

TOSHIBA Transistor Silicon NPN Planar Type

2SC4214

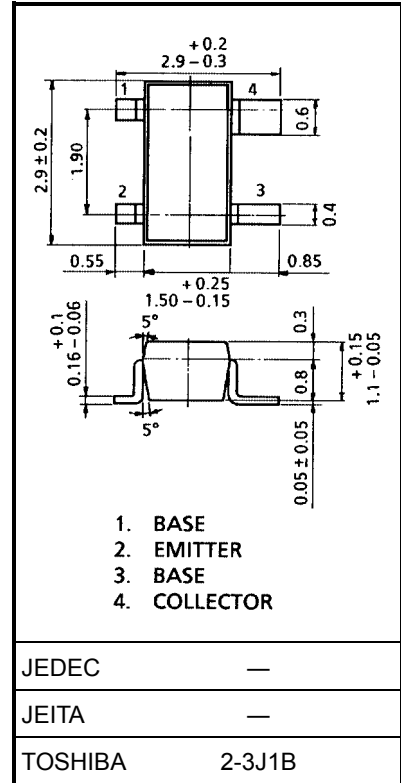
UHF TV Tuner RF Amplifier Applications

Unit: mm

- Low noise figure: NF = 2.8dB (typ.)
- High power gain $V_{CC} = 4.5\text{ V}$: $G_{pb} = 15\text{ dB}$ (typ.)
- Excellent forward AGC characteristics

Maximum Ratings (Ta = 25°C)

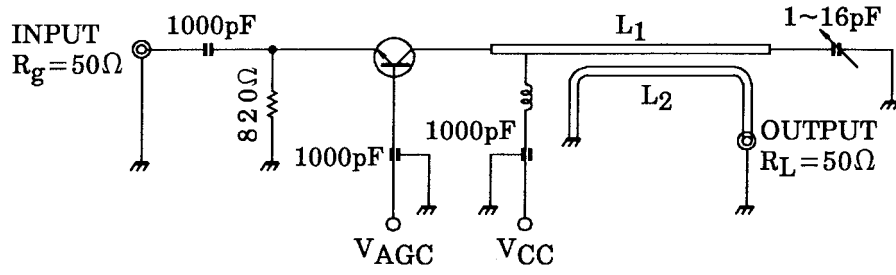
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CBO}	25	V
Collector-emitter voltage	V_{CEO}	20	V
Emitter-base voltage	V_{EBO}	2	V
Base current	I_B	4	mA
Collector current	I_C	20	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	-55~125	°C



Electrical Characteristics (Ta = 25°C)

Weight: 0.013 g (typ.)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 10\text{ V}$, $I_E = 0$	—	—	0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 2\text{ V}$, $I_C = 0$	—	—	1	μA
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{ mA}$, $I_B = 0$	20	—	—	V
DC current gain	h_{FE}	$V_{CE} = 3.0\text{ V}$, $I_C = 1\text{ mA}$	40	100	—	
Transition frequency	f_T	$V_{CE} = 3.0\text{ V}$, $I_C = 1\text{ mA}$	500	850	—	MHz
Reverse transfer capacitance	C_{rb}	$V_{CE} = 2.0\text{ V}$, $I_B = 0$, $f = 1\text{ MHz}$	—	0.3	0.5	pF
Power gain	G_{pb}	$V_{CC} = 4.5\text{ V}$, $V_{AGC} = 2.0\text{ V}$	10	15	—	dB
Noise figure	NF	$f = 800\text{ MHz}$ (Figure 1)	—	2.8	4.5	dB
AGC voltage	V_{AGC}	$V_{CC} = 4.5\text{ V}$, G.R. = -20dB $f = 800\text{ MHz}$ (Note)	2.5	3.2	4.0	V

