

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC3120

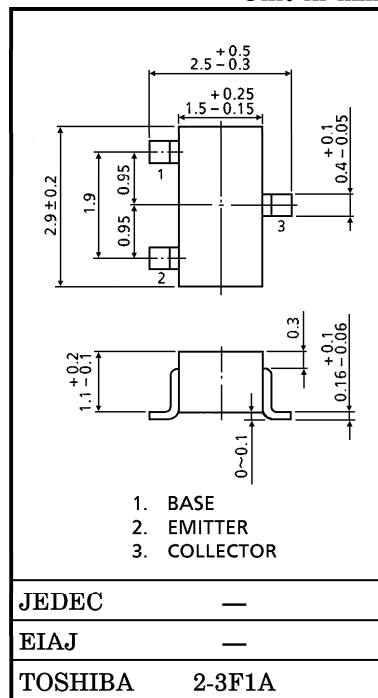
TV TUNER, UHF MIXER APPLICATIONS

VHF ~ UHF BAND RF AMPLIFIER APPLICATIONS

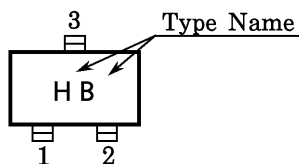
Unit in mm

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V <sub>CBO</sub>	30	V
Collector-Emitter Voltage	V <sub>CEO</sub>	15	V
Emitter-Base Voltage	V <sub>EBO</sub>	3	V
Collector Current	I <sub>C</sub>	50	mA
Base Current	I <sub>B</sub>	25	mA
Collector Power Dissipation	P <sub>C</sub>	150	mW
Junction Temperature	T <sub>j</sub>	125	°C
Storage Temperature Range	T <sub>stg</sub>	-55~125	°C



Marking

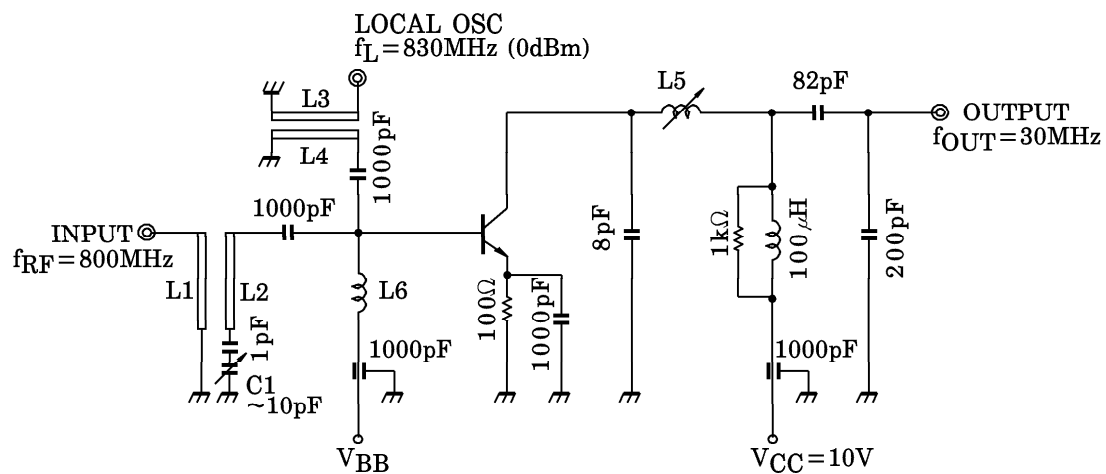


ELECTRICAL CHARACTERISTICS (Ta = 25°C)

