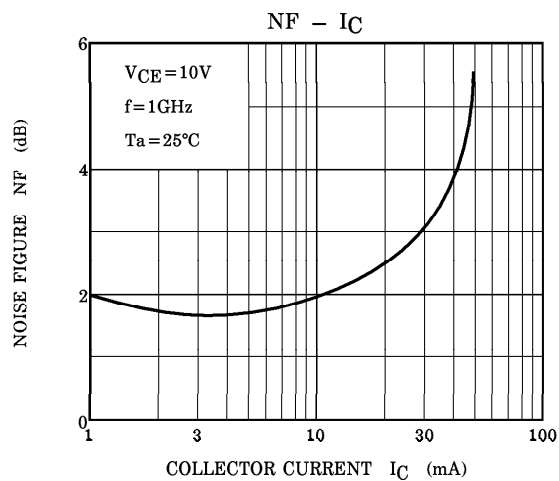
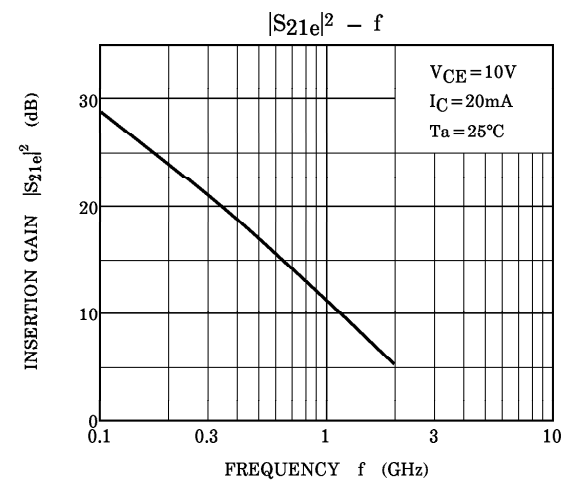
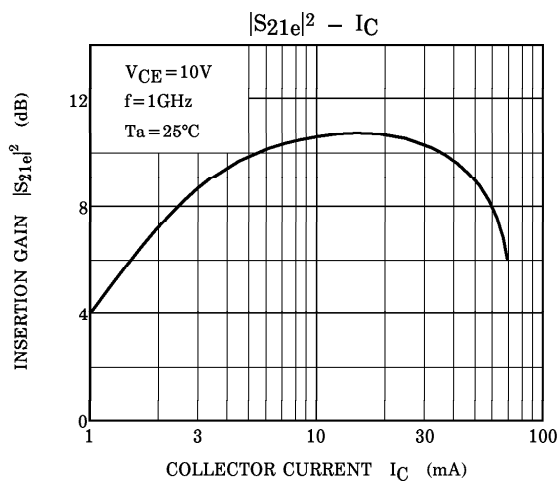
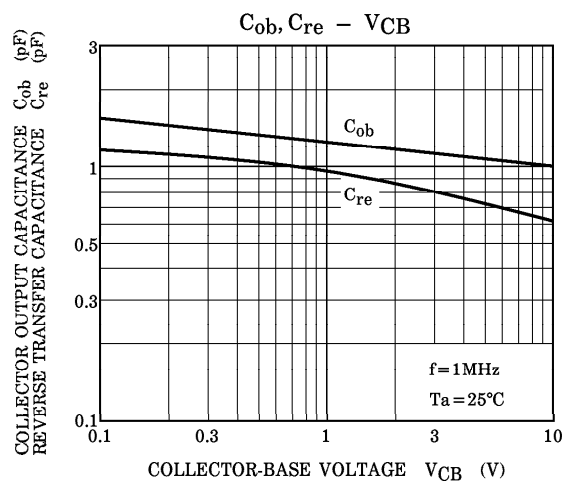
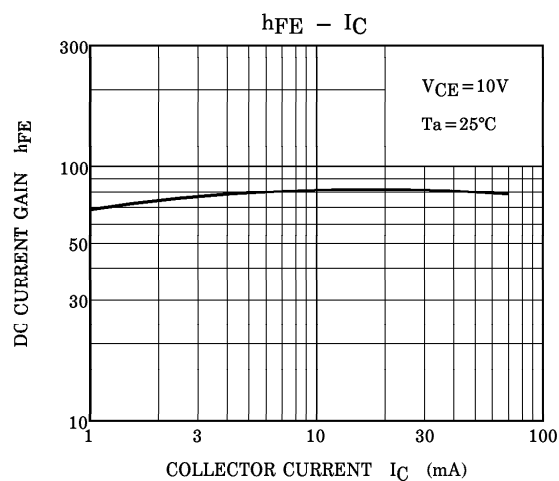
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB} = 10\text{V}$, $I_E = 0$	—	—	1	μA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 1\text{V}$, $I_E = 0$	—	—	1	μA
DC Current Gain	h_{FE}	$V_{CE} = 10\text{V}$, $I_C = 20\text{mA}$	30	—	180	—
Collector Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0$, $f = 1\text{MHz}$	—	1.1	—	pF
Reverse Transfer Capacitance	C_{re}	(Note)	—	0.65	—	pF

Note : C_{re} is measured by 3 terminal method with Capacitance Bridge.

