

TOSHIBA Transistor Silicon NPN Epitaxial Planar Type

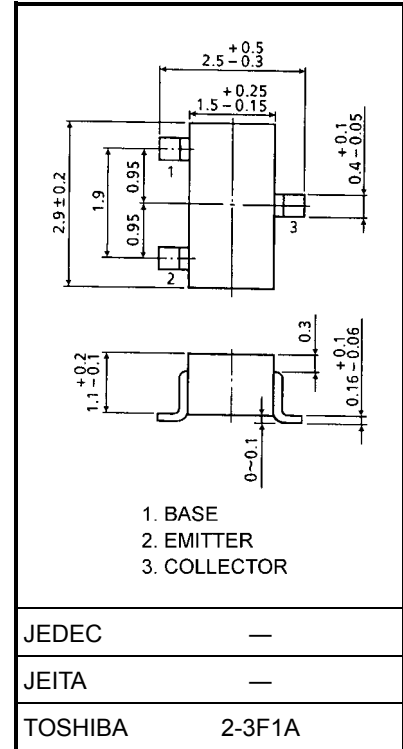
2SC3120

TV Tuner, UHF Mixer Applications
VHF~UHF Band RF Amplifier Applications

Unit: mm

Maximum Ratings (Ta = 25°C)

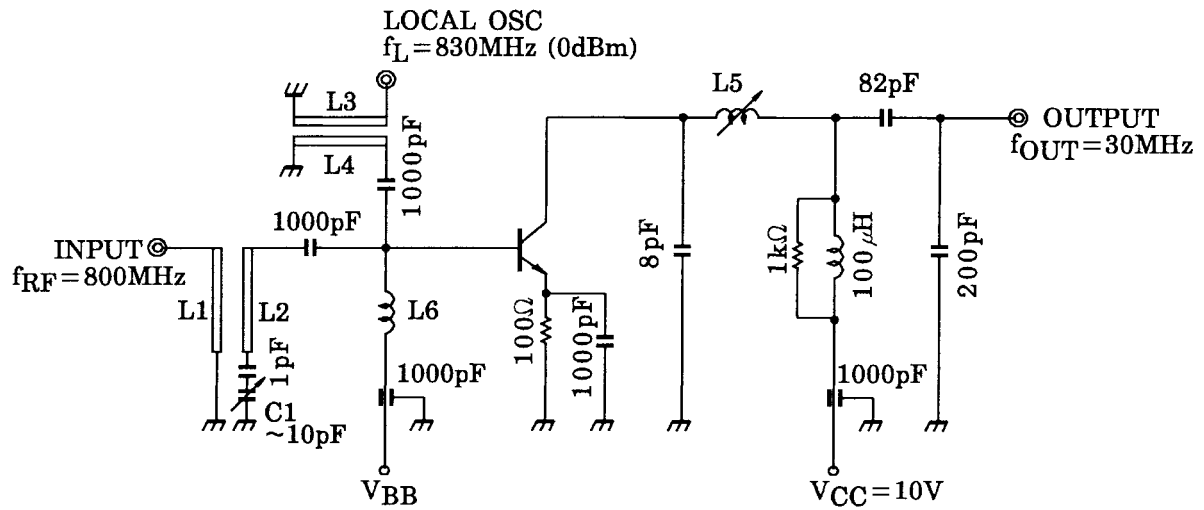
Characteristics	Symbol	Rating	Unit
Collector-base voltage	V_{CB0}	30	V
Collector-emitter voltage	V_{CEO}	15	V
Emitter-base voltage	V_{EBO}	3	V
Collector current	I_C	50	mA
Base current	I_B	25	mA
Collector power dissipation	P_C	150	mW
Junction temperature	T_j	125	°C
Storage temperature range	T_{stg}	-55~125	°C



Electrical Characteristics (Ta = 25°C)