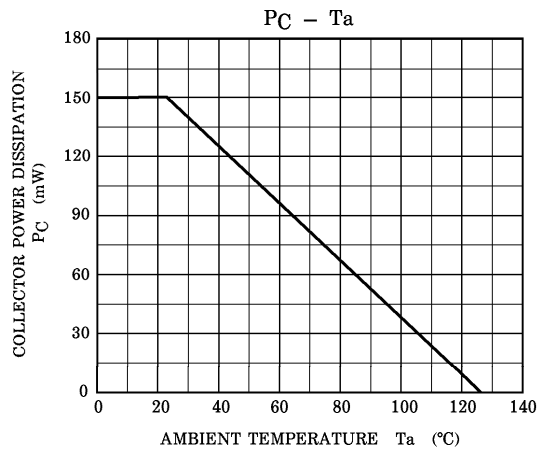
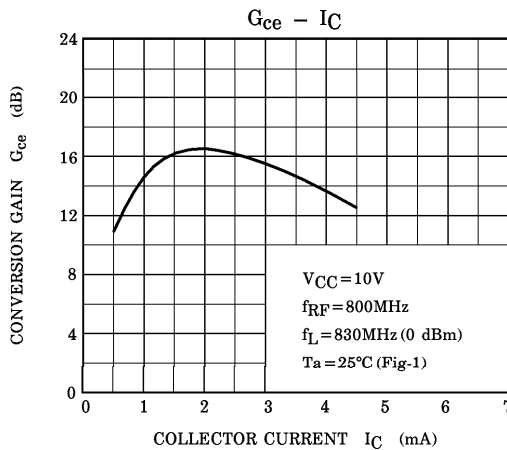
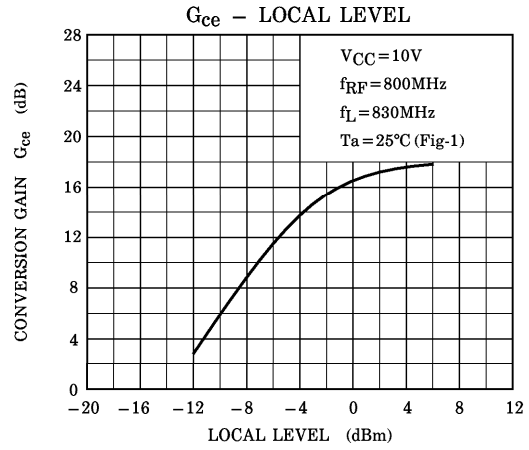
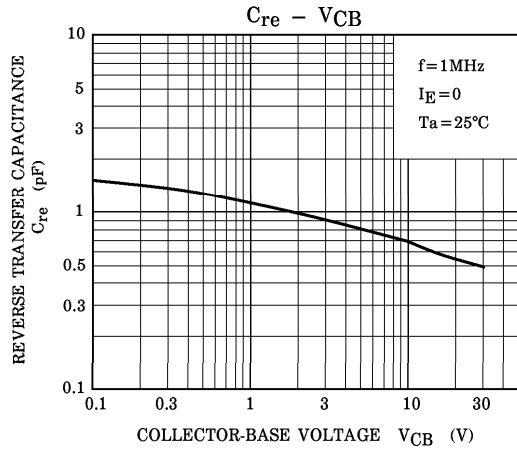
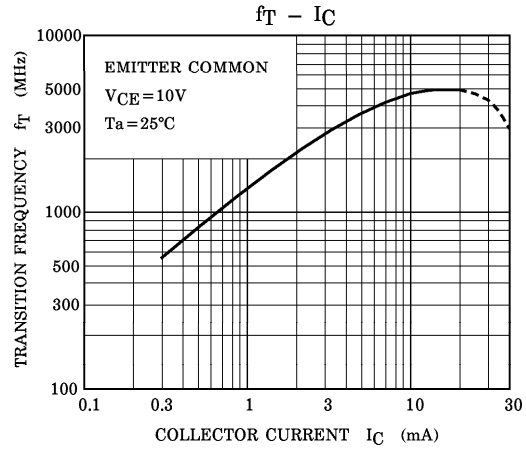
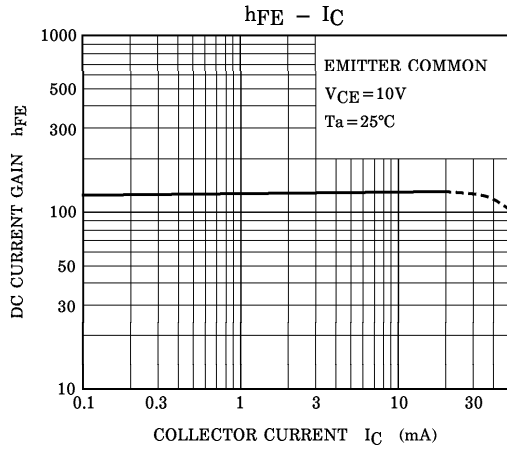
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> = 30V, I <sub>E</sub> = 0	—	—	0.1	μA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 2V, I <sub>C</sub> = 0	—	—	1.0	μA
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 1mA, I <sub>B</sub> = 0	15	—	—	V
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 5mA	40	100	200	—
Reverse Transfer Capacitance	C <sub>re</sub>	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz	—	0.6	0.9	pF
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> = 10V, I <sub>C</sub> = 2mA	1500	2400	—	MHz
Conversion Gain	G <sub>ce</sub>	V <sub>CC</sub> = 10V, I <sub>C</sub> = 2mA, f = 800MHz,	12	17	—	dB
Noise Figure	NF	f <sub>L</sub> = 830MHz (0dBm) (Fig.1)	—	8	—	dB

