

Installation Manual

Installation Manual for the Ansoft Designer v5.0 design kit
version v1.0

Rev. 1.0 — 22 December 2009

Installation Manual

Document information

Info	Content
Keywords	Ansoft Designer Design kit Windows Linux Unix Instruction Manual RF small signal
Abstract	Installation manual for installing the RF small signal design kit in the Ansoft Designer v5.0 system, for both Linux/Unix and windows operating system

Revision history

Rev	Date	Description
1.0	22 December 2009	Initial document

Table of Contents

1. Introduction	3
1.1 Content of the Design Kit	3
1.2 Models and data	3
2. Installing instructions	4
2.1 Run the self-extraction file	4
3. Unzip example file	6
4. Starting a project	6
5. Not starting from the template project	9
6. Example projects	14
6.1 Project NXP_S_PARAMETERS	14
6.2 Project NXP Non-Linear Elements	15
7. Legal Information	17
7.1 Definitions	17
7.2 Disclaimer	17
7.3 Patents	17
7.4 Trademarks	17

1. Introduction

The purpose of this instruction manual is to guide the customer through to process of installing and use of the NXP RF Small Signal design kit for the Ansoft simulator Ansoft Designer.

1.1 Content of the Design Kit

The NXP RF small signal design kit version 1.0 currently consists of the following devices:

- RF Wideband devices
- RF Diodes
- RF Junction Fet's
- RF dual-gate MOSFet's
- RF MMIC's

1.2 Models and data

The following models and/or data is available in the design kit, for simulating the TF circuits:

- SPICE parameters
- S-parameters
- Noise parameters
- Data sheets

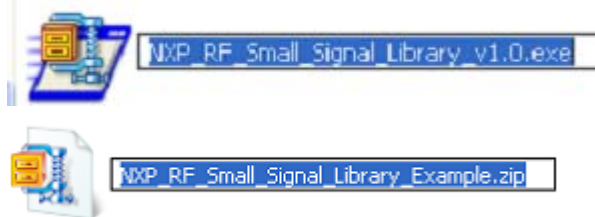
It should be noted, that not all above-mentioned data is available for all devices. The availability per device can be recognized in the associated icon by color.

2. Installing Instructions

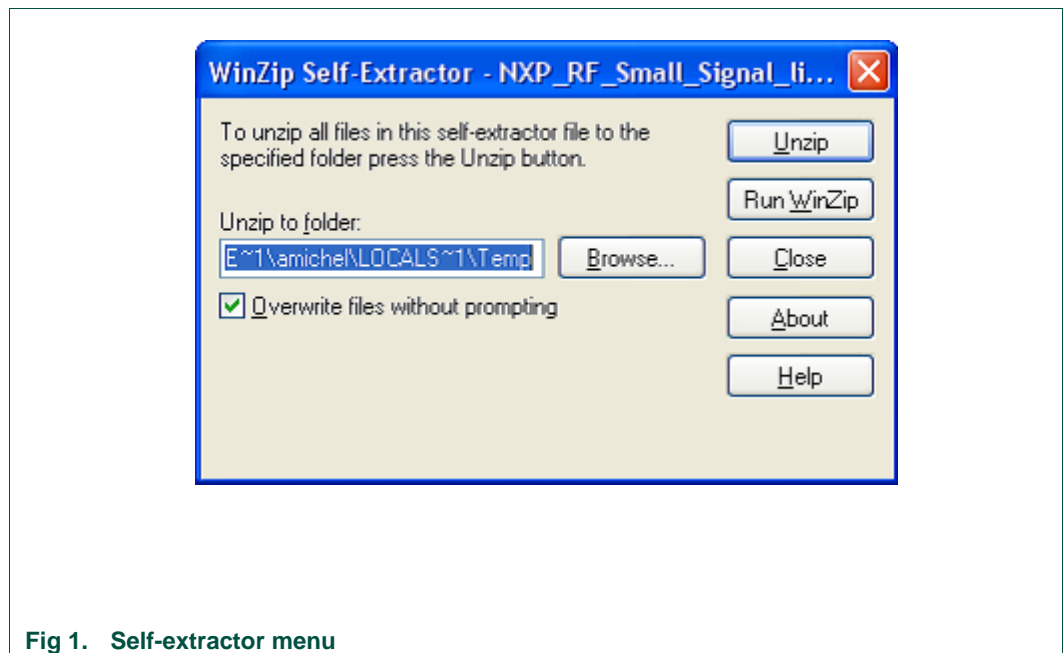
2.1 Run the self-extraction file.

