



NPN SILICON RF TRANSISTOR

NE66219 / 2SC5606

JEITA
Part No.

NPN SILICON RF TRANSISTOR FOR LOW NOISE · HIGH-GAIN AMPLIFICATION 3-PIN ULTRA SUPER MINIMOLD (19, 1608 PKG)

FEATURES

- Suitable for high-frequency oscillation
- $f_T = 25$ GHz technology adopted
- 3-pin ultra super minimold (19, 1608 PKG) package

<R> ORDERING INFORMATION

Part Number	Order Number	Package	Quantity	Supplying Form
NE66219 2SC5606	NE66219-A 2SC5606-A	3-pin ultra super minimold (19, 1608 PKG) (Pb-Free)	50 pcs (Non reel)	• 8 mm wide embossed taping
NE66219-T1 2SC5606-T1	NE66219-T1-A 2SC5606-T1-A		3 kpcs/reel	• Pin 3 (collector) face the perforation side of the tape

Remark To order evaluation samples, please contact your nearby sales office.
The unit sample quantity is 50 pcs.

ABSOLUTE MAXIMUM RATINGS ($T_A = +25^\circ\text{C}$)

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	V_{CBO}	15	V
Collector to Emitter Voltage	V_{CEO}	3.3	V
Emitter to Base Voltage	V_{EBO}	1.5	V
Collector Current	I_C	35	mA
Total Power Dissipation	P_{tot} ^{Note}	115	mW
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65 to +150	$^\circ\text{C}$

Note Mounted on $1.08\text{ cm}^2 \times 1.0\text{ mm}$ (t) glass epoxy substrate

Caution: Observe precautions when handling because these devices are sensitive to electrostatic discharge

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ELECTRICAL CHARACTERISTICS (T_A = +25°C)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
DC Characteristics						
Collector Cut-off Current	I _{CBO}	V _{CB} = 5 V, I _E = 0 mA	–	–	200	nA
Emitter Cut-off Current	I _{EB0}	V _{EB} = 1 V, I _C = 0 mA	–	–	200	nA
DC Current Gain	h _{FE} ^{Note 1}	V _{CE} = 2 V, I _C = 5 mA	60	80	100	–
RF Characteristics						
Gain Bandwidth Product	f _T	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz	–	21	–	GHz
Insertion Power Gain	S _{21e} ²	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz	10	12.5	–	dB
Noise Figure	NF	V _{CE} = 2 V, I _C = 5 mA, f = 2 GHz, Z _S = Z _{opt}	–	1.2	1.5	dB
Reverse Transfer Capacitance	C _{re} ^{Note 2}	V _{CB} = 2 V, I _E = 0 mA, f = 1 MHz	–	0.21	0.3	pF
Maximum Available Power Gain	MAG ^{Note 3}	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz	–	14	–	dB
Maximum Stable Power Gain	MSG ^{Note 4}	V _{CE} = 2 V, I _C = 20 mA, f = 2 GHz	–	15	–	dB