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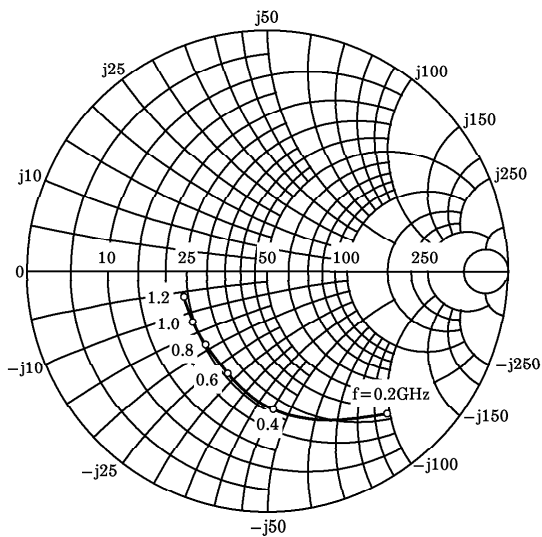
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Fig.1 800MHz  $G_{ce}$ , NF TEST CIRCUIT

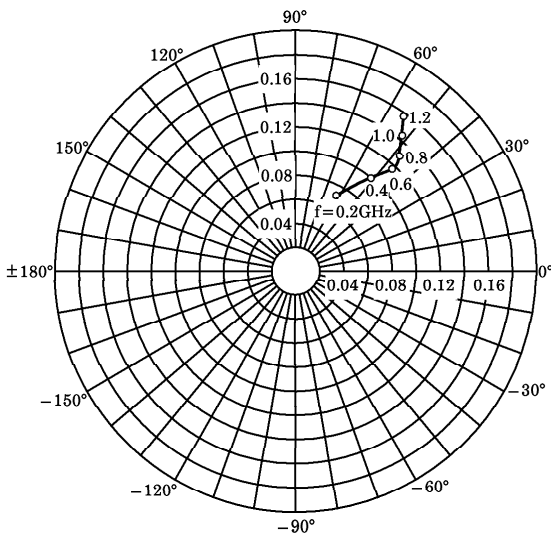
- L1~L4 :  $\phi 0.8\text{mm}$  SILVER PLATED COPPER WIRE  
 L5 : AIR COIL SCN-5948 ① - ③ TOKO OR EQUIVALENT  
 L6 :  $\phi 0.2\text{mm}$  COPPER WIRE 10T 5mm ID  
 C1 : AIR TRIMMER TTA23A100 MURATA MFC. Co., LTD. OR EQUIVALENT



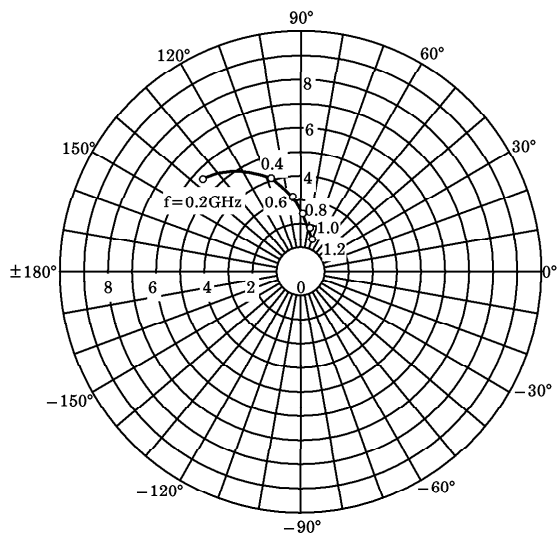
S<sub>11e</sub>  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 2mA  
 T<sub>a</sub> = 25°C  
 (UNIT : Ω)



S<sub>12e</sub>  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 2mA  
 T<sub>a</sub> = 25°C



S<sub>21e</sub>  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 2mA  
 T<sub>a</sub> = 25°C



S<sub>22e</sub>  
 V<sub>CE</sub> = 10V  
 I<sub>C</sub> = 2mA  
 T<sub>a</sub> = 25°C  
 (UNIT : Ω)