Weight: 0.012 g (typ.)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	I_{CBO}	$V_{CB} = 30\text{ V}, I_E = 0$	—	—	0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = 2\text{ V}, I_C = 0$	—	—	1.0	μA
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = 1\text{ mA}, I_B = 0$	15	—	—	V
DC current gain	h_{FE}	$V_{CE} = 10\text{ V}, I_C = 5\text{ mA}$	40	100	200	
Reverse transfer capacitance	C_{re}	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$	—	0.6	0.9	pF
Transition frequency	f_T	$V_{CE} = 10\text{ V}, I_C = 2\text{ mA}$	1500	2400	—	MHz
Conversion gain	G_{ce}	$V_{CC} = 10\text{ V}, I_C = 2\text{ mA}, f = 800\text{ MHz}$	12	17	—	dB
Noise figure	NF	$f_L = 830\text{ MHz (0dBm)}$ (Figure 1)	—	8	—	dB



L1~L4: ϕ 0.8 mm silver plated copper wire

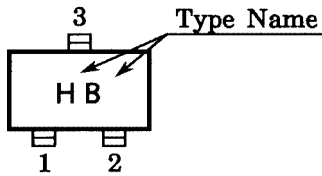
L5: Air coil SCN-5948 (1)-(3) TOKO or equivalent

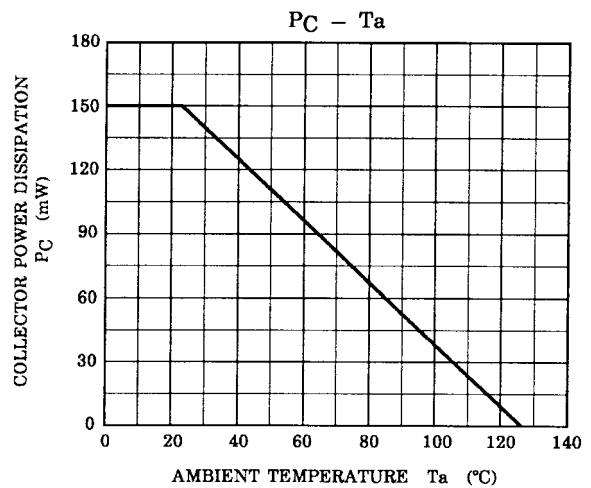
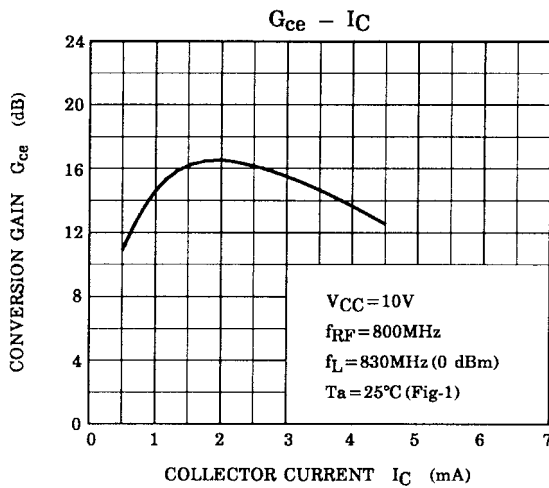
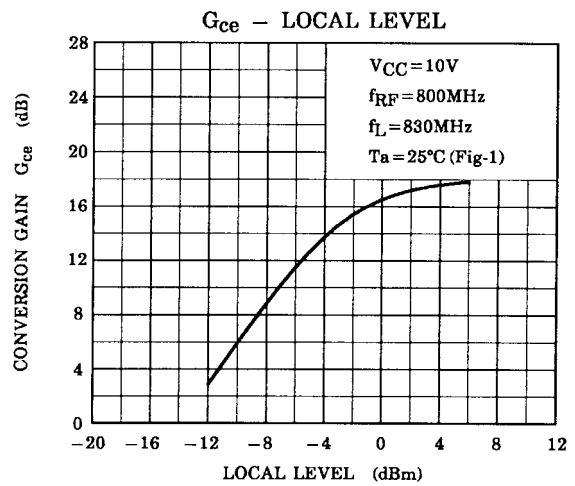
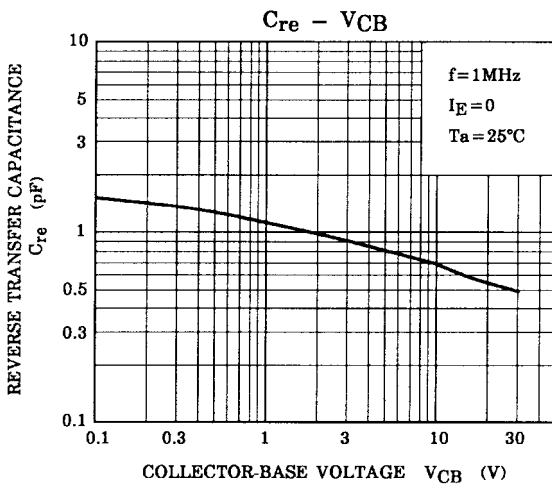
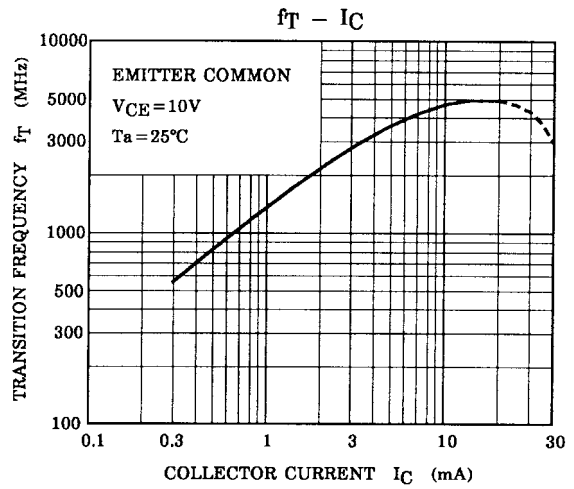
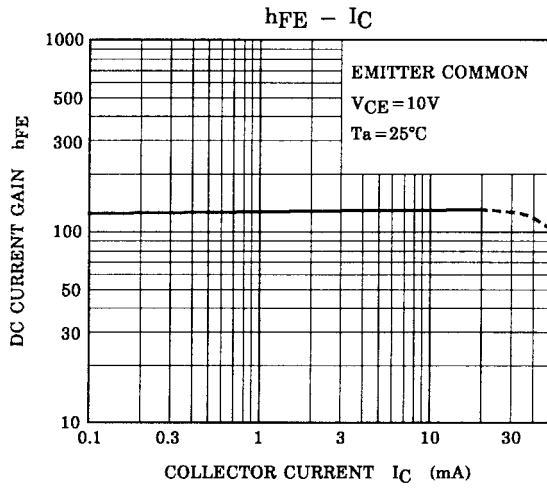
L6: ϕ 0.2 mm copper wire 10 T 5 mm ID

