

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL PLANAR TYPE

MT4S34U

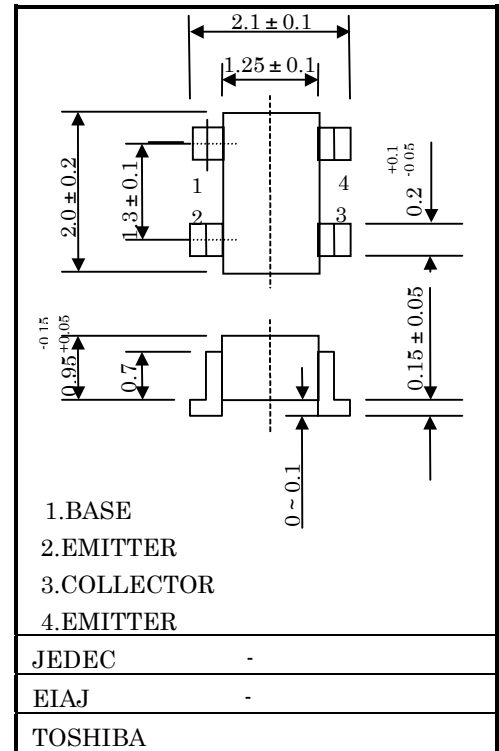
Tentative

VHF-UHF BAND LOW NOISE AMPLIFIER APPLICATIONS.

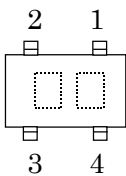
- Low Noise : Figure : NF=1.2dB(at f=2GHz)
- High Gain : $|S_{21e}|^2=14\text{dB}$ (at f=2GHz)

MAXIMUM RATINGS (Ta=25deg.)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Collector-Base Voltage	V _{CB0}	6	V
Collector-Emitter Voltage	V _{CEO}	3	V
Emitter-Base Voltage	V _{EBO}	1.5	V
Collector-Current	I _C	36	mA
Base Current	I _B	12	mA
Collector Power Dissipation	P _C	100	mW
Junction Temperature	T _j	125	deg
Storage Temperature Range	T _{stg}	-55-125	deg.



MARKING



MICROWAVE CHARACTERISTICS(Ta=25deg.)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Transition Frequency	f _T	V _{CE} =2V , I _C =20mA	15	19	-	GHz
Insertion Gain	$ S_{21e} ^2$	V _{CE} =2V , I _C =20mA , f=2GHz	12	14	17	dB
Noise Figure	NF	V _{CE} =2V , I _C =5mA , f=2GHz	-	1.2	TBD	dB

ELECTRICAL CHARACTERISTICS(Ta=25deg.)

