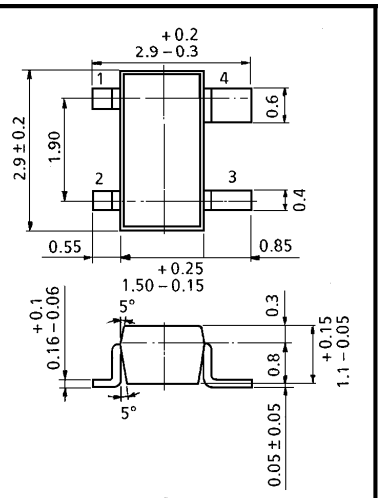
TOSHIBA TRANSISTOR SILICON NPN PLANAR TYPE

2SC4214

UHF TV TUNER RF AMPLIFIER APPLICATIONS

Unit in mm

- Low Noise Figure : NF = 2.8dB (Typ.)
- High Power Gain V_{CC} = 4.5V : G_{pb} = 15dB (Typ.)
- Excellent Forward AGC Characteristics



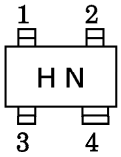
JEDEC	—
EIAJ	—
TOSHIBA	2-3J1B

Weight : 0.013g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	25	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	2	V
Base Current	I_B	4	mA
Collector Current	I_C	20	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	125	°C
Storage Temperature Range	T_{stg}	−55~125	°C

Marking



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB} = 10V, I_E = 0	—	—	0.1	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 2V, I_C = 0	—	—	1	μA
Collector Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1mA, I_B = 0	20	—	—	V
DC Current Gain	h_{FE}	V_{CE} = 3.0V, I_C = 1mA	40	100	—	—
Transition Frequency	f_T	V_{CE} = 3.0V, I_C = 1mA	500	850	—	MHz
Reverse Transfer Capacitance	C_{rb}	V_{CE} = 2.0V, I_B = 0, f = 1MHz	—	0.3	0.5	pF
Power Gain	G_{pb}	V_{CC} = 4.5V, V_{AGC} = 2.0V	10	15	—	dB
Noise Figure	NF	f = 800MHz (Fig.1)	—	2.8	4.5	dB
AGC Voltage	V_{AGC}	V_{CC} = 4.5V, G.R. = −20dB f = 800MHz	2.5	3.2	4.0	V