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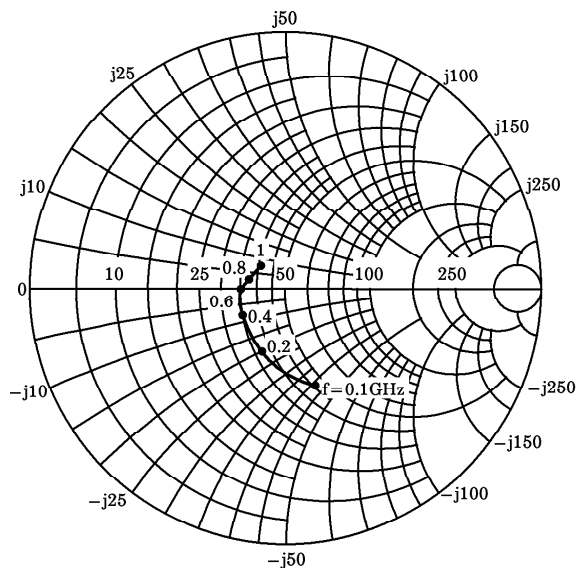
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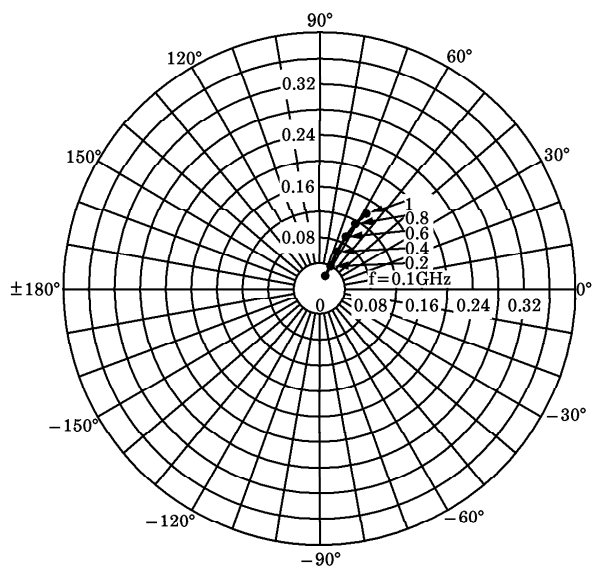
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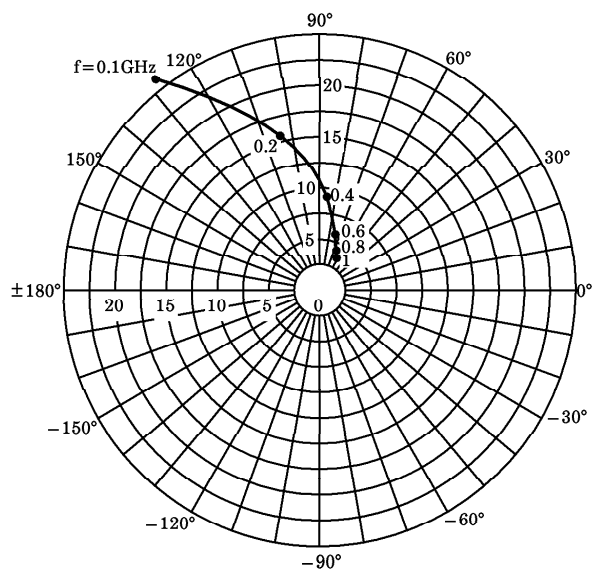
S_{11e}
 $V_{CE} = 10V$
 $I_C = 20mA$
 $T_a = 25^\circ C$
 (UNIT : Ω)



S_{12e}
 $V_{CE} = 10V$
 $I_C = 20mA$
 $T_a = 25^\circ C$



S_{21e}
 $V_{CE} = 10V$
 $I_C = 20mA$
 $T_a = 25^\circ C$



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

