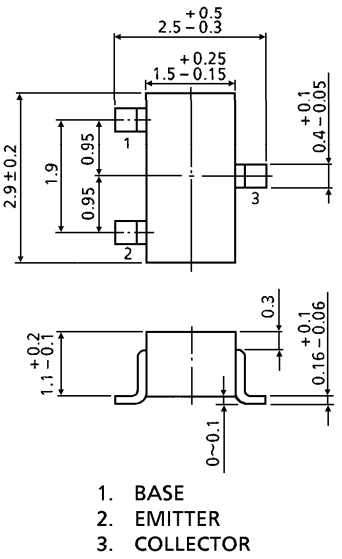
TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

2SC3120

TV TUNER, UHF MIXER APPLICATIONS

VHF ~ UHF BAND RF AMPLIFIER APPLICATIONS

Unit in mm



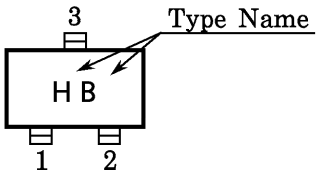
JEDEC	—
EIAJ	—
TOSHIBA	2-3F1A

Weight : 0.012g

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	15	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	°C
Storage Temperature Range	T_{stg}	−55~125	°C

Marking

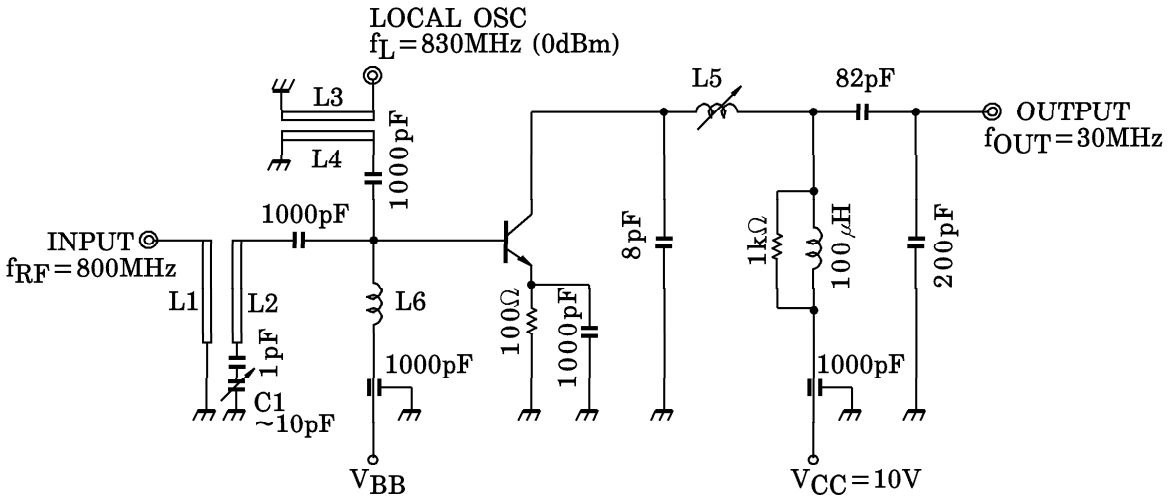


ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I_{CBO}	V_{CB} = 30V, I_E = 0	—	—	0.1	μA
Emitter Cut-off Current	I_{EBO}	V_{EB} = 2V, I_C = 0	—	—	1.0	μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1mA, I_B = 0	15	—	—	V
DC Current Gain	h_{FE}	V_{CE} = 10V, I_C = 5mA	40	100	200	—
Reverse Transfer Capacitance	C_{re}	V_{CB} = 10V, I_E = 0, f = 1MHz	—	0.6	0.9	pF
Transition Frequency	f_T	V_{CE} = 10V, I_C = 2mA	1500	2400	—	MHz
Conversion Gain	G_{ce}	V_{CC} = 10V, I_C = 2mA, f = 800MHz,	12	17	—	dB
Noise Figure	NF	f_L = 830MHz (0dBm) (Fig.1)	—	8	—	dB

