

HIGH FREQUENCY LOW NOISE AMPLIFIER
NPN SILICON EPITAXIAL TRANSISTOR
MINI MOLD

FEATURES

- Low Noise, High Gain
- Low Voltage Operation
- Low Feedback Capacitance
 $C_{re} = 0.3 \text{ pF TYP.}$

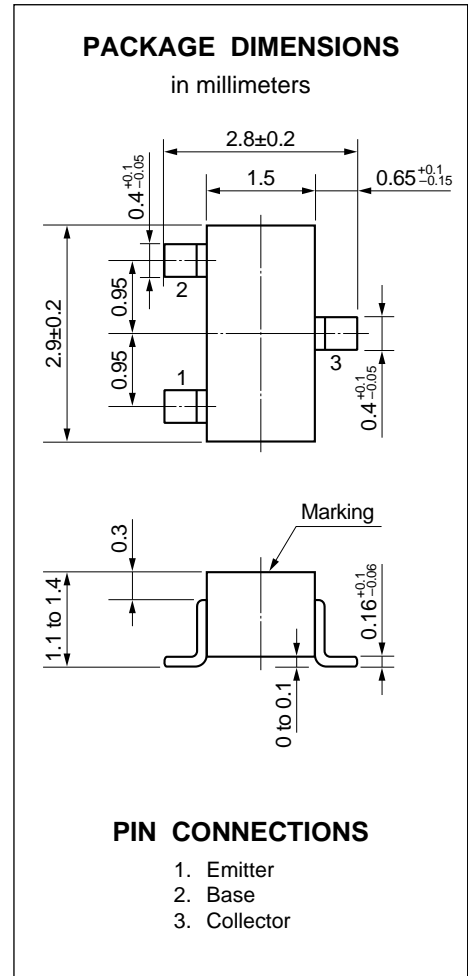
ORDERING INFORMATION

PART NUMBER	QUANTITY	PACKING STYLE
2SC4954-T1	3 Kpcs/Reel.	Embossed tape 8 mm wide. Pin3 (Collector) face to perforation side of the tape.
2SC4954-T2	3 Kpcs/Reel.	Embossed tape 8 mm wide. Pin1 (Emitter), Pin2 (Base) face to perforation side of the tape.

* Please contact with responsible NEC person, if you require evaluation sample. Unit sample quantity shall be 50 pcs. (Part No.: 2SC4954)

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

Collector to Base Voltage	V _{CB0}	9	V
Collector to Emitter Voltage	V _{CE0}	6	V
Emitter to Base Voltage	V _{EB0}	2	V
Collector Current	I _c	10	mA
Total Power Dissipation	P _T	60	mW
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-65 to +150	°C



Caution; Electrostatic Sensitive Device.

[查询2SC4954供应商](#)
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Collector Cutoff Current	I _{CB0}			0.1	μA	V _{CB} = 5 V, I _E = 0
Emitter Cutoff Current	I _{EB0}			0.1	μA	V _{EB} = 1 V, I _C = 0
DC Current Gain	h _{FE}	75		150		V _{CE} = 3 V, I _C = 5 mA* ¹
Gain Bandwidth Product	f _T		12		GHz	V _{CE} = 3 V, I _C = 5 mA, f = 2.0 GHz
Feed-back Capacitance	C _{re}		0.3	0.5	pF	V _{CB} = 3 V, I _E = 0, f = 1 MHz* ²
Insertion Power Gain	S _{21e} ²	7	8.5		dB	V _{CE} = 3 V, I _C = 5 mA, f = 2.0 GHz
Noise Figure	NF		2.5	4.0	dB	V _{CE} = 3 V, I _C = 3 mA, f = 2.0 GHz

