

NPN SILICON RF TRANSISTOR

NE68130 / 2SC4227 Part No.

NPN EPITAXIAL SILICON RF TRANSISTOR FOR HIGH-FREQUENCY LOW-NOISE AMPLIFICATION 3-PIN SUPER MINIMOLD

DESCRIPTION

The NE68130 / 2SC4227 is a low supply voltage transistor designed for VHF, UHF low noise amplifier. It is suitable for a high density surface mount assembly since the transistor has been applied 3-pin super minimold package.

FEATURES

- Low noise: NF = 1.4 dB TYP. @ VcE = 3 V, Ic = 7 mA, f = 1 GHz
- High gain : $|S_{21e}|^2 = 12 \text{ dB TYP.}$ @ $V_{CE} = 3 \text{ V}$, $I_C = 7 \text{ mA}$, f = 1 GHz
- · 3-pin super minimold package

★ ORDERING INFORMATION

Part Number	Quantity	Supplying Form
NE68130 -A 2SC4227 -A	50 pcs (Non reel)	8 mm wide embossed taping Pin 3 (Collector) face the perforation side of the tape
NE68130-T1-A 2SC4227-T1-A	3 kpcs/reel	in a (constant name participation)

Remark To order evaluation samples, 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	20	V
Collector to Emitter Voltage	VCEO	10	V
Emitter to Base Voltage	V _{EBO}	1.5	V
Collector Current	lc	65	mA
Total Power Dissipation	Ptot Note	150	mW
Junction Temperature	Tj	150	°C
Storage Temperature	T _{stg}	-65 to +150	°C

Note Free air

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

The information in this document is subject to change without notice. Before using this document, please confirm that this is the latest version

ELECTRICAL CHARACTERISTICS (TA = +25°C)

Parameter	Symbol	Test Conditions	MIN.	TYP.	MAX.	Unit
DC Characteristics						
Collector Cut-off Current	Ісво	VcB = 10 V, IE = 0 mA	-	-	0.8	μΑ
Emitter Cut-off Current	ІЕВО	V _{EB} = 1 V, I _C = 0 mA	-	-	0.8	μΑ
DC Current Gain	hfE Note 1	VcE = 3 V, Ic = 7 mA	40	-	240	-)
RF Characteristics						
Gain Bandwidth Product	f⊤	VcE = 3 V, Ic = 7 mA	4.5	7.0	-	GHz
Insertion Power Gain	S _{21e} ²	VcE = 3 V, Ic = 7 mA, f = 1 GHz	10	12	-	dB
Noise Figure	NF	VcE = 3 V, Ic = 7 mA, f = 1 GHz	-	1.4	2.7	dB
Reverse Transfer Capacitance	Cre Note 2	VcB = 3 V, IE = 0 mA, f = 1 MHz	-	0.45	0.9	pF

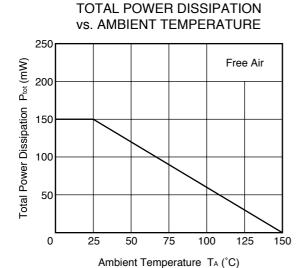
Notes 1. Pulse measurement: PW \leq 350 μ s, Duty Cycle \leq 2%

2. Collector to base capacitance when the emitter grounded

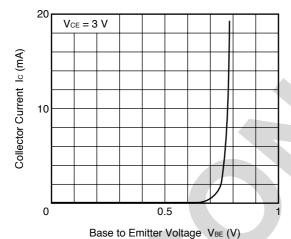
hfe CLASSIFICATION

Rank	R33	R34	R35
Marking	R33	R34	R35
h _{FE} Value	40 to 90	70 to 150	110 to 240

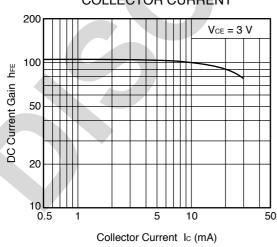
TYPICAL CHARACTERISTICS (TA = +25°C, unless otherwise specified)



COLLECTOR CURRENT vs. BASE TO EMITTER VOLTAGE

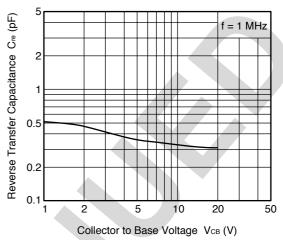


DC CURRENT GAIN vs. COLLECTOR CURRENT

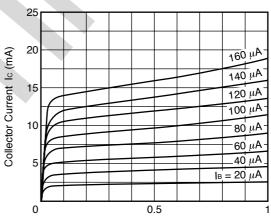


Remark The graphs indicate nominal characteristics.

REVERSE TRANSFER CAPACITANCE vs. COLLECTOR TO BASE VOLTAGE

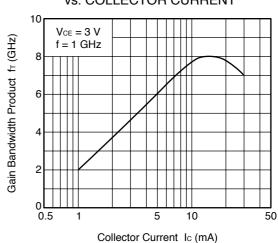


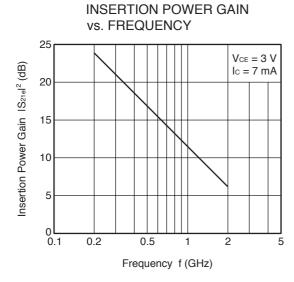
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



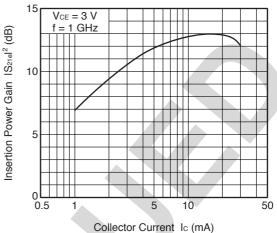
Collector to Emitter Voltage VcE (V)

GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT

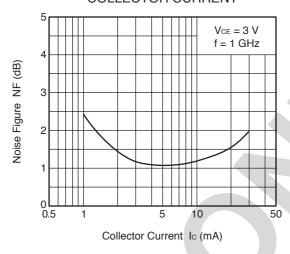




INSERTION POWER GAIN vs. COLLECTOR CURRENT



NOISE FIGURE vs. **COLLECTOR CURRENT**



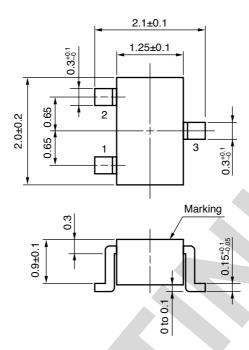
Remark The graphs indicate nominal characteristics.

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 SUPER MINIMOLD (UNIT: mm)



PIN CONNECTIONS

- 1. Emitter
- 2. Base
- 3. Collector

(EIAJ : SC-70)

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