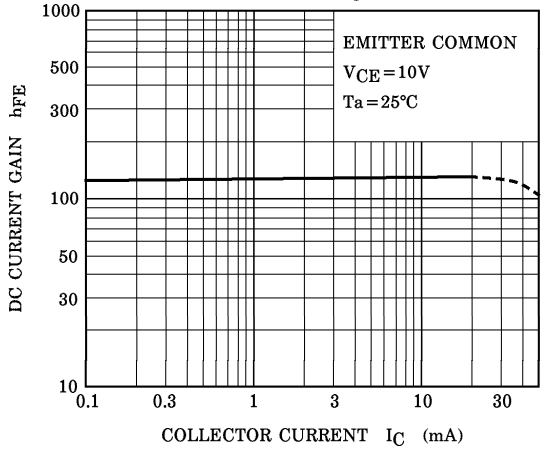
961001EAA1

Fig.1 800MHz G_{ce}, NF TEST CIRCUIT

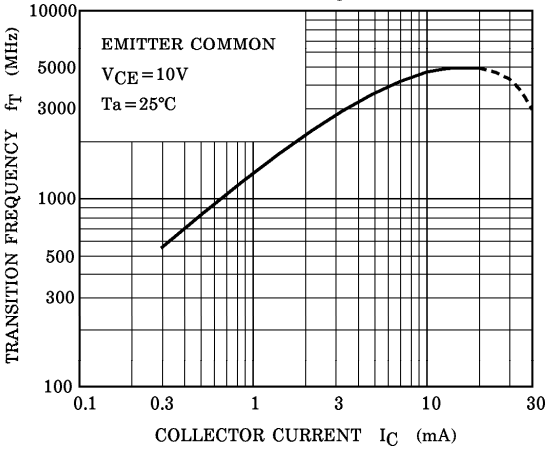


L1~L4 : ϕ0.8mm SILVER PLATED COPPER WIRE
L5 : AIR COIL SCN-5948 ① - ③ TOKO OR EQUIVALENT
L6 : ϕ0.2mm COPPER WIRE 10T 5mm ID
C1 : AIR TRIMMER TTA23A100 MURATA MFC. Co., LTD. OR EQUIVALENT

