

NPN SILICON RF TRANSISTOR **2SC5606**

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

FEATURES

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

<R> ORDERING INFORMATION

Part Number	Order Number	Package	Quantity	Supplying Form
2SC5606	2SC5606-A	3-pin ultra super minimold	50 pcs (Non reel)	• 8 mm wide embossed taping
2SC5606-T1	2SC5606-T1-A	(19, 1608 PKG) (Pb-Free)	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 (TA = +25°C)

Parameter	Symbol	Ratings	Unit
Collector to Base Voltage	Vсво	15	V
Collector to Emitter Voltage	VCEO	3.3	V
Emitter to Base Voltage	VEBO	1.5	V
Collector Current	lc	35	mA
Total Power Dissipation	Ptot ^{Note}	115	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-65 to +150	°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 (TA = +25°C)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
DC Characteristics						
Collector Cut-off Current	Ісво	Vcb = 5 V, IE = 0 mA	-	-	200	nA
Emitter Cut-off Current	Іево	V _{EB} = 1 V, Ic = 0 mA	-	-	200	nA
DC Current Gain	hfe ^{Note 1}	Vce = 2 V, Ic = 5 mA	60	80	100	-
RF Characteristics						
Gain Bandwidth Product	fт	Vce = 2 V, Ic = 20 mA, f = 2 GHz	-	21	-	GHz
Insertion Power Gain	S _{21e} ²	Vce = 2 V, Ic = 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	Cre ^{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	Vce = 2 V, Ic = 20 mA, f = 2 GHz	-	14	-	dB
Maximum Stable Power Gain	MSG Note 4	Vce = 2 V, lc = 20 mA, f = 2 GHz	-	15	-	dB

Notes 1. Pulse measurement: PW \leq 350 μ s, Duty Cycle \leq 2%

2. Collector to base capacitance when the emitter grounded

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

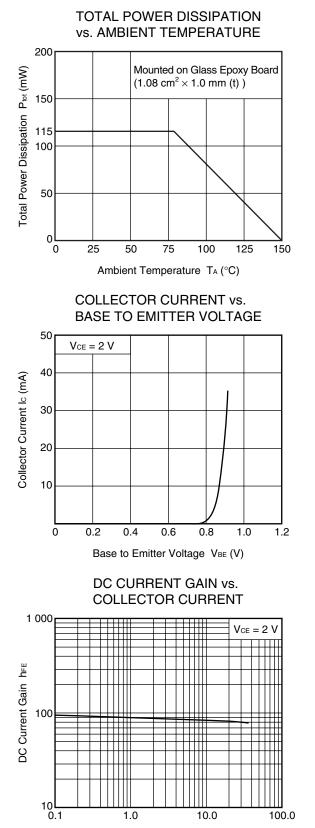
4. MSG = $\left| \frac{S_{21}}{S_{12}} \right|$

hfe CLASSIFICATION

<r></r>	Rank	FB/YFB
	Marking	UA
	hfe	60 to 100

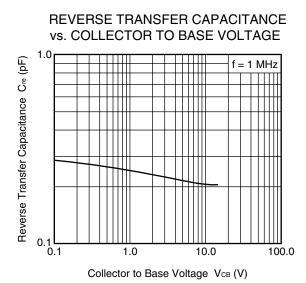


<R> TYPICAL CHARACTERISTICS (Unless otherwise specified, TA = +25°C)



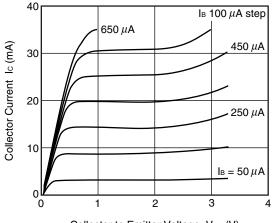
Collector Current Ic (mA)

Remark The graphs indicate nominal characteristics.

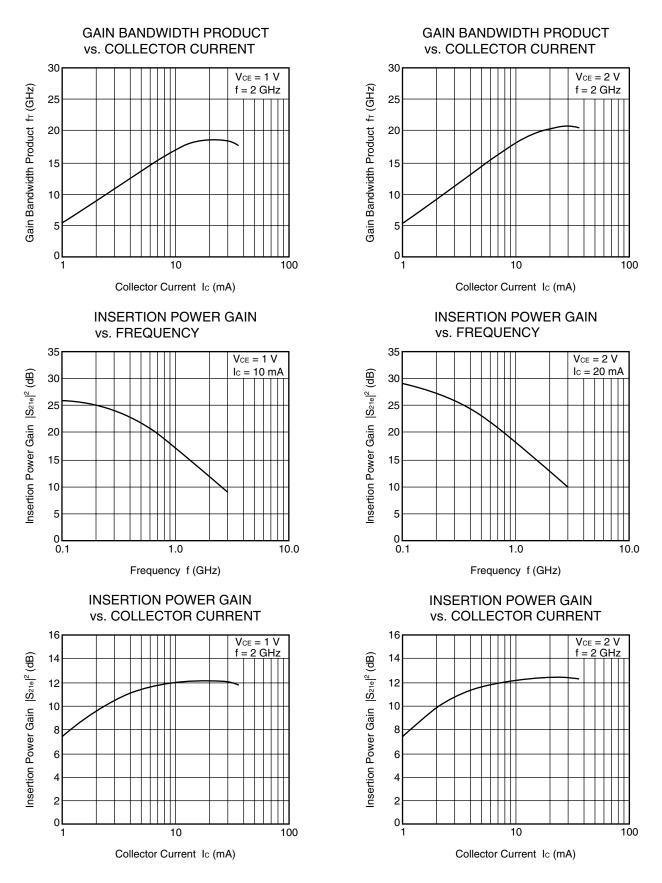


COLLECTOR CURRENT vs.

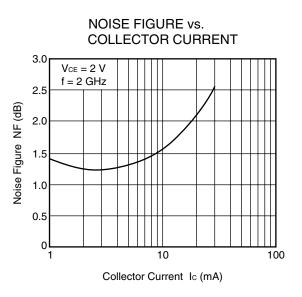
COLLECTOR TO EMITTER VOLTAGE



Collector to Emitter Voltage V_{CE} (V)



Remark The graphs indicate nominal characteristics.



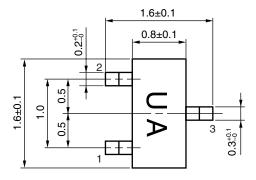


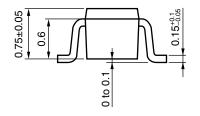
<R> S-PARAMETERS

- 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.
 - $[\text{RF} \text{ and Microwave}] \rightarrow [\text{Device Parameters}]$
 - 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

Data Sheet PU10781EJ01V0DS

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