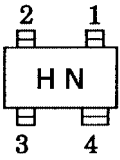


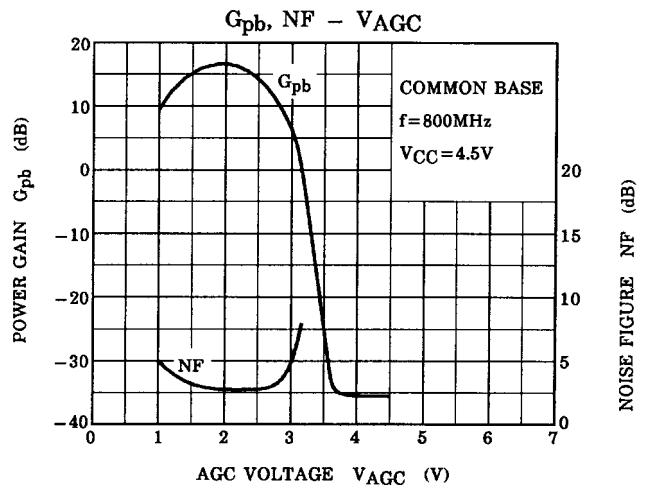
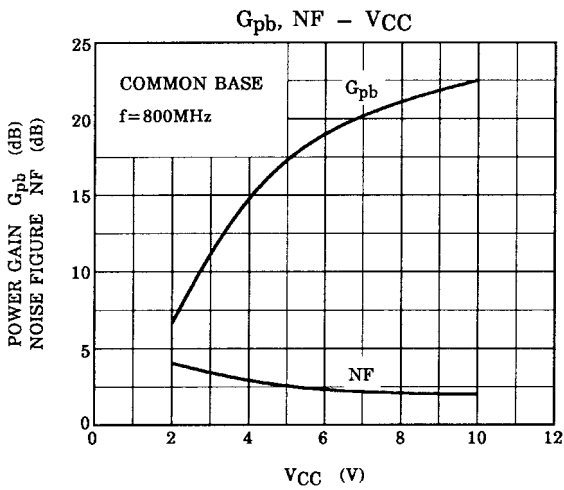
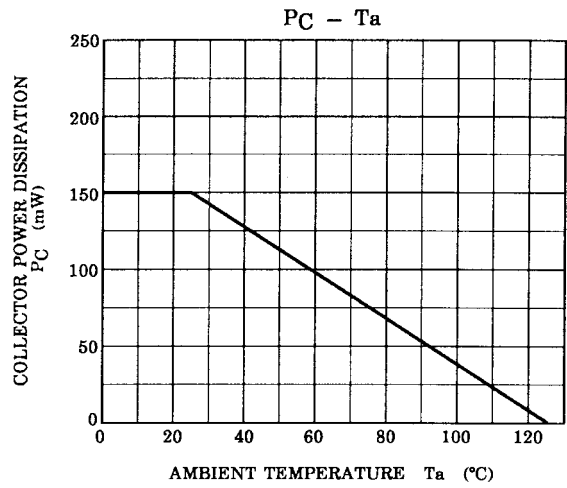
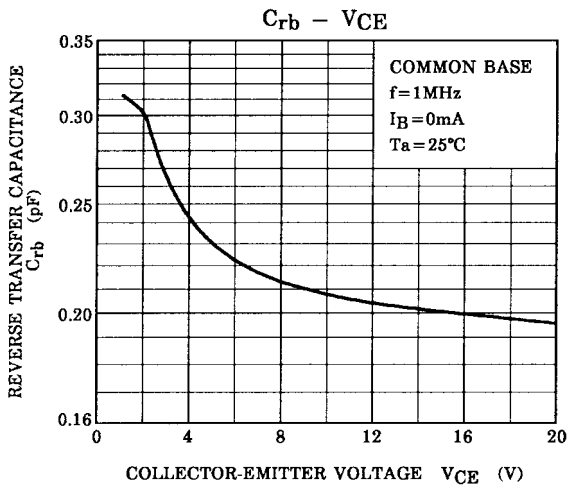
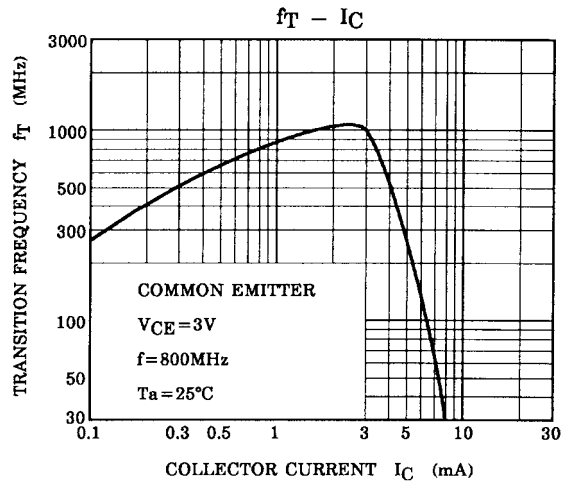
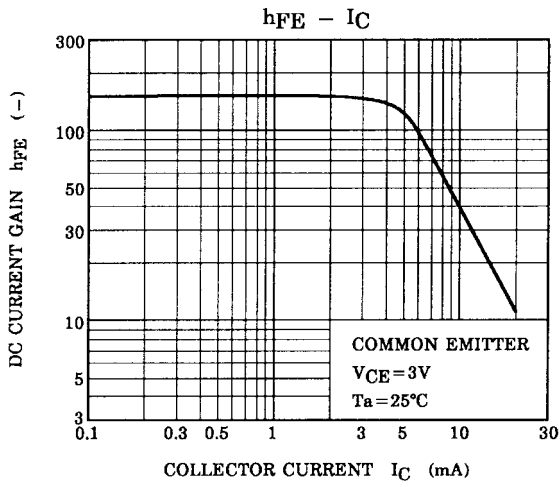
L₁, L₂: φ1.0 mm silver plated copper wire