C1: Air trimmer TTA23A100 MURATA Manufacturing. Co., Ltd. or equivalent

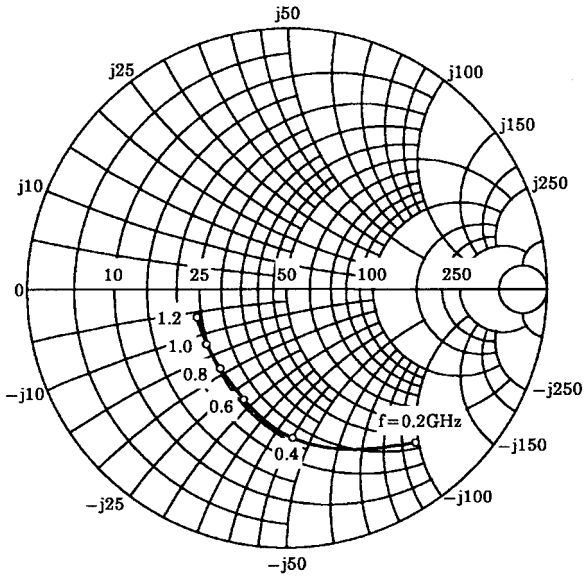
Figure 1 800 MHz G_{ce} , NF Test Circuit