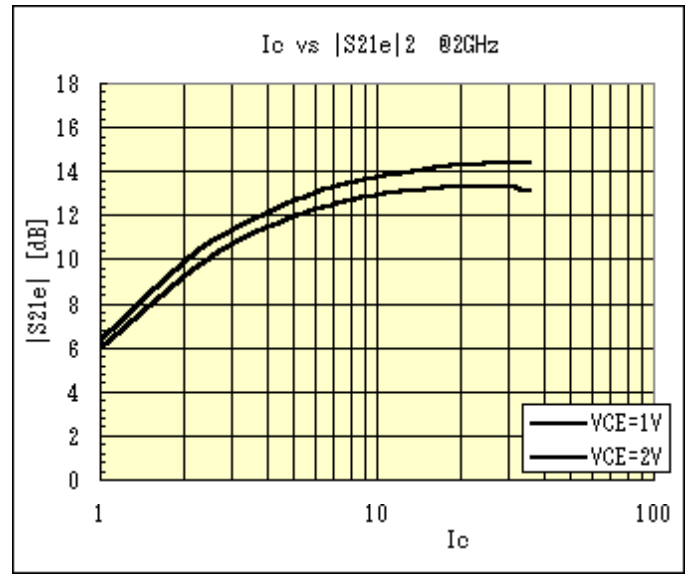
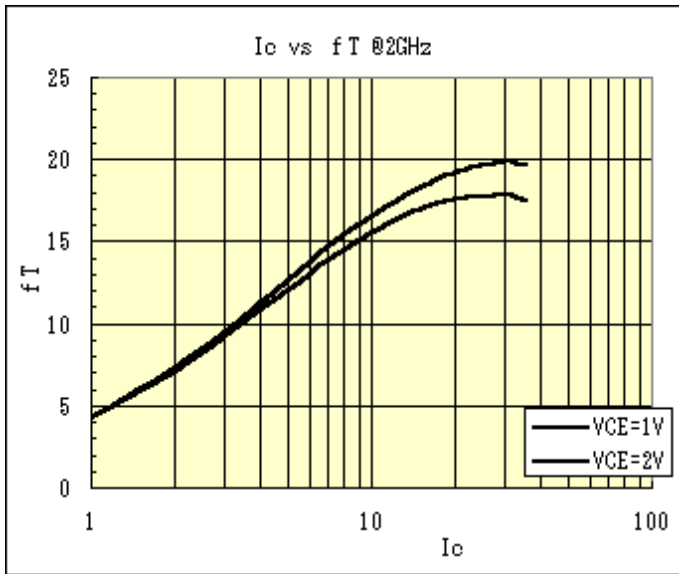
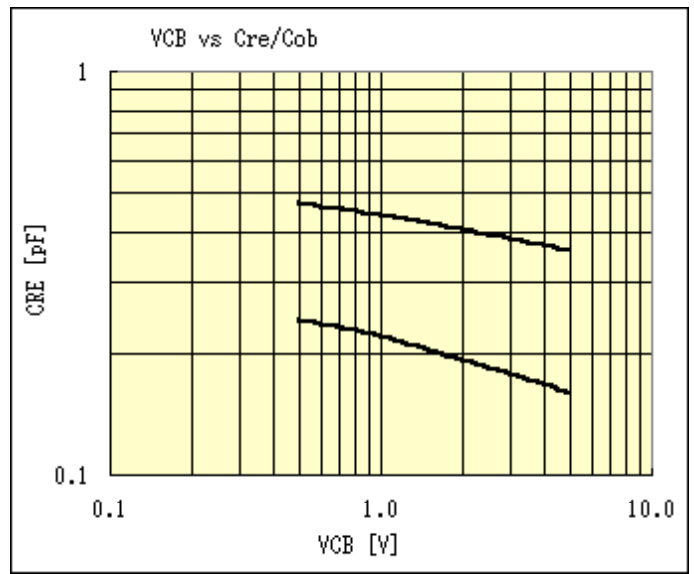
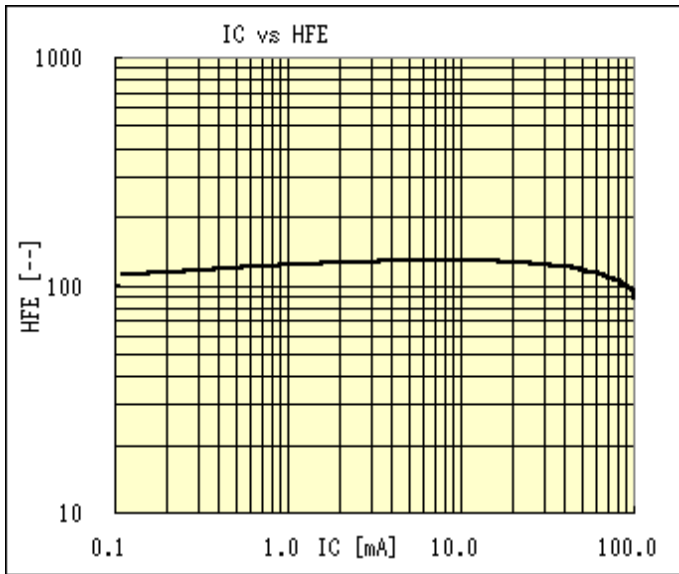
CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Collector Cut-off Current	I _{CB0}	V _{CB} =6V , I _E =0	-	-	1	uA
Emitter Cut-off Current	I _{EBO}	V _{EB} =1V , I _C =0	-	-	1	uA
DC Current Gain	h _{FE}	V _{CE} =2V , I _C =20mA	TBD	TBD	TBD	-
Output Capacitance	C _{ob}	V _{CB} =2V , I _E =0 , f=1MHz (Note)	-	0.4	-	pF
Reverse Transistor Capacitance	C _{re}		-	0.2	-	pF