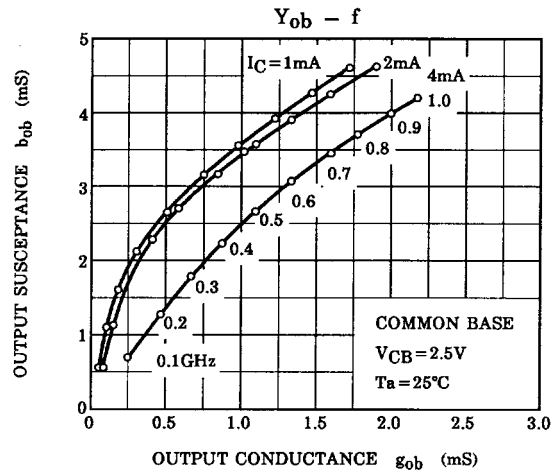
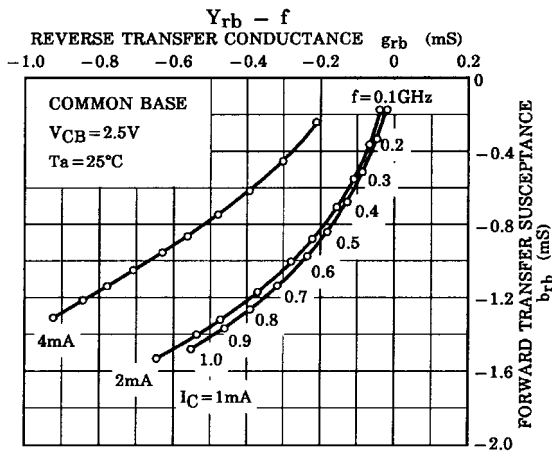
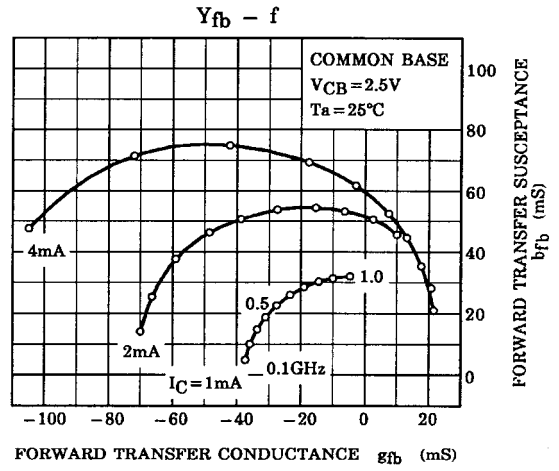
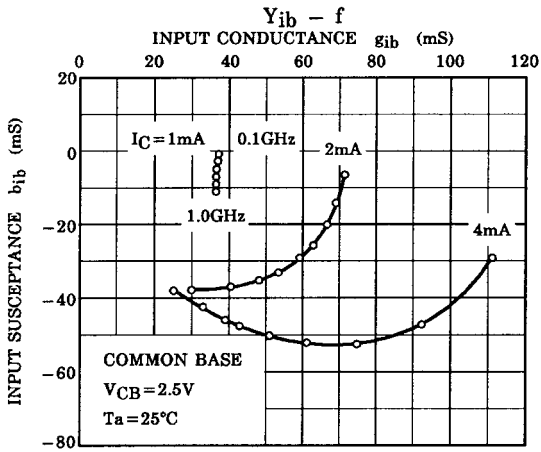
Note: V_{AGC} measured by the test circuit shown in Figure 1, when the power gain is reduced to 20dB compared with G_{pb} shown above table.

Figure 1 800 MHz G_{pb}, NF Test Circuit

Marking







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