TOSHIBA Transistor Silicon NPN Planar Type

2SC4214

UHF TV Tuner RF Amplifier Applications

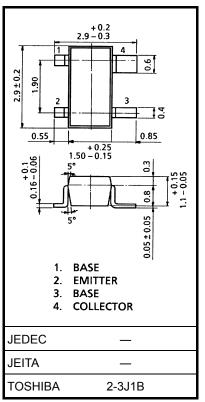
Unit: mm

- 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

Absolute 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	ΙB	4	mA	
Collector current	IC	20	mA	
Collector power dissipation	PC	150	mW	
Junction temperature	Tj	125	°C	
Storage temperature range	T _{stg}	-55~125	°C	

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

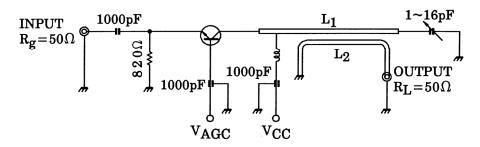


Weight: 0.013 g (typ.)

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition		Min	Тур.	Max	Unit
Collector cut-off current	I _{CBO}	V _{CB} = 10 V, I _E = 0		_	_	0.1	μΑ
Emitter cut-off current	I _{EBO}	V _{EB} = 2 V, I _C = 0		_	_	1	μА
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 V, I _B = 0, f = 1 MHz		_	0.3	0.5	pF
Power gain	G _{pb}	V _{CC} = 4.5 V, V _{AGC} = 2.0 V		10	15	_	dB
Noise figure	NF	f = 800 MHz (Figure 1)	•	_	2.8	4.5	dB
AGC voltage	V _{AGC}	V _{CC} = 4.5 V, G.R. = -20dB f = 800 MHz	(Note)	2.5	3.2	4.0	V



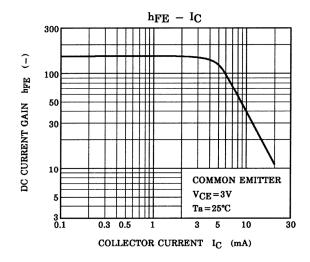
 L_1 , L_2 : $\phi 1.0$ mm silver plated copper wire

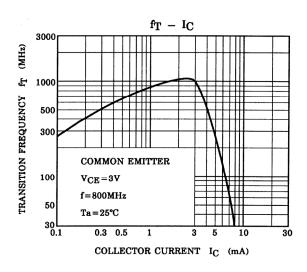
Note: V_{AGC} measured by the test circuit shown in Figure 1, when the power gain is reduced to 20dB compared with G_{pb} shown above table.

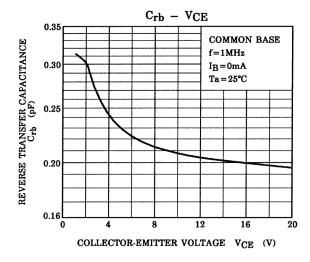
Figure 1 800 MHz Gpb, NF Test Circuit

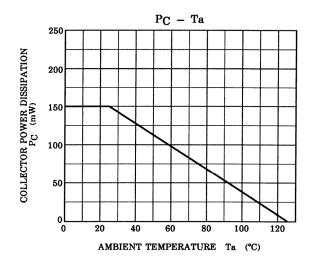
Marking

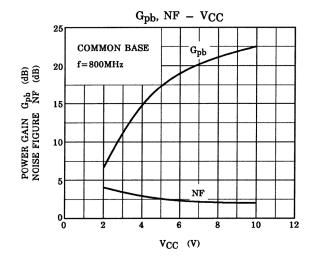


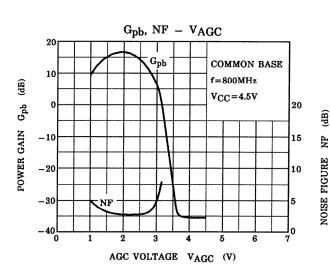


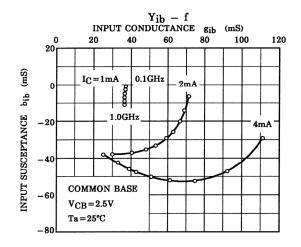


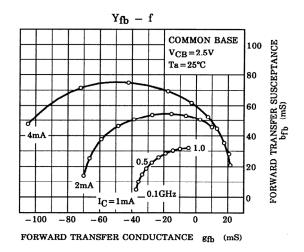


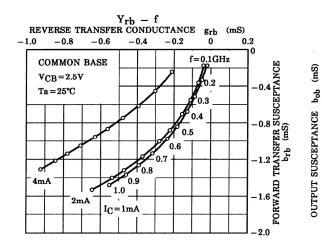


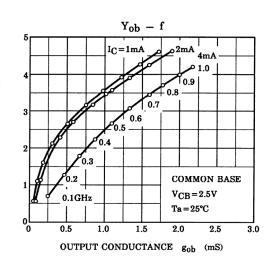












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20070701-EN GENERAL

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