



NPN SILICON GERMANIUM RF TRANSISTOR

NESG3032M14

NPN SiGe RF TRANSISTOR FOR LOW NOISE, HIGH-GAIN AMPLIFICATION 4-PIN LEAD-LESS MINIMOLD (M14, 1208 PACKAGE)

FEATURES

- The device is an ideal choice for low noise, high-gain amplification
NF = 0.6 dB TYP. @ $V_{CE} = 2\text{ V}$, $I_C = 6\text{ mA}$, $f = 2.0\text{ GHz}$
- Maximum stable power gain: MSG = 20.5 dB TYP. @ $V_{CE} = 2\text{ V}$, $I_C = 15\text{ mA}$, $f = 2.0\text{ GHz}$
- SiGe HBT technology (UHS3) adopted: $f_{max} = 110\text{ GHz}$
- 4-pin lead-less minimold (M14, 1208 package)

ORDERING INFORMATION

Part Number	Order Number	Package	Quantity	Supplying Form
NESG3032M14	NESG3032M14-A	4-pin lead-less minimold (M14, 1208 package) (Pb-Free)	50 pcs (Non reel)	• 8 mm wide embossed taping • Pin 1 (Collector), Pin 4 (Emitter) face the perforation side of the tape
NESG3032M14-T3	NESG3032M14-T3-A		10 kpcs/reel	

Remark To order evaluation samples, contact your nearby sales office.

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}	12.0	V
Collector to Emitter Voltage	V_{CEO}	4.3	V
Emitter to Base Voltage	V_{EBO}	1.5	V
Collector Current	I_C	35	mA
Total Power Dissipation	P_{tot} ^{Note}	150	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 PWB

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 (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	–	–	100	nA
Emitter Cut-off Current	I _{EBO}	V _{EB} = 1 V, I _C = 0 mA	–	–	100	nA
DC Current Gain	h _{FE} ^{Note 1}	V _{CE} = 2 V, I _C = 6 mA	220	300	380	–
RF Characteristics						
Insertion Power Gain	S _{21e} ²	V _{CE} = 2 V, I _C = 15 mA, f = 2.0 GHz	15.0	17.5	–	dB
Noise Figure	NF	V _{CE} = 2 V, I _C = 6 mA, f = 2.0 GHz, Z _S = Z _{Sopt} , Z _L = Z _{Lopt}	–	0.60	0.85	dB
Associated Gain	G _a	V _{CE} = 2 V, I _C = 6 mA, f = 2.0 GHz, Z _S = Z _{Sopt} , Z _L = Z _{Lopt}	–	17.5	–	dB
Reverse Transfer Capacitance	C _{re} ^{Note 2}	V _{CB} = 2 V, I _E = 0 mA, f = 1 MHz	–	0.15	0.25	pF
Maximum Stable Power Gain	MSG ^{Note 3}	V _{CE} = 2 V, I _C = 15 mA, f = 2.0 GHz	17.5	20.5	–	dB
Gain 1 dB Compression Output Power	P _{O(1 dB)}	V _{CE} = 3 V, I _{C(set)} = 20 mA, f = 2.0 GHz, Z _S = Z _{Sopt} , Z _L = Z _{Lopt}	–	12.5	–	dBm
3rd Order Intermodulation Distortion Output Intercept Point	OIP ₃	V _{CE} = 3 V, I _{C(set)} = 20 mA, f = 2.0 GHz, Z _S = Z _{Sopt} , Z _L = Z _{Lopt}	–	24.0	–	dBm

- Notes 1.** Pulse measurement: PW ≤ 350 μs, Duty Cycle ≤ 2%
- 2.** Collector to base capacitance when the emitter grounded

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

h_{FE} CLASSIFICATION

Rank	FB
Marking	zN
h _{FE} Value	220 to 380

S-PARAMETERS

S-parameters/Noise parameters are provided on the NEC Compound Semiconductor Devices Web site in a form (S2P) that enables direct import to a microwave circuit simulator without keyboard input.

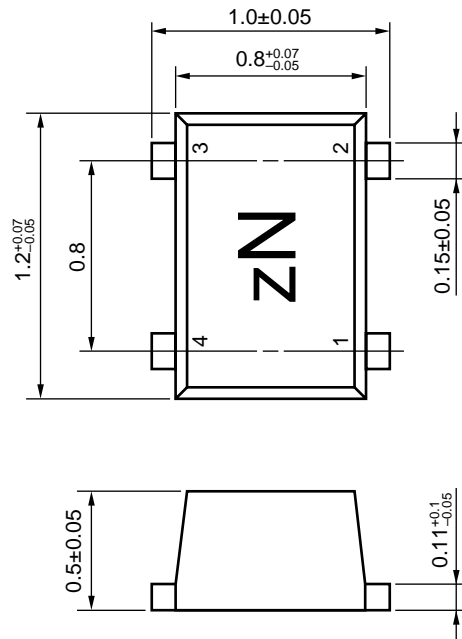
Click here to download S-parameters.

[RF and Microwave] → [Device Parameters]

URL <http://www.ncsd.necel.com/>

PACKAGE DIMENSIONS

4-PIN LEAD-LESS MINIMOLD (M14, 1208 PACKAGE) (UNIT: mm)



PIN CONNECTIONS

- 1. Collector
- 2. Emitter
- 3. Base
- 4. NC (Connected with Pin 2)

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- M8E 00.4-0110

► For further information, please contact

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CEL Pb-free products have the same base part number with a suffix added. The suffix –A indicates that the device is Pb-free. The –AZ suffix is used to designate devices containing Pb which are exempted from the requirement of RoHS directive (*). In all cases the devices have Pb-free terminals. All devices with these suffixes meet the requirements of the RoHS directive.

This status is based on CEL’s understanding of the EU Directives and knowledge of the materials that go into its products as of the date of disclosure of this information.

Restricted Substance per RoHS	Concentration Limit per RoHS (values are not yet fixed)	Concentration contained in CEL devices	
		-A	-AZ
Lead (Pb)	< 1000 PPM	Not Detected	(*)
Mercury	< 1000 PPM	Not Detected	
Cadmium	< 100 PPM	Not Detected	
Hexavalent Chromium	< 1000 PPM	Not Detected	
PBB	< 1000 PPM	Not Detected	
PBDE	< 1000 PPM	Not Detected	

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