

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC3123

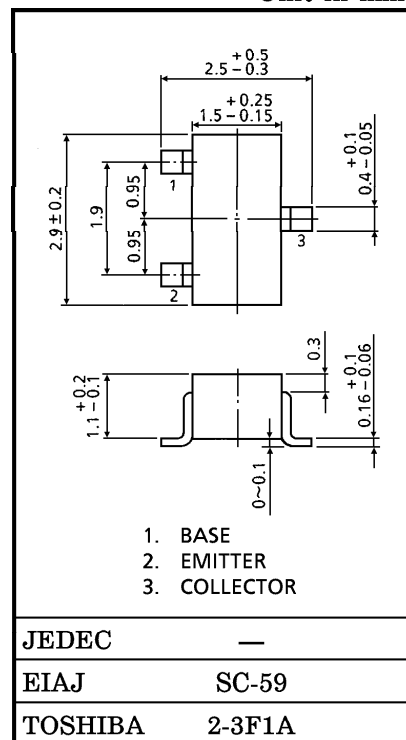
TV VHF MIXER APPLICATIONS

Unit in mm

- High Conversion Gain : $G_{ce} = 23\text{dB}$ (Typ.)
- Low Reverse Transfer Capacitance : $C_{re} = 0.4\text{pF}$ (Typ.)

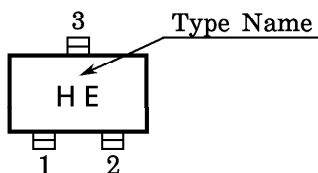
MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	3	V
Collector Current	I_C	50	mA
Base Current	I_B	25	mA
Collector Power Dissipation	P_C	150	mW
Junction Temperature	T_j	125	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55~125	$^\circ\text{C}$



Weight : 0.012g

Marking



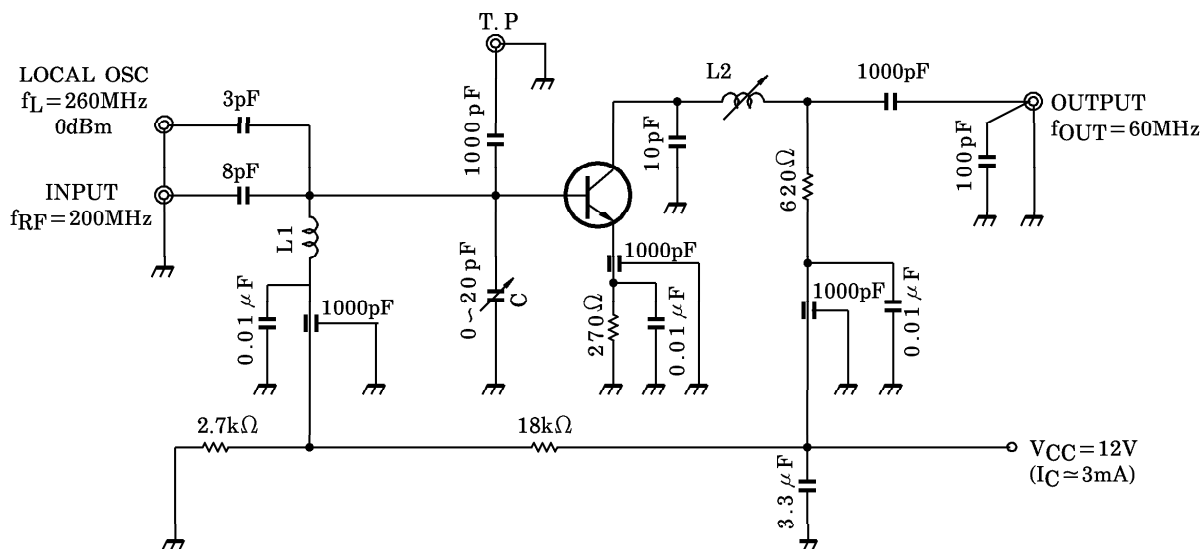
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