Notes 1. Pulse measurement: PW ≤ 350 μs, Duty Cycle ≤ 2%

2. Collector to base capacitance when the emitter grounded

$$3. \text{ MAG} = \left| \frac{S_{21}}{S_{12}} \right| (K - \sqrt{K^2 - 1})$$

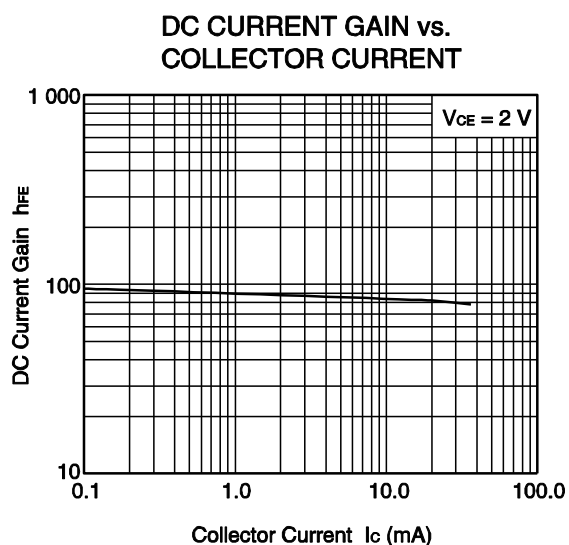
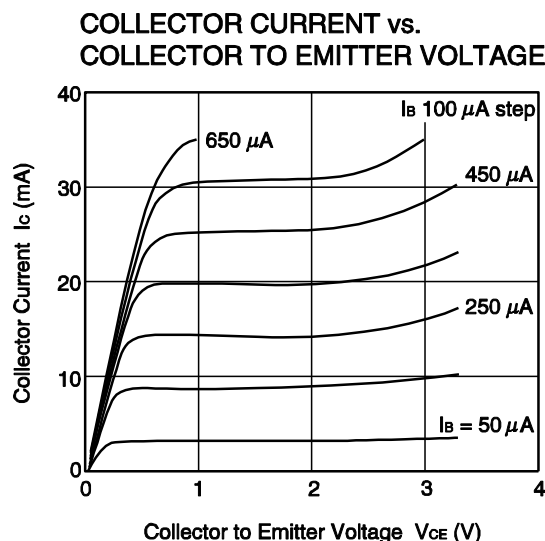
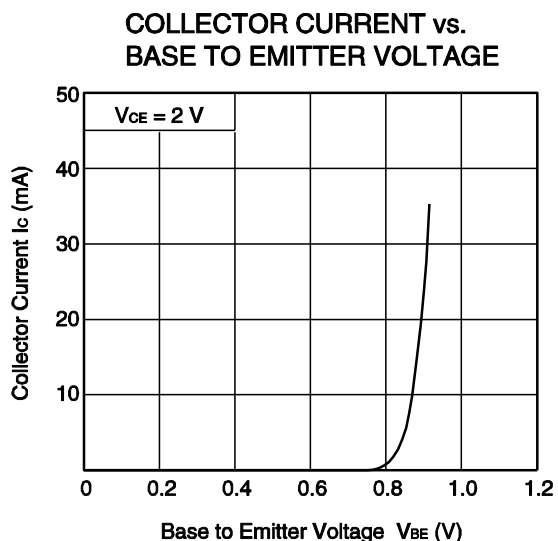
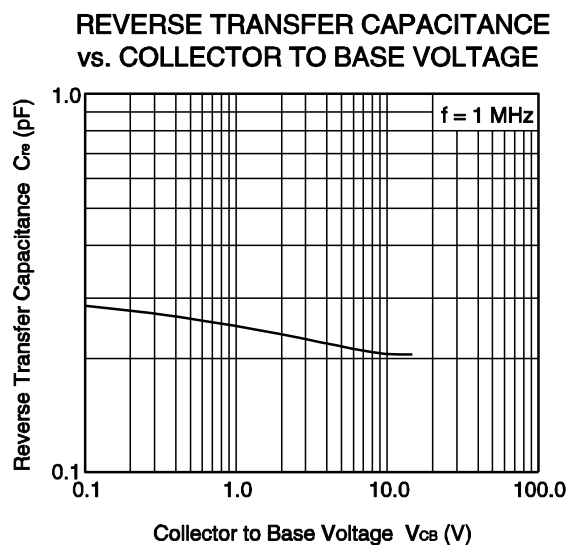
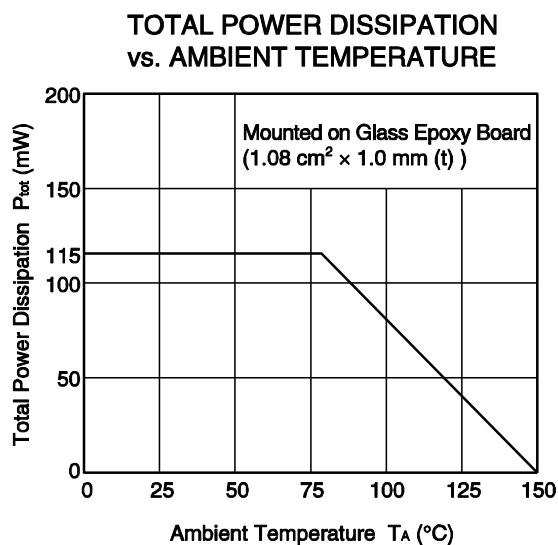
$$4. \text{ MSG} = \left| \frac{S_{21}}{S_{12}} \right|$$

