

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

# 2SC5254

VHF~UHF BAND LOW NOISE AMPLIFIER APPLICATIONS

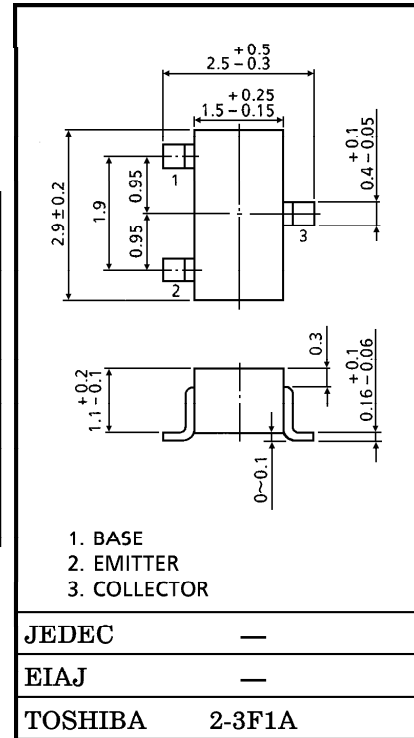
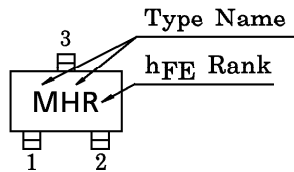
Unit in mm

- Low Noise Figure : NF=1.5dB (f=2GHz)
- High Gain : Gain=8.5dB (f=2GHz)

MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V <sub>CB0</sub>	15	V
Collector-Emitter Voltage	V <sub>CEO</sub>	7	V
Emitter-Base Voltage	V <sub>EBO</sub>	1.5	V
Collector Current	I <sub>C</sub>	40	mA
Base Current	I <sub>B</sub>	20	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



MICROWAVE CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f <sub>T</sub>	V <sub>CE</sub> =5V, I <sub>C</sub> =20mA	9	12	—	GHz
Insertion Gain	S <sub>21e</sub>   <sup>2</sup> (1)	V <sub>CE</sub> =5V, I <sub>C</sub> =20mA, f=1GHz	11.5	14.5	—	dB
	S <sub>21e</sub>   <sup>2</sup> (2)	V <sub>CE</sub> =5V, I <sub>C</sub> =20mA, f=2GHz	5.5	8.5	—	
Noise Figure	NF (1)	V <sub>CE</sub> =5V, I <sub>C</sub> =5mA, f=1GHz	—	1.1	—	dB
	NF (2)	V <sub>CE</sub> =5V, I <sub>C</sub> =5mA, f=2GHz	—	1.5	3	