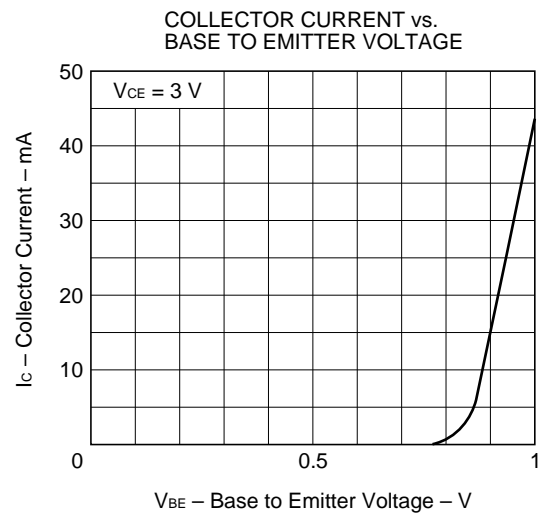
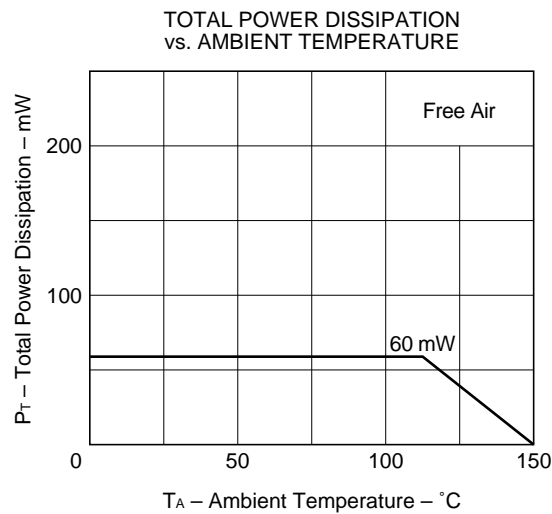
*1 Pulse Measurement; PW ≤ 350 μs, Duty Cycle ≤ 2 % Pulsed.

*2 Measured with 3 terminals bridge, Emitter and Case should be grounded.

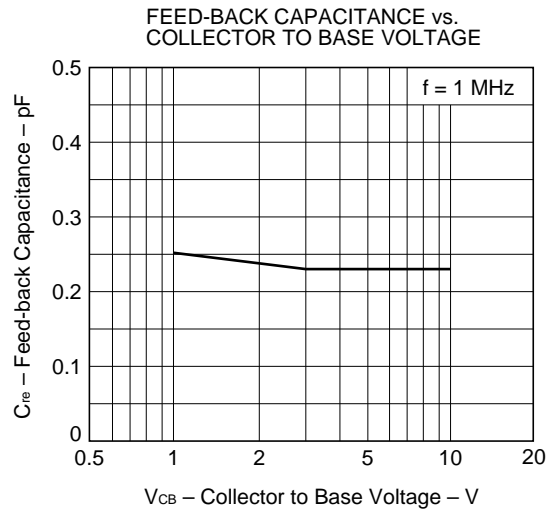
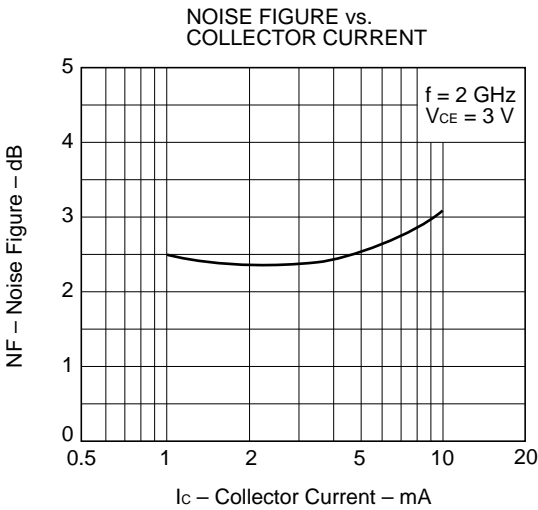
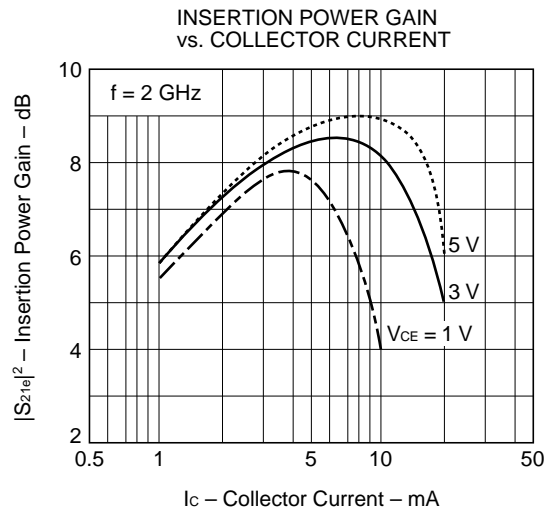
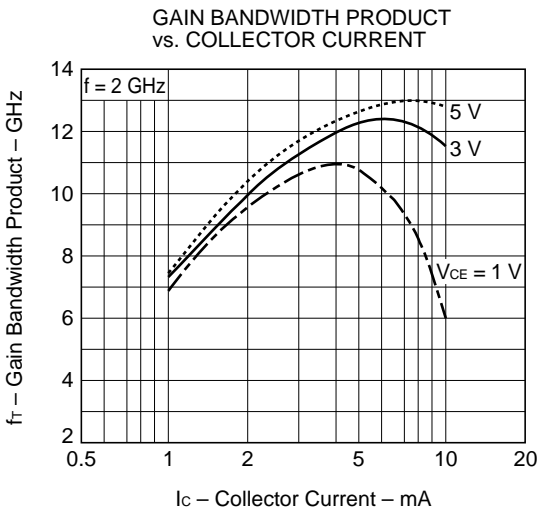
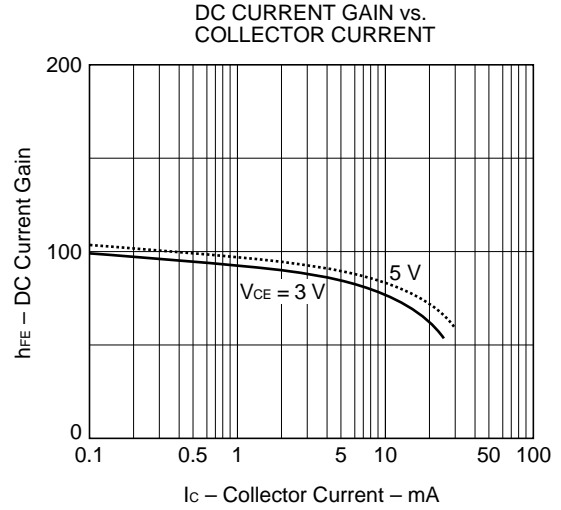
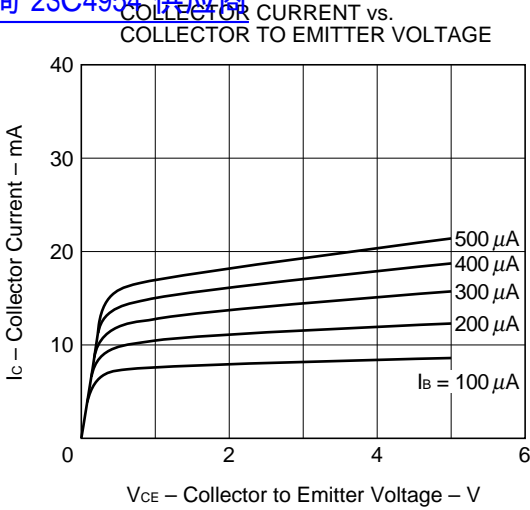
h_{FE} Classification