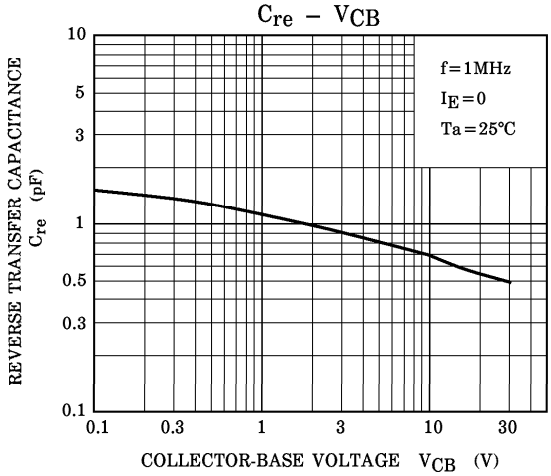
h_{FE} – I_C



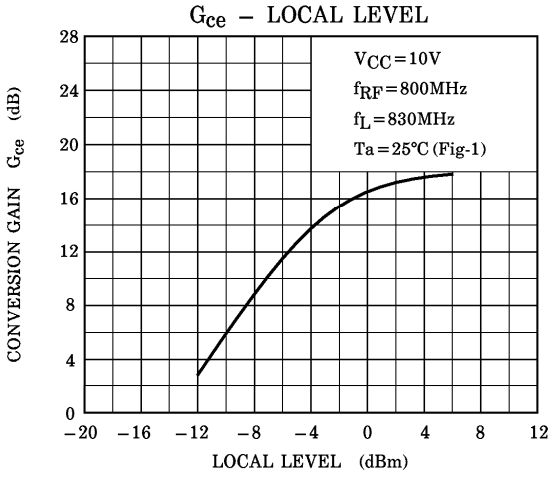
f_T – I_C



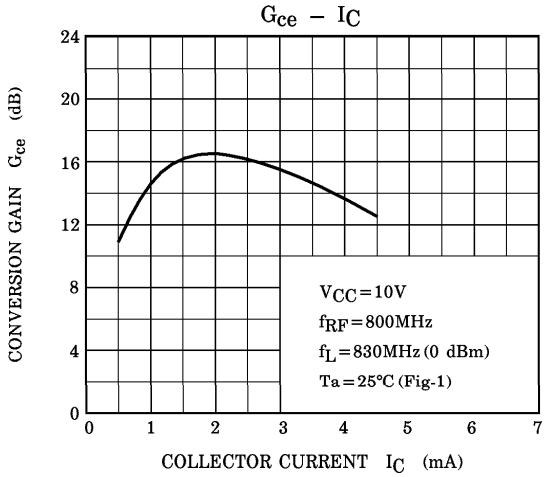
C_{re} – V_{CB}



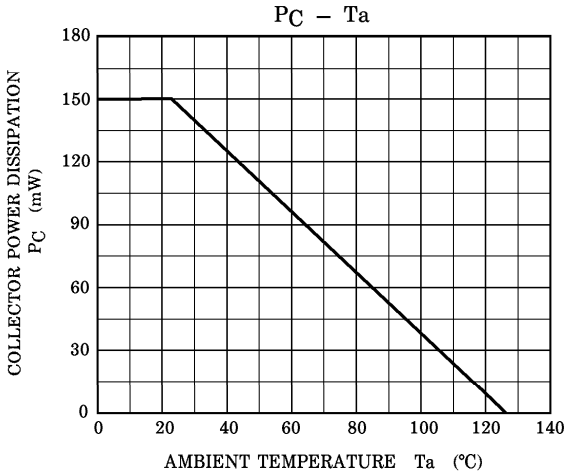
G_{ce} – LOCAL LEVEL



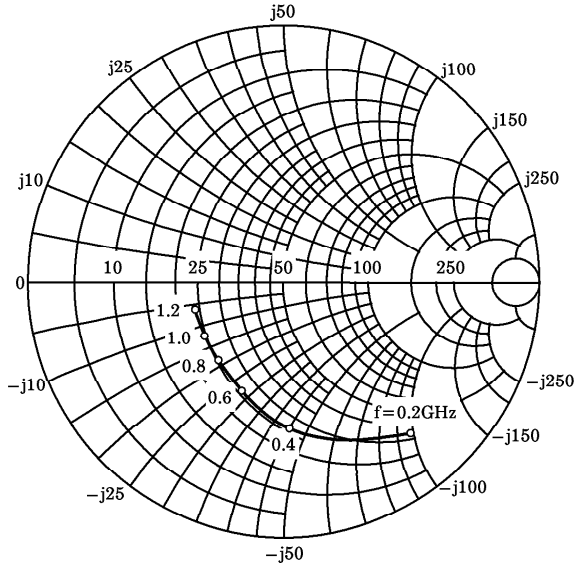
G_{ce} – I_C



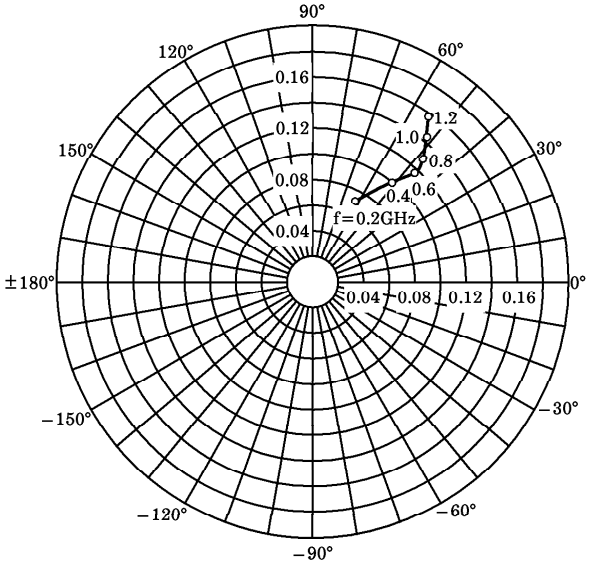
P_C – Ta



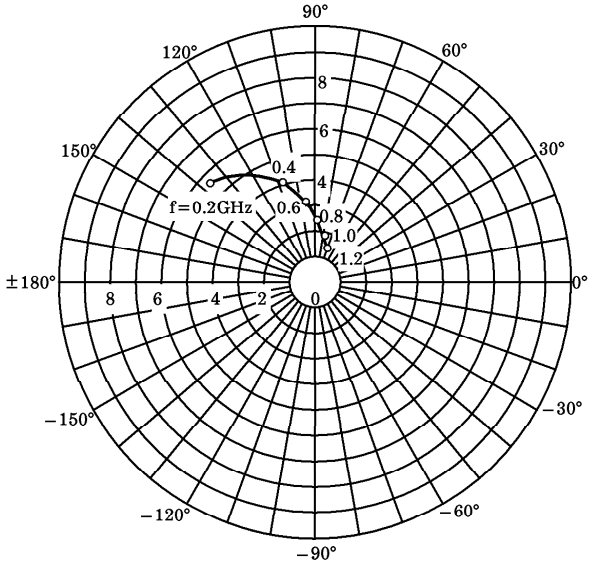
S_{11e}
V_{CE} = 10V
I_C = 2mA
Ta = 25°C
(UNIT : Ω)



S_{12e}
V_{CE} = 10V
I_C = 2mA
Ta = 25°C



S_{21e}
V_{CE} = 10V
I_C = 2mA
Ta = 25°C



S_{22e}
V_{CE} = 10V
I_C = 2mA
Ta = 25°C
(UNIT : Ω)