1. Once you have downloaded the file **ADV5_NXP_RF_Small_Signal_library_V1.0.zip**, extract the file into a temporary directory. You will get two files:

- **NXP_RF_Small_Signal_library_ADV5_version1.0.exe**
- **NXP_RF_Small_Signal_Library_Example_v1.0.zip**



2. Double click on **NXP_RF_Small_Signal_library_ADV5_version1.0.exe**



3. Select the Ansoft product installation directory as folder to unzip the files (Ansoft product installation directory is the directory specified during Ansoft Designer installation):

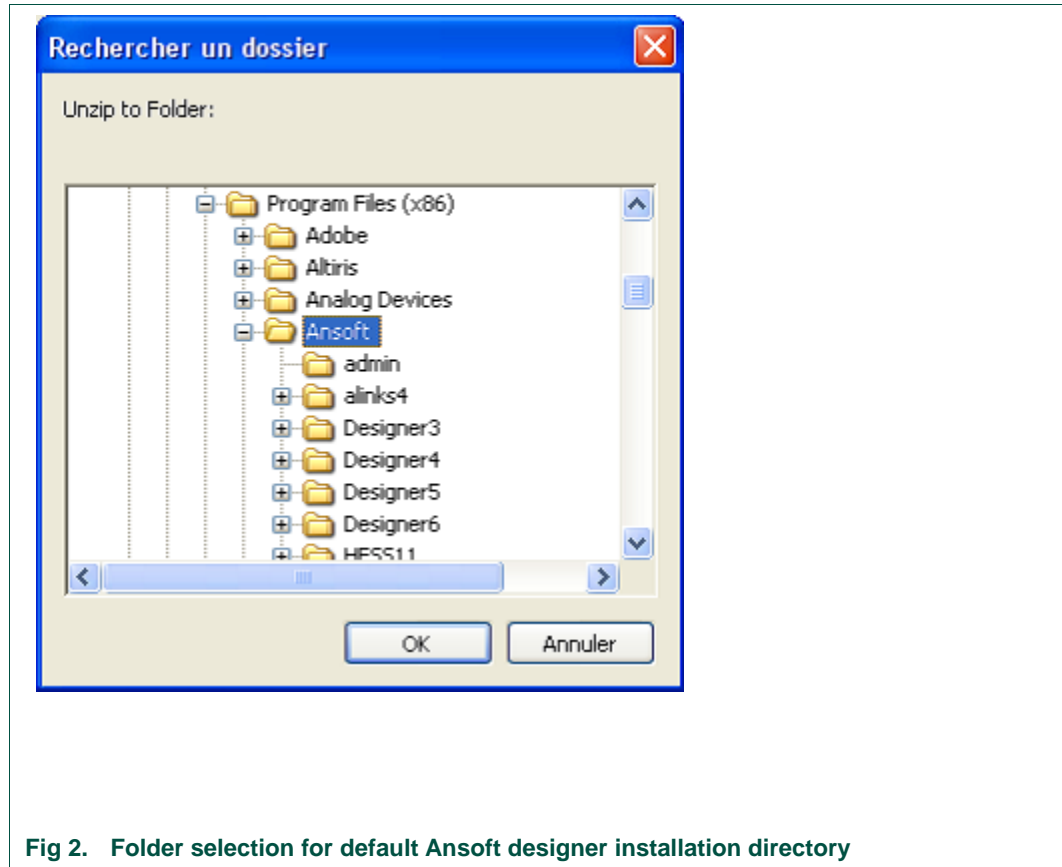


Fig 2. Folder selection for default Ansoft designer installation directory

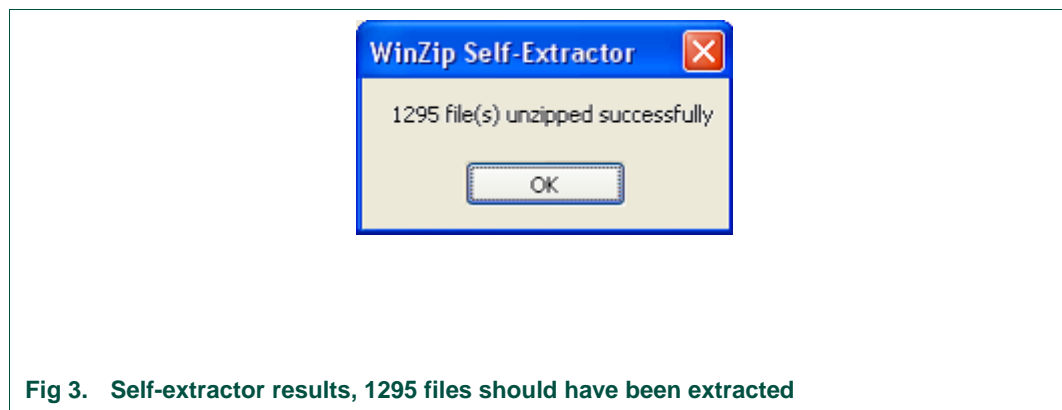
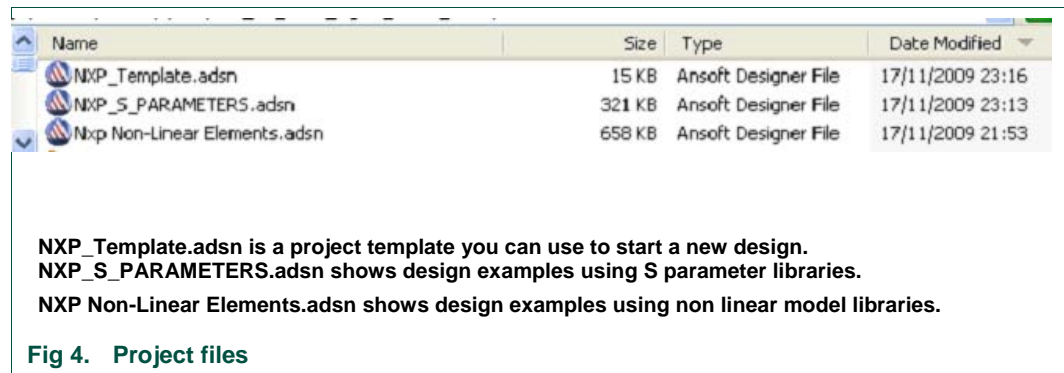


Fig 3. Self-extractor results, 1295 files should have been extracted

3. Unzip example file

Unzip the example file in the folder of your choice. The folder should contain 3 Ansoft Designer project files:



4. Starting a project

Open NXP_Template.adsn and “Save As” the project with the desired name (If you don’t want to start with the template, see chapter 5).

Double click on Template_Design design to make schematic window active and click on the “Components” tab of the project window. Expand the “User Libraries/Vendor Elements/NXP” folder as shown below to expand the component libraries.