Rank	T82
Marking	T82
h _{FE}	75 to 150

TYPICAL CHARACTERISTICS (T_A = 25 °C)



[查询"2SC4954"供应商](#)



[查询"2SC4954"供应商](#)
S-PARAMETER

(V_{CE} = 3 V, I_c = 1 mA, Z_o = 50 Ω)

f (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.200	0.9550	-9.0	3.2340	168.1	0.0340	77.3	0.9870	-6.8
0.400	0.9140	-17.3	3.0460	154.7	0.0650	76.7	0.9640	-13.4
0.600	0.8630	-25.8	2.9630	144.2	0.0930	71.6	0.9250	-19.5
0.800	0.7880	-33.1	2.7870	133.1	0.1180	66.7	0.8850	-24.3
1.000	0.7320	-39.1	2.6480	123.5	0.1360	63.7	0.8330	-28.9
1.200	0.6720	-45.2	2.5390	114.4	0.1570	57.2	0.7820	-33.2
1.400	0.5910	-50.5	2.3460	106.8	0.1780	56.3	0.7570	-37.1
1.600	0.5430	-55.0	2.2000	99.0	0.1870	51.7	0.7250	-40.1
1.800	0.4830	-57.4	2.0710	91.6	0.2030	51.3	0.6720	-43.2
2.000	0.4240	-60.7	1.9590	85.7	0.2090	50.4	0.6490	-46.1
2.200	0.3710	-66.9	1.8970	79.8	0.2240	50.9	0.6230	-49.1
2.400	0.3390	-68.0	1.8100	74.8	0.2440	47.8	0.5970	-49.4
2.600	0.3030	-71.3	1.6980	70.2	0.2530	47.7	0.5740	-54.1
2.800	0.2460	-72.2	1.6530	64.7	0.2550	44.5	0.5610	-56.8
3.000	0.1990	-68.9	1.5750	59.9	0.2830	43.0	0.5130	-61.6