Marking

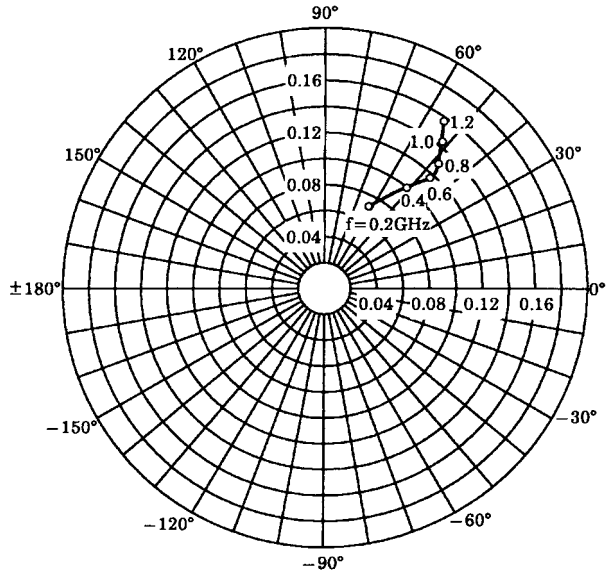




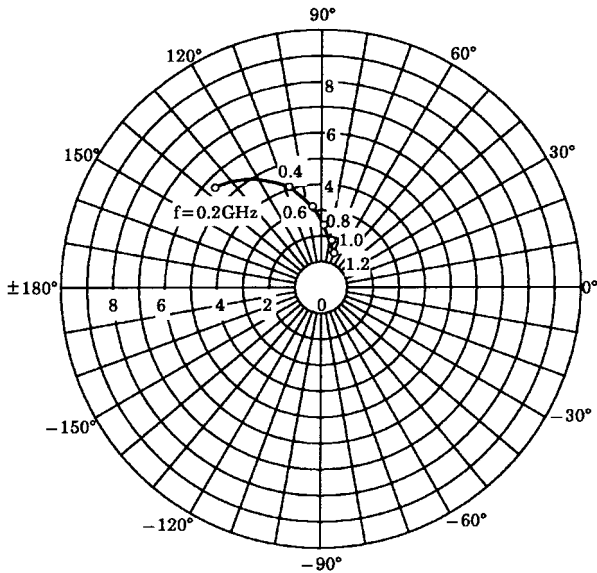
S11e
 $V_{CE} = 10V$
 $I_C = 2mA$
 $T_a = 25^\circ C$
 (UNIT : Ω)



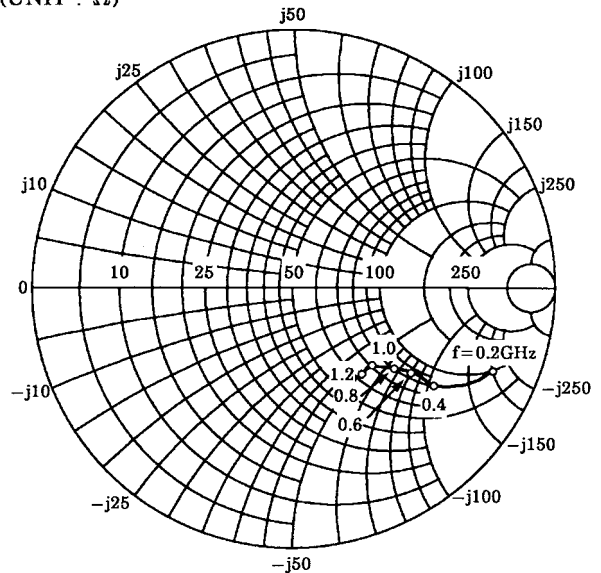
S12e
 $V_{CE} = 10V$
 $I_C = 2mA$
 $T_a = 25^\circ C$



S21e
 $V_{CE} = 10V$
 $I_C = 2mA$
 $T_a = 25^\circ C$



S22e
 $V_{CE} = 10V$
 $I_C = 2mA$
 $T_a = 25^\circ C$
 (UNIT : Ω)



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