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

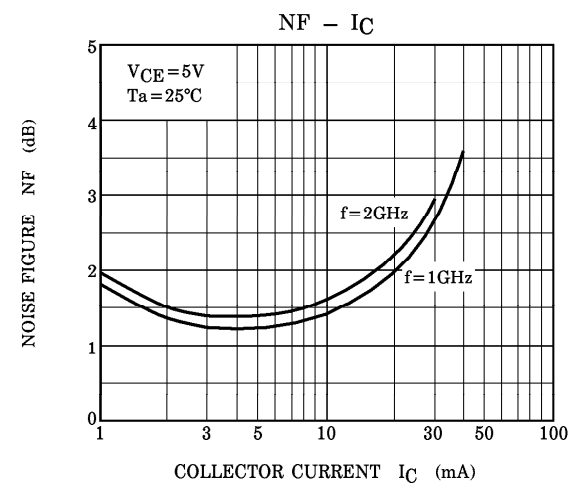
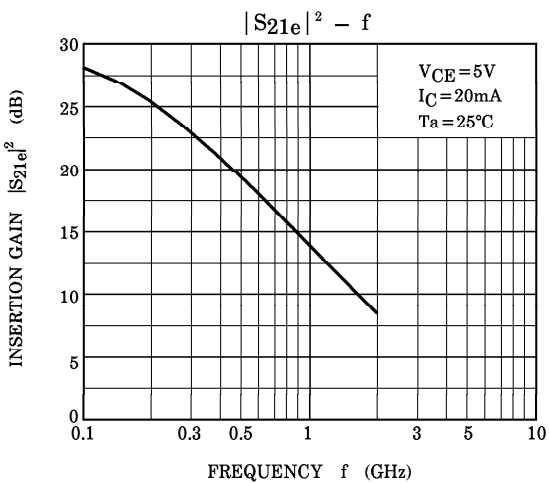
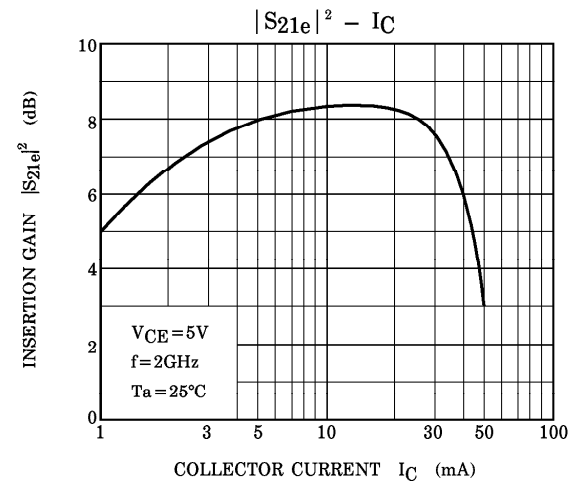
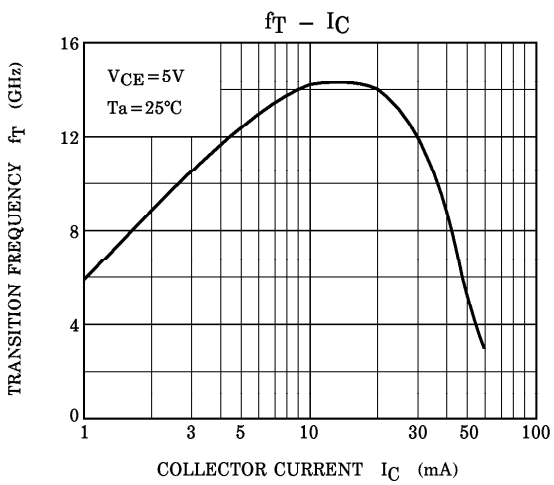
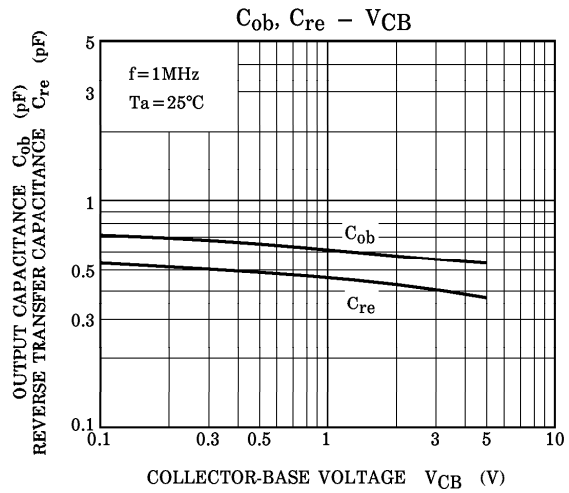
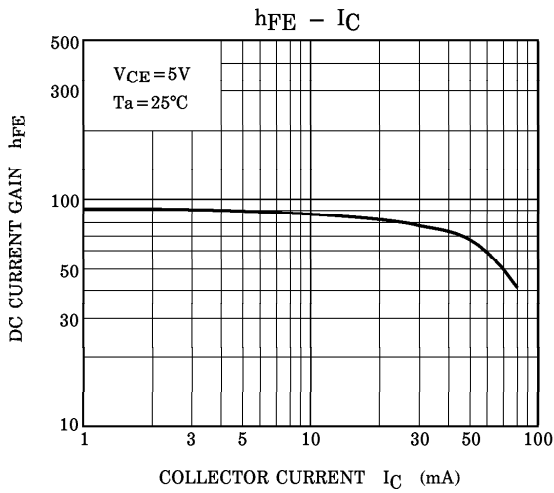
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0	—	—	1	μA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> =1V, I <sub>C</sub> =0	—	—	1	μA
DC Current Gain	h <sub>FE</sub> (Note 1)	V <sub>CE</sub> =5V, I <sub>C</sub> =20mA	50	—	160	—
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =5V, I <sub>E</sub> =0, f=1MHz (Note 2)	—	0.5	—	pF
Reverse Transfer Capacitance	C <sub>re</sub>		—	0.4	0.8	pF

(Note 1) : h<sub>FE</sub> Classification R : 50~100, O : 80~160

(Note 2) : C<sub>re</sub> is measured by 3 terminal method with capacitance bridge.

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