h_{FE} CLASSIFICATION

<R>

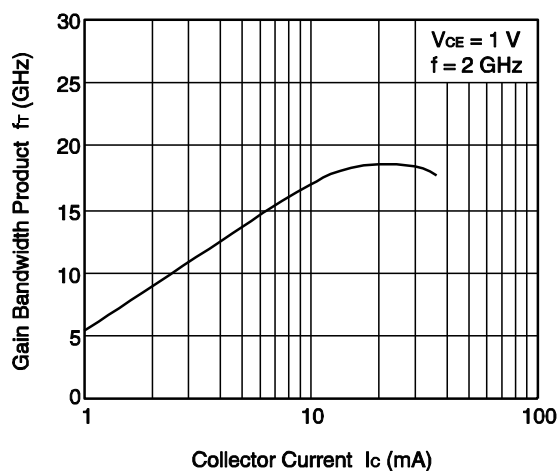
Rank	FB/YFB
Marking	UA
h _{FE}	60 to 100

<R> TYPICAL CHARACTERISTICS (Unless otherwise specified, $T_A = +25^\circ\text{C}$)

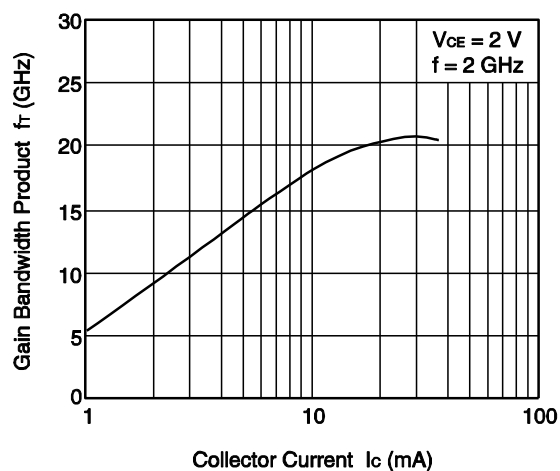


Remark The graphs indicate nominal characteristics.

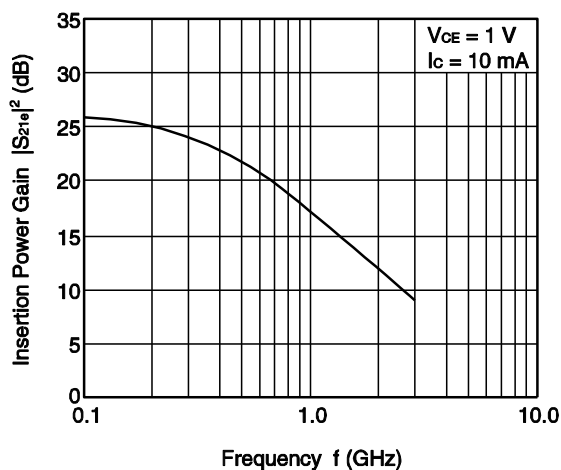
**GAIN BANDWIDTH PRODUCT
vs. COLLECTOR CURRENT**



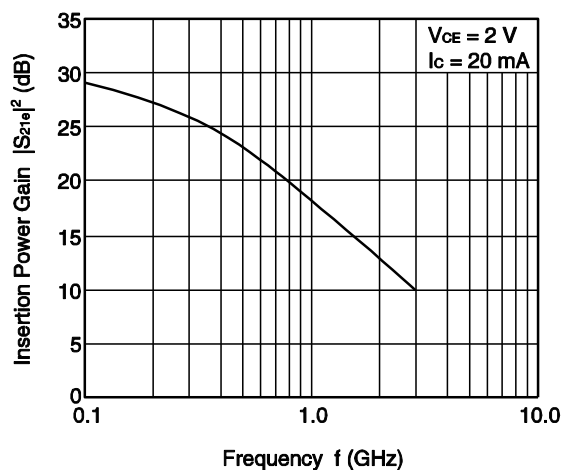
**GAIN BANDWIDTH PRODUCT
vs. COLLECTOR CURRENT**