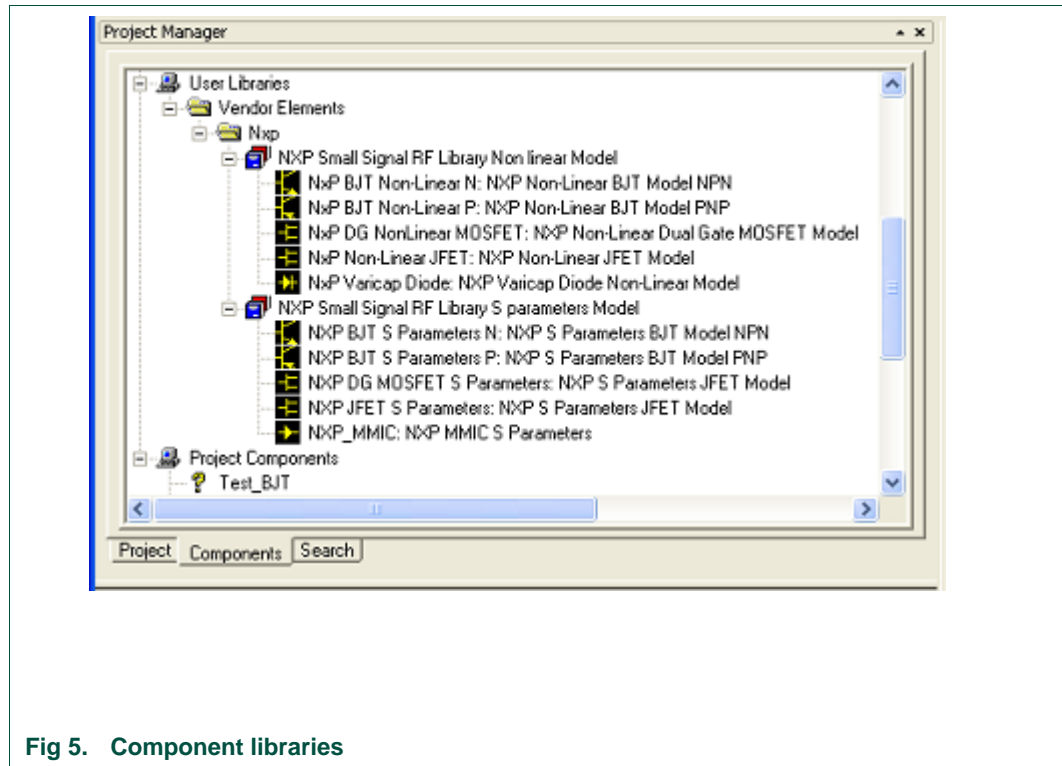


Fig 5. Component libraries

Place a component *NXP BJT Non-Linear N* on the schematic:

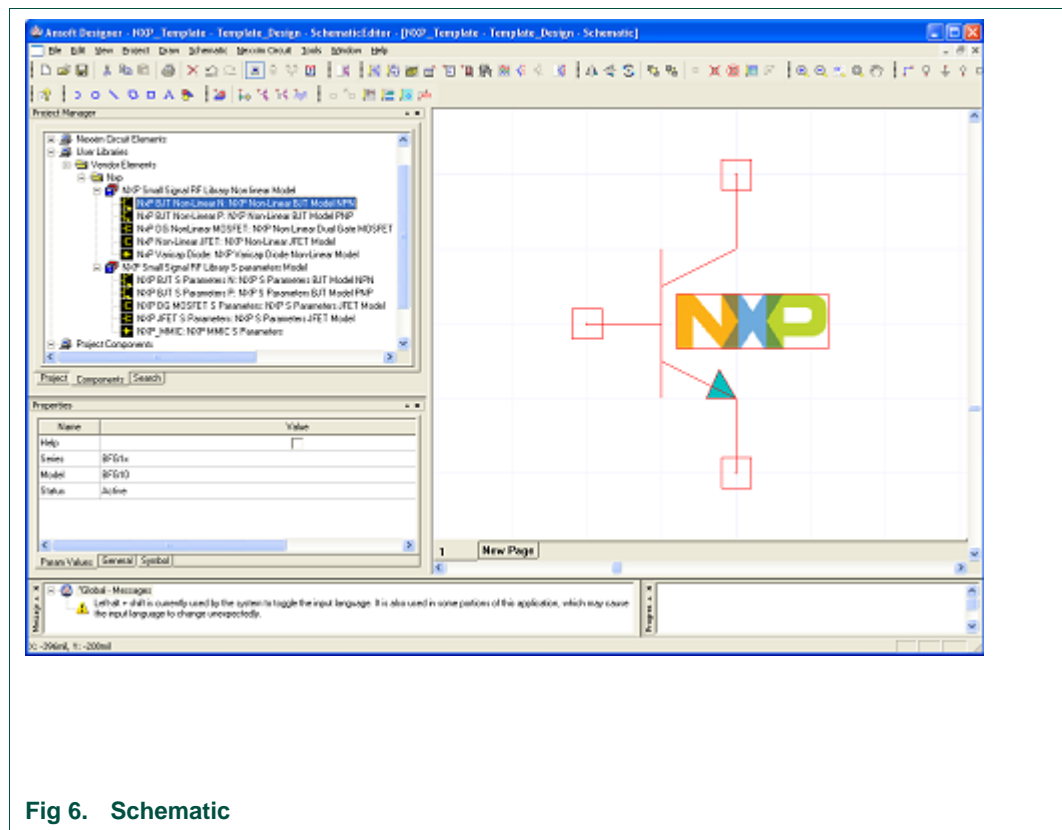


Fig 6. Schematic

And edit the properties

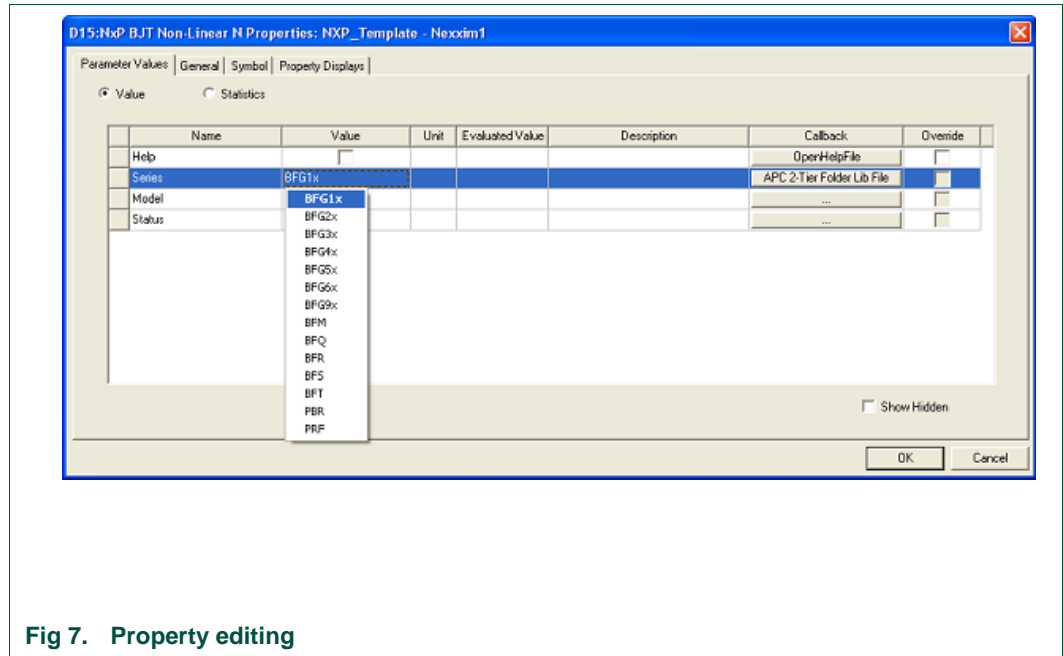


Fig 7. Property editing

The Series parameter allows selection of the desired series, and the Model parameter allows selection of the model within the series:

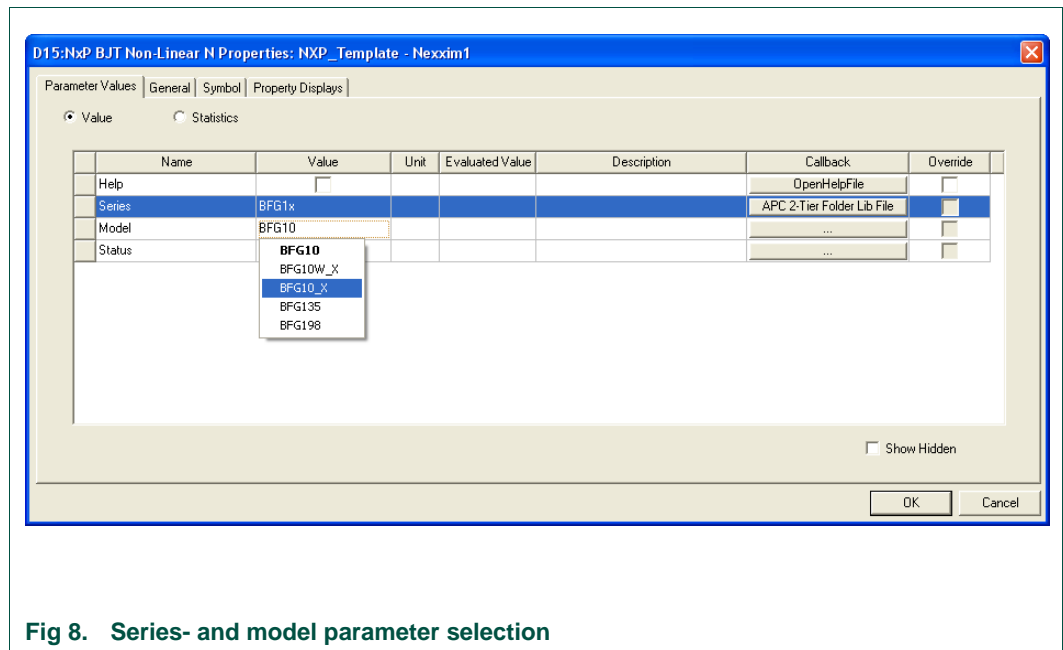


Fig 8. Series- and model parameter selection

All components, either non-linear model or S parameter, use this type of selection methodology.

If there is a need to insert a new circuit, select “Insert Nexxim Circuit Design” from project.