NOTE : C_{re} is measured by 3 terminal method with capacitance bridge

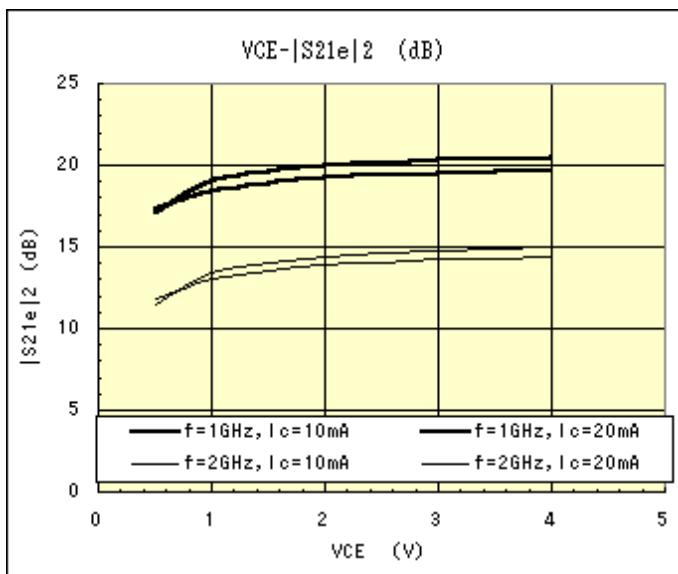
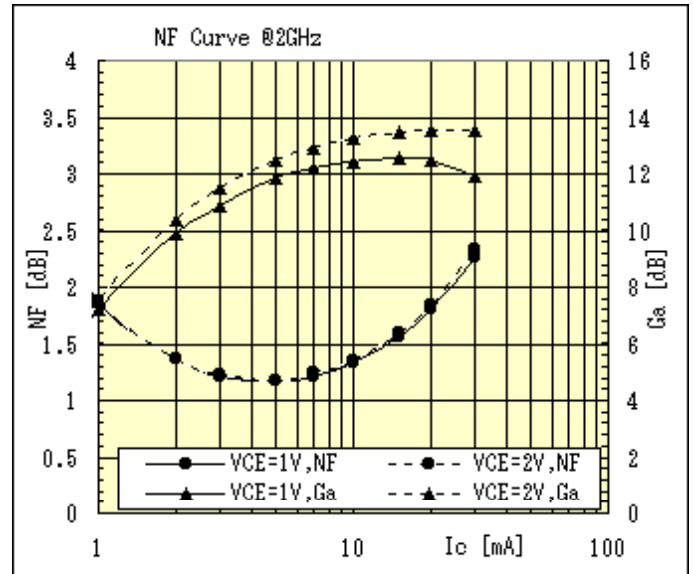
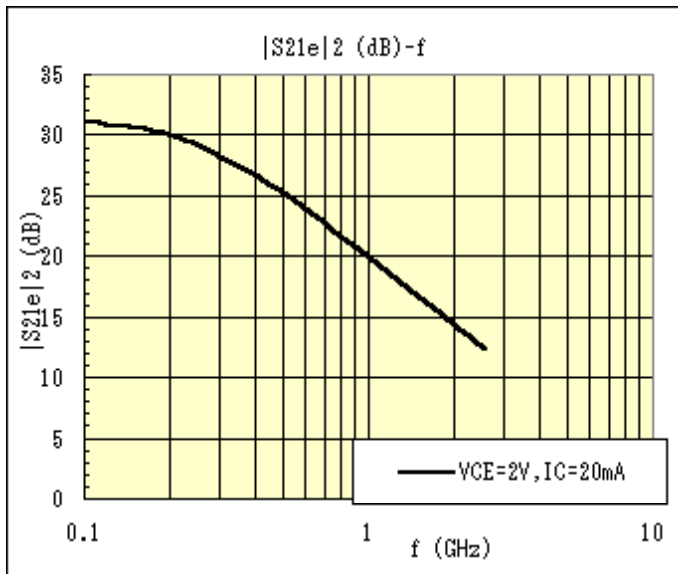
CAUTION

This device is sensitive to electrostatic discharge. Please make each tool and equipment earthed when you handle.

Tentative



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S-Parameter Zo=50ohm, Ta=25deg.

VCE=2V, IC=20mA

Freq. GHz	S11		S21		S12		S22	
	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
0.1	0.639	-29.12	36.68	157.01	0.011	95.39	0.916	-18.45
0.2	0.579	-56.22	31.65	139.46	0.021	70.61	0.795	-34.89
0.3	0.506	-77.39	26.08	126.17	0.027	63.65	0.661	-46.48
0.4	0.454	-93.98	21.72	116.85	0.033	60.81	0.549	-54.16
0.5	0.416	-106.97	18.32	109.78	0.038	58.49	0.469	-59.51
0.6	0.389	-117.92	15.78	104.56	0.041	57.58	0.407	-63.17
0.7	0.367	-126.75	13.81	100.18	0.045	57.97	0.357	-65.95
0.8	0.355	-134.39	12.25	96.36	0.049	57.66	0.317	-68.12
0.9	0.344	-140.83	11.03	93.16	0.053	59.20	0.285	-70.08
1.0	0.341	-146.41	10.03	90.31	0.058	58.58	0.261	-71.67
1.1	0.334	-151.78	9.16	87.64	0.062	58.69	0.241	-73.42
1.2	0.332	-156.22	8.45	85.16	0.066	58.67	0.224	-73.93
1.3	0.327	-160.43	7.85	82.76	0.070	58.84	0.208	-75.41
1.4	0.325	-164.29	7.32	80.62	0.075	57.34	0.195	-76.83
1.5	0.325	-167.62	6.88	78.44	0.079	57.90	0.183	-78.53
1.6	0.324	-170.88	6.48	76.61	0.083	56.77	0.176	-79.25
1.7	0.323	-173.87	6.11	74.41	0.088	56.61	0.167	-80.61
1.8	0.320	-176.61	5.78	72.44	0.092	55.69	0.162	-82.12
1.9	0.319	-179.41	5.48	70.58	0.096	54.14	0.153	-84.19
2.0	0.323	177.97	5.26	68.87	0.100	54.44	0.147	-85.06
2.1	0.325	174.90	5.04	67.44	0.105	53.90	0.141	-85.63
2.2	0.324	172.58	4.81	65.82	0.109	53.31	0.136	-87.47
2.3	0.323	170.03	4.60	63.83	0.113	52.79	0.131	-87.93
2.4	0.324	167.43	4.44	61.75	0.117	52.14	0.129	-88.79
2.5	0.325	164.48	4.33	60.29	0.121	51.13	0.125	-90.28
2.6	0.328	162.66	4.16	59.14	0.125	50.22	0.121	-91.13

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