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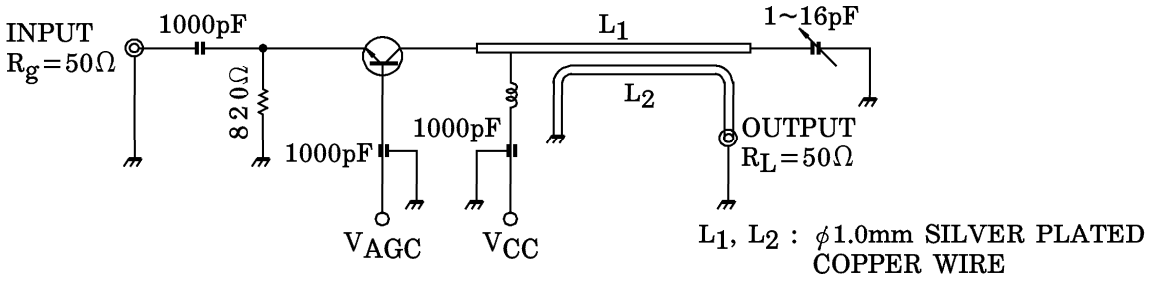
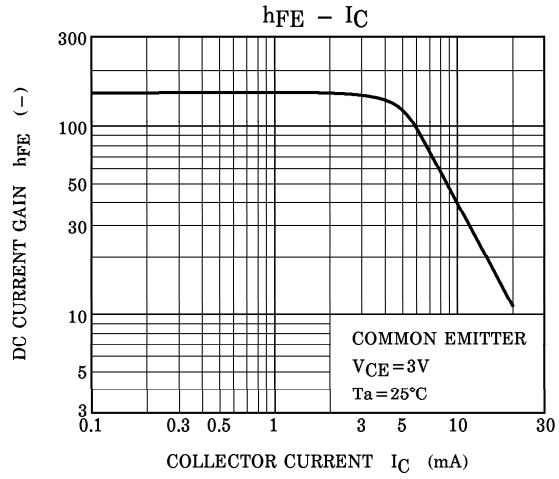
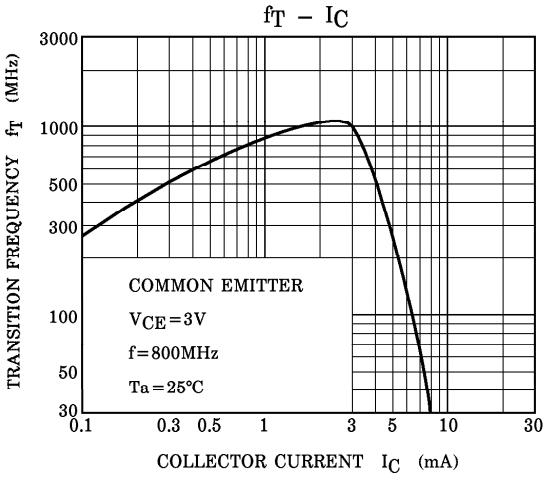
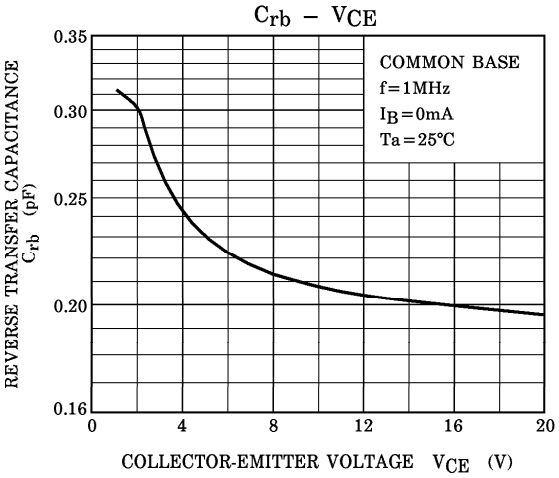


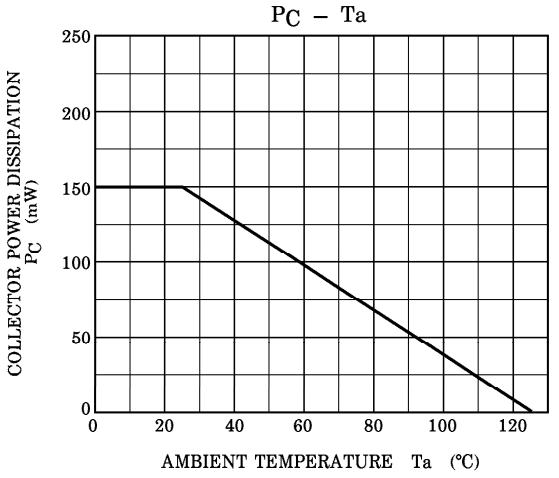
(Note) V_{AGC} measured by the test circuit shown in Fig.1, when the power gain is reduced to 20dB compared with G_{pb} shown above Table.

