

TOSHIBA TRANSISTOR SILICON NPN PLANAR TYPE

2SC4214

UHF TV TUNER RF AMPLIFIER APPLICATIONS

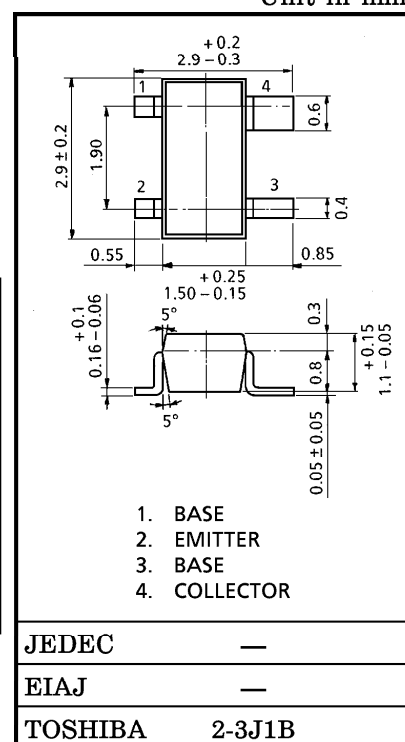
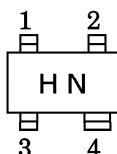
Unit in mm

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

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

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	$^\circ C$
Storage Temperature Range	T_{stg}	-55~125	$^\circ C$

Marking



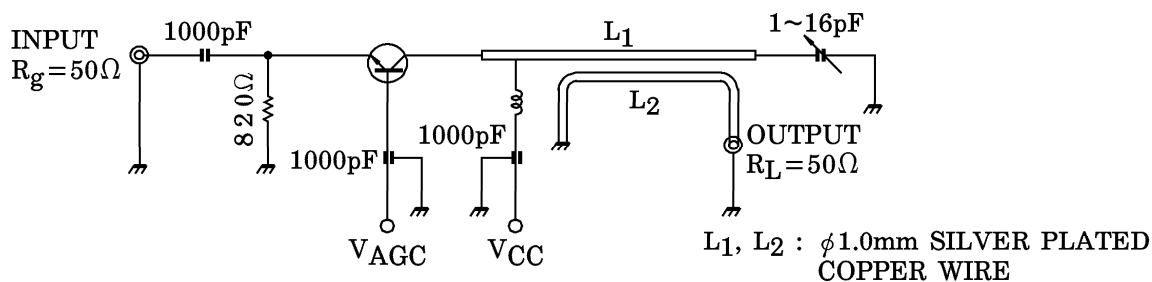
Weight : 0.013g

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

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB}=10V, I_E=0$	—	—	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

961001EAA1

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.



(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

