

TOSHIBA TRANSISTOR SILOCON NPN EPITAXIAL PLANAR TYPE

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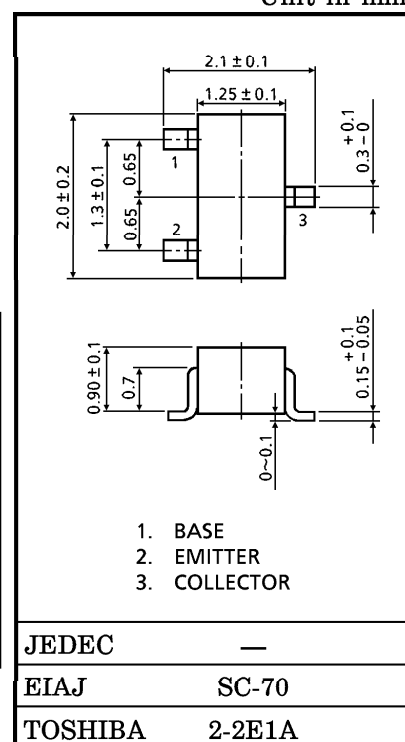
TV VHF RF AMPLIFIER APPLICATIONS

Unit in mm

- High Gain : $G_{pe}=24\text{dB}$ (Typ.) ($f=200\text{MHz}$)
- Low Noise : $NF=2.0\text{dB}$ (Typ.) ($f=200\text{MHz}$)
- Excellent Forward AGC Characteristics

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

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	3	V
Collector Current	I_C	20	mA
Base Current	I_B	10	mA
Collector Power Dissipation	P_C	100	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	$-55\sim 125$	$^\circ\text{C}$

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

Weight : 0.006g

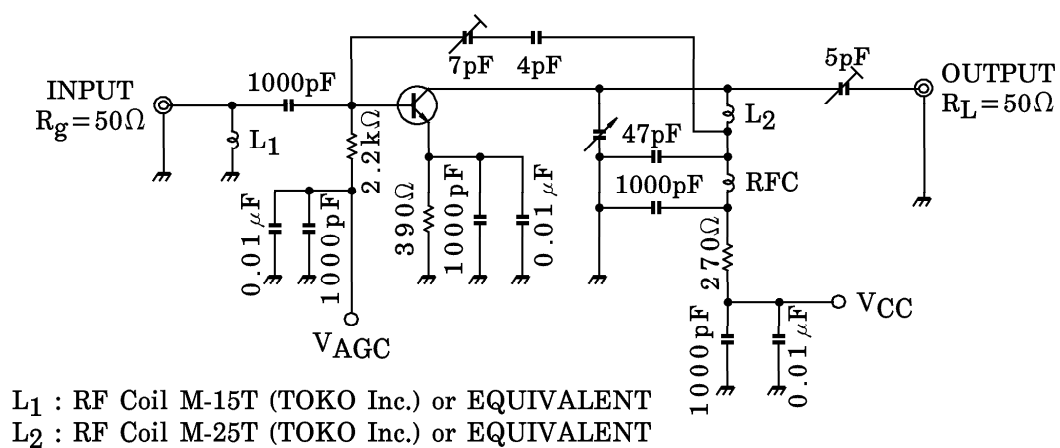
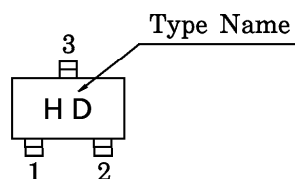
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	$V_{CB}=25\text{V}, I_E=0$	—	—	100	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB}=2\text{V}, I_C=0$	—	—	100	nA
Collector Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, I_B=0$	30	—	—	V
DC Current Gain	h_{FE}	$V_{CE}=10\text{V}, I_C=2\text{mA}$	60	150	300	—
Reverse Transfer Capacitance	C_{re}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$	—	0.35	0.5	pF
Transition Frequency	f_T	$V_{CE}=10\text{V}, I_C=2\text{mA}$	400	650	—	MHz
Power Gain	G_{pe}	$V_{CC}=12\text{V}, V_{AGC}=1.4\text{V}$	20	24	28	dB
Noise Figure	NF	$f=200\text{MHz}$ (Fig.1)	—	2.0	3.2	dB
AGC Voltage (Note)	V_{AGC}	$V_{CC}=12\text{V}, GR=30\text{dB}$ $f=200\text{MHz}$	3.6	4.4	5.1	V

(Note) V_{AGC} measured by test circuit shown in Fig.1 when power gain is reduced to 30dB compared that of V_{AGC} at 1.4V.

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MARKING

Fig.1 200MHz G_{pe} , NF TEST CIRCUIT