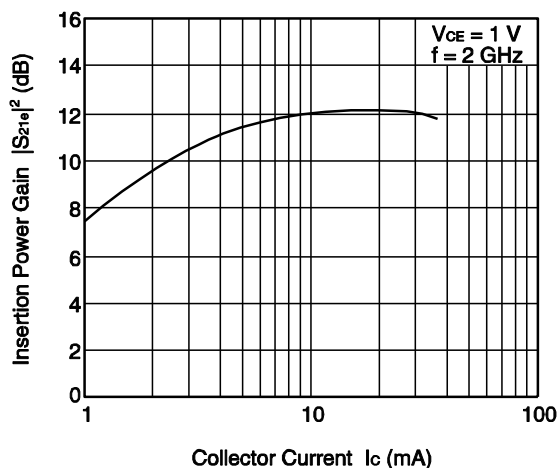
**INSERTION POWER GAIN
vs. FREQUENCY**



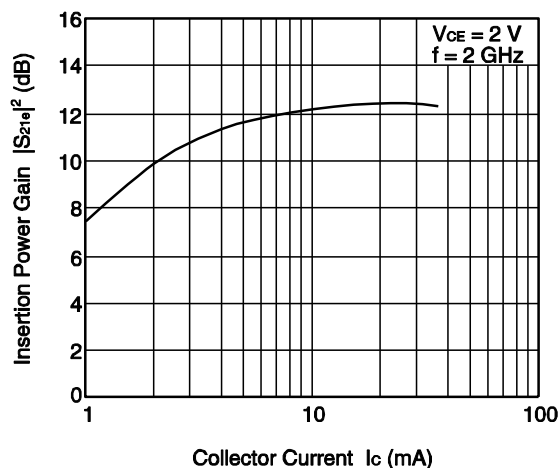
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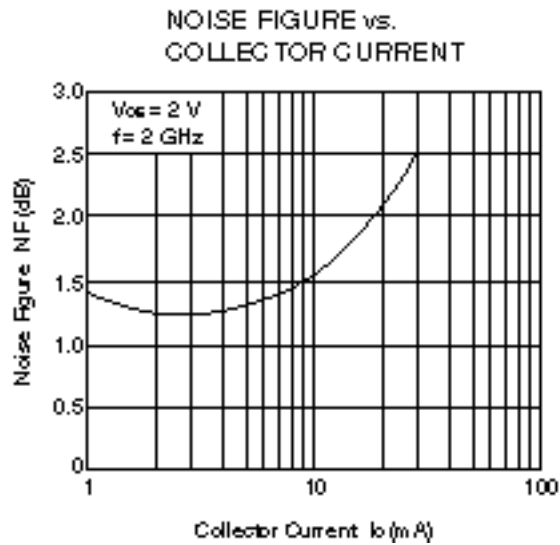
**INSERTION POWER GAIN
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**INSERTION POWER GAIN
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Remark The graphs indicate nominal characteristics.



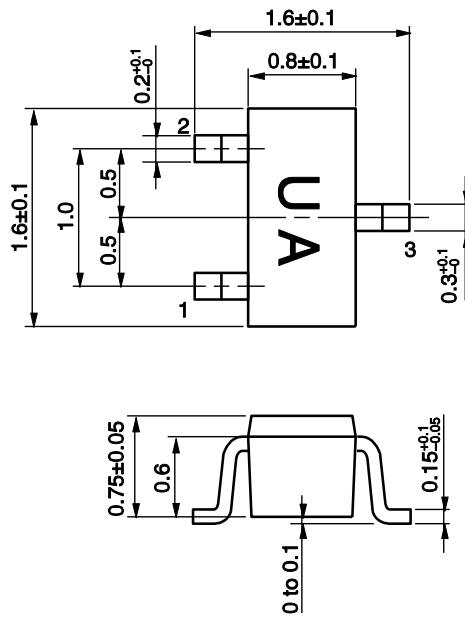
Remark The graph indicates nominal characteristics.

<R> **S-PARAMETERS**

- S-parameters and noise parameters are provided on our Web site in a format (S2P) that enables the direct import of the parameters to microwave circuit simulators without the need for keyboard inputs.
- Click here to download S-parameters.
- [RF and Microwave] ® [Device Parameters]
- URL <http://www.necel.com/microwave/en/>

PACKAGE DIMENSIONS

3-PIN ULTRA SUPER MINIMOLD (19, 1608 PKG) (UNIT: mm)



PIN CONNECTIONS

1. Emitter
2. Base
3. Collector

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