(V_{CE} = 3 V, I_c = 3 mA, Z_o = 50 Ω)

f (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.200	0.8730	-15.0	7.3980	159.5	0.0340	74.6	0.9590	-11.1
0.400	0.7600	-26.2	6.3600	140.6	0.0580	71.3	0.8830	-18.9
0.600	0.6530	-35.6	5.5680	127.0	0.0840	69.6	0.7970	-25.7
0.800	0.6530	-35.6	5.5680	127.0	0.0840	69.6	0.7970	-25.7
1.000	0.4750	-45.3	4.1940	105.8	0.1160	64.0	0.6690	-32.7
1.200	0.4110	-48.3	3.7680	98.0	0.1330	64.0	0.6690	-32.7
1.400	0.3470	-49.3	3.3170	91.8	0.1510	61.9	0.6060	-36.3
1.600	0.3190	-50.4	3.0080	85.7	0.1600	62.5	0.5720	-37.6
1.800	0.2830	-46.5	2.7180	79.4	0.1820	58.0	0.5510	-39.9
2.000	0.2510	-45.6	2.5040	74.9	0.1980	57.5	0.5290	-41.8
2.200	0.2020	-48.2	2.3810	70.4	0.2150	56.6	0.5170	-44.1
2.400	0.1940	-47.4	2.2280	66.0	0.2290	53.2	0.5070	-45.2
2.600	0.1850	-47.8	2.0580	62.7	0.2310	56.3	0.4920	-49.6
2.800	0.1710	-39.0	1.9740	57.8	0.2620	54.7	0.4670	-51.7
3.000	0.1430	-31.7	1.8480	54.4	0.2940	53.6	0.4160	-54.9

[查询"2SC4954"供应商](#)
S-PARAMETER

(V_{CE} = 3 V, I_c = 5 mA, Z_o = 50 Ω)

f (GHz)	S ₁₁		S ₂₁		S ₁₂		S ₂₂	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.200	.775	-19.9	10.233	153.0	.029	78.0	.931	-14.1
0.400	.653	-32.4	8.408	133.2	.056	66.1	.815	-23.3
0.600	.527	-39.8	6.761	119.0	.073	70.0	.717	-27.3
0.800	.447	-45.7	5.598	108.5	.088	67.6	.639	-30.3
1.000	.359	-49.6	4.670	100.0	.111	66.9	.595	-31.2
1.200	.314	-50.3	4.118	92.7	.123	67.5	.565	-32.4
1.400	.279	-48.1	3.630	87.1	.140	66.8	.545	-34.4
1.600	.246	-46.9	3.246	82.1	.154	64.1	.519	-35.9
1.800	.219	-46.8	2.885	78.1	.178	62.0	.521	-37.0
2.000	.178	-43.6	2.747	73.7	.194	62.9	.500	-38.9
2.200	.165	-44.7	2.581	68.8	.201	62.0	.478	-43.1
2.400	.149	-37.6	2.382	64.8	.224	60.1	.455	-43.1
2.600	.137	-50.0	2.244	61.4	.241	60.9	.471	-43.9
2.800	.132	-47.6	2.138	59.0	.253	57.7	.449	-47.9
3.000	.103	-33.7	2.044	55.3	.265	55.3	.438	-47.0

[查询"2SC4954"供应商](#)

No part of this document may be copied or reproduced in any form or by any means without the prior written consent of NEC Corporation. NEC Corporation assumes no responsibility for any errors which may appear in this document.

NEC Corporation does not assume any liability for infringement of patents, copyrights or other intellectual property rights of third parties by or arising from use of a device described herein or any other liability arising from use of such device. No license, either express, implied or otherwise, is granted under any patents, copyrights or other intellectual property rights of NEC Corporation or others.

While NEC Corporation has been making continuous effort to enhance the reliability of its semiconductor devices, the possibility of defects cannot be eliminated entirely. To minimize risks of damage or injury to persons or property arising from a defect in an NEC semiconductor device, customer must incorporate sufficient safety measures in its design, such as redundancy, fire-containment, and anti-failure features.

NEC devices are classified into the following three quality grades:

"Standard", "Special", and "Specific". The Specific quality grade applies only to devices developed based on a customer designated "quality assurance program" for a specific application. The recommended applications of a device depend on its quality grade, as indicated below. Customers must check the quality grade of each device before using it in a particular application.

Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

The quality grade of NEC devices in "Standard" unless otherwise specified in NEC's Data Sheets or Data Books. If customers intend to use NEC devices for applications other than those specified for Standard quality grade, they should contact NEC Sales Representative in advance.

Anti-radioactive design is not implemented in this product.