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}	$V_{EB} = 3\text{V}, I_C = 0$	—	—	1000	nA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1\text{mA}, I_B = 0$	20	—	—	V
DC Current Gain	h_{FE}	$V_{CE} = 10\text{V}, I_C = 5\text{mA}$	40	150	300	
Reverse Transfer Capacitance	C_{re}	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	—	0.4	0.5	pF
Transition Frequency	f_T	$V_{CE} = 10\text{V}, I_C = 5\text{mA}$	900	1400	—	MHz
Conversion Gain	G_{ce}	$V_{CC} = 12\text{V}, f = 200\text{MHz}$	20	23	—	dB
Noise Figure	NF	$f_L = 260\text{MHz}$	—	3.8	5.5	dB

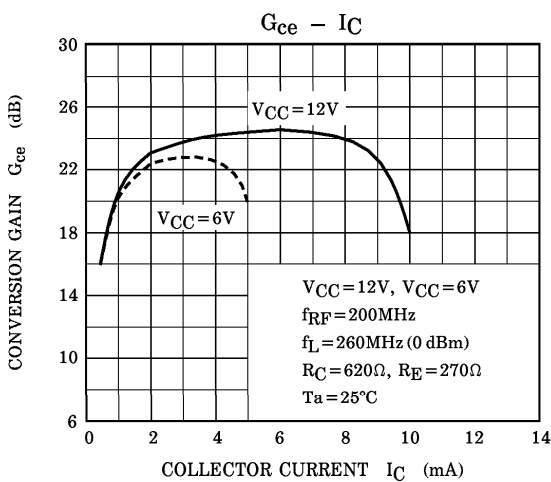
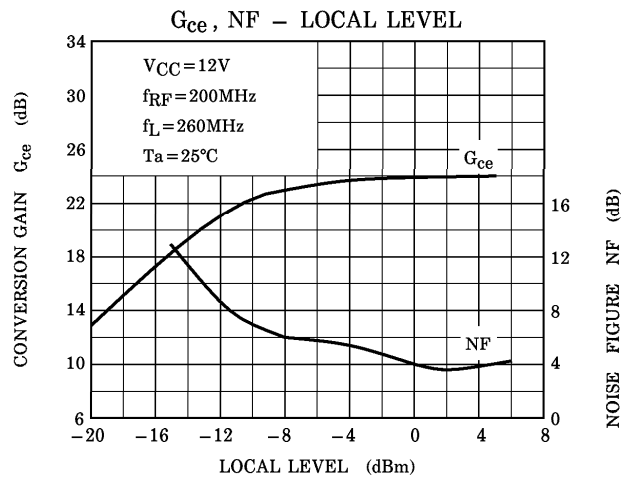
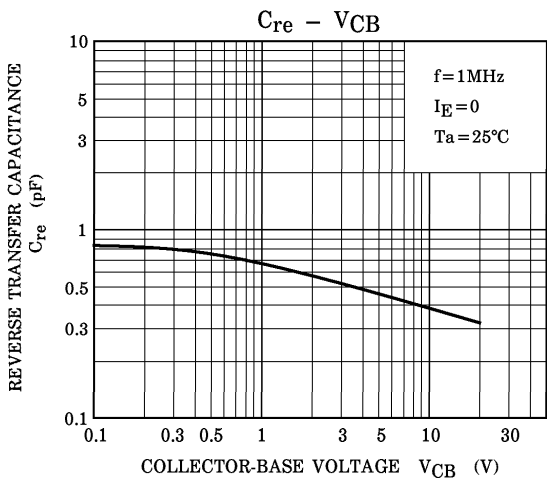
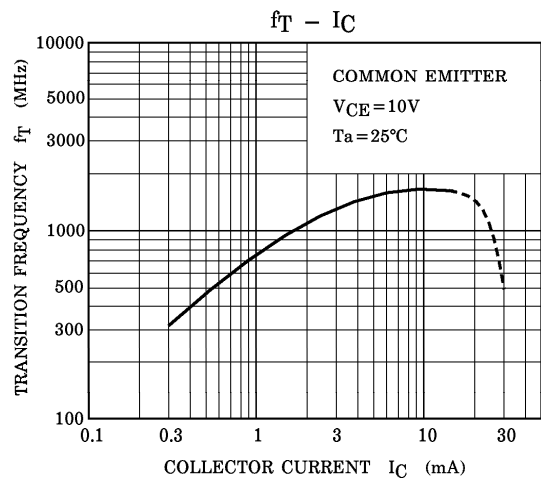
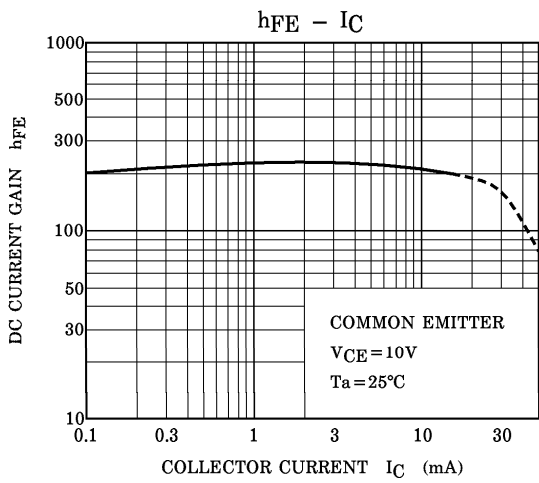
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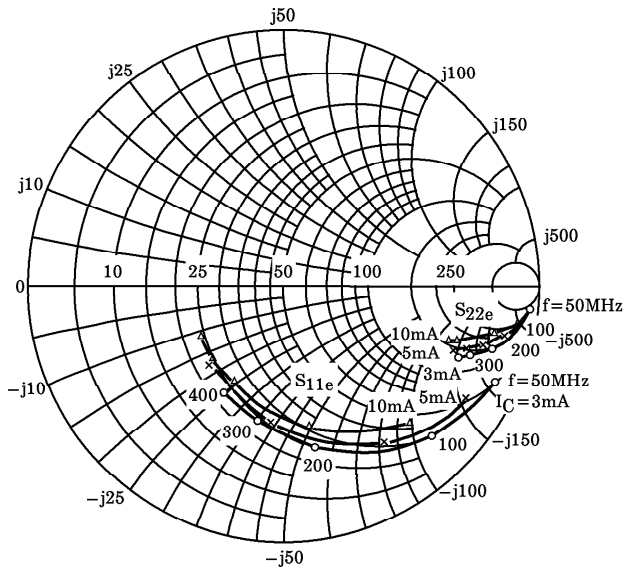
Fig.1 200MHz G_{ce} , NF TEST CIRCUIT