Fig.1 800MHz G_{pb}, NF TEST CIRCUIT

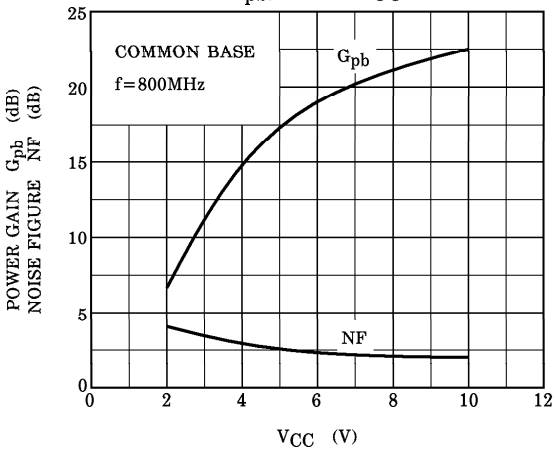




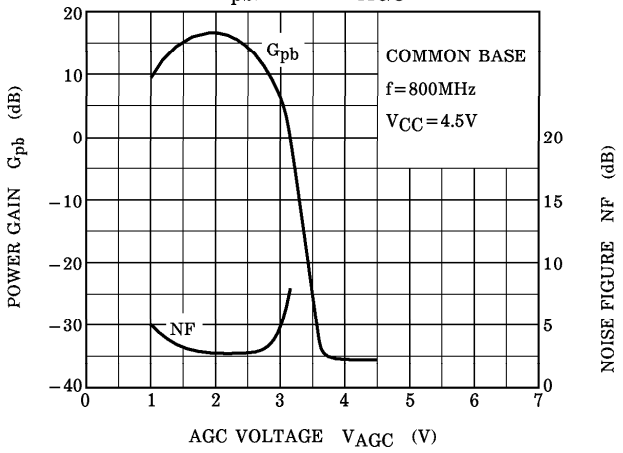




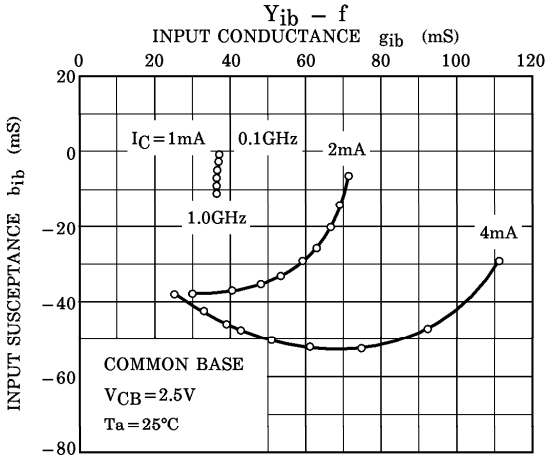
G_{pb}, NF – V_{CC}



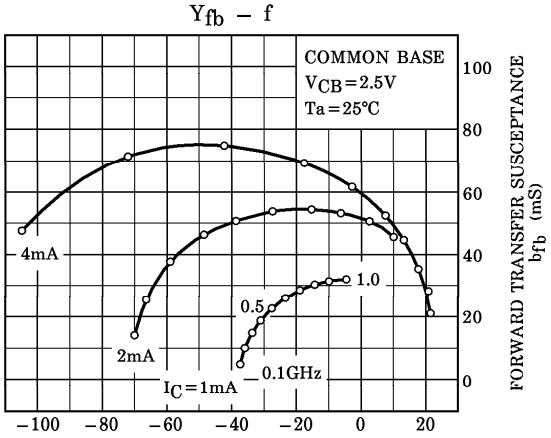
G_{pb}, NF – V_{AGC}



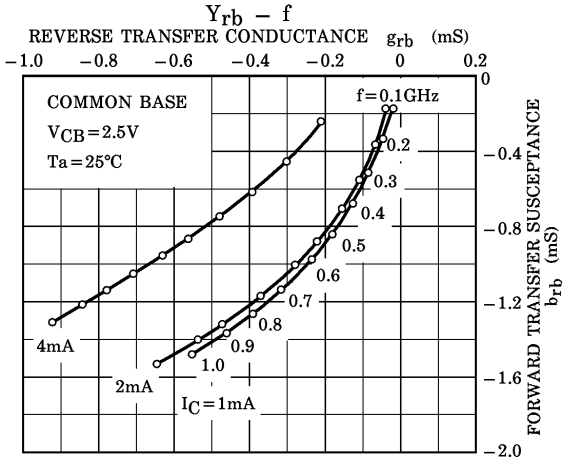
Y_{ib} – f



Y_{fb} – f



Y_{rb} – f



Y_{ob} – f