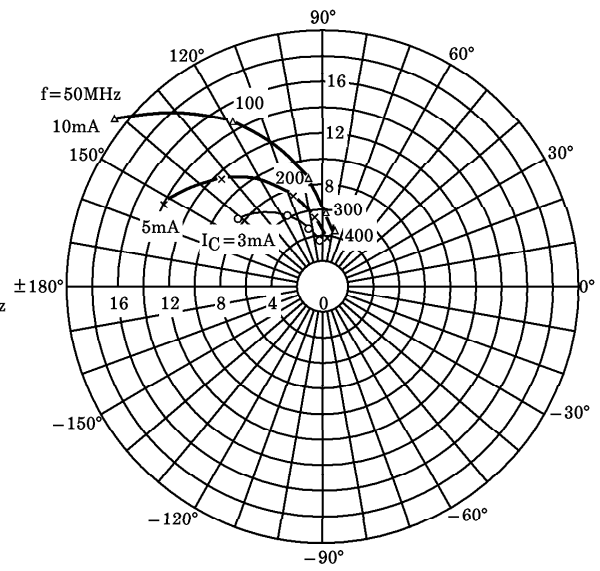
- L1 : 0.8mmφ SILVER PLATED COPPER WIRE, 1.5T 5mm ID
- L2 : COIL WITH CORE SCN-5962A ① - ③ (TOKO INC.) OR EQUIVALENT
- C : AIR TRIMMER TTA25A200A (MURATA MFG, Co., LTD.) OR EQUIVALENT



S_{11e}, S_{22e}
 $V_{CE} = 10V$
 $T_a = 25^\circ C$
 (UNIT: Ω)



S_{21e}
 $V_{CE} = 10V$
 $T_a = 25^\circ C$



S_{12e}
 $V_{CE} = 10V$
 $T_a = 25^\circ C$