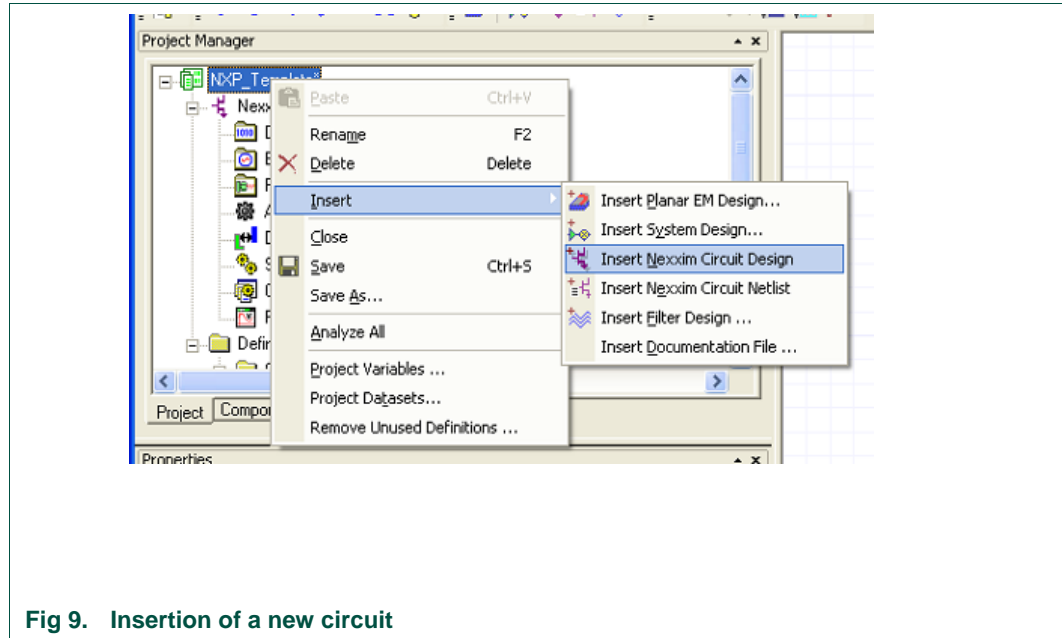


Fig 9. Insertion of a new circuit

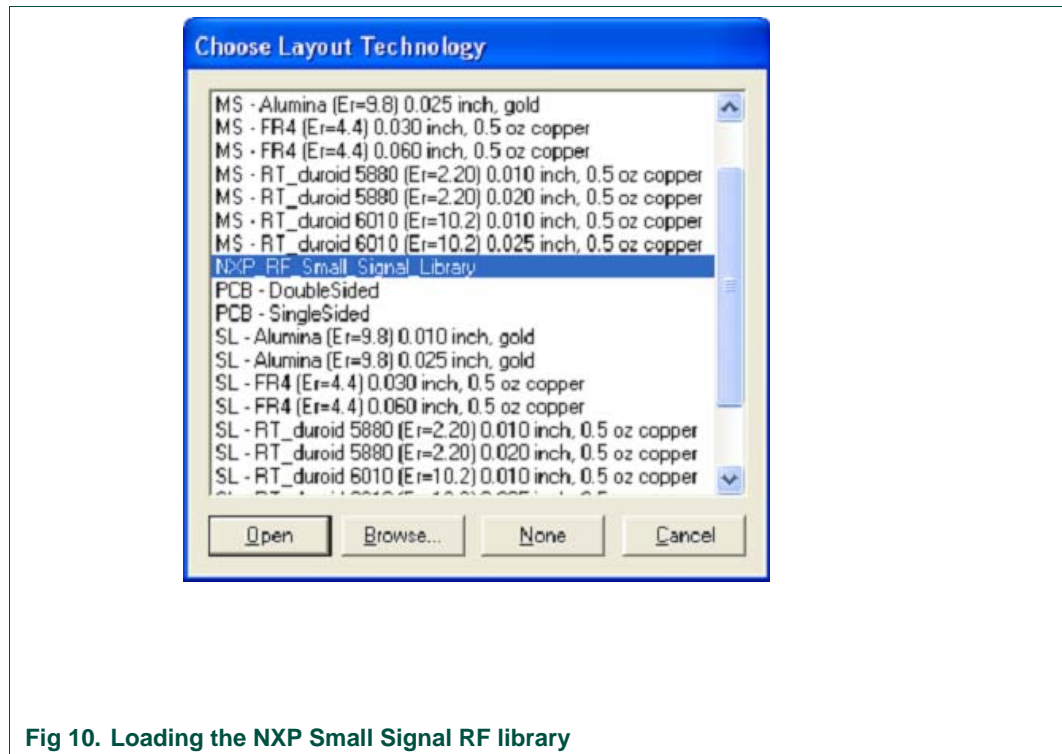


Fig 10. Loading the NXP Small Signal RF library

5. Not starting from the template project

Load Ansoft Designer, click on Project menu and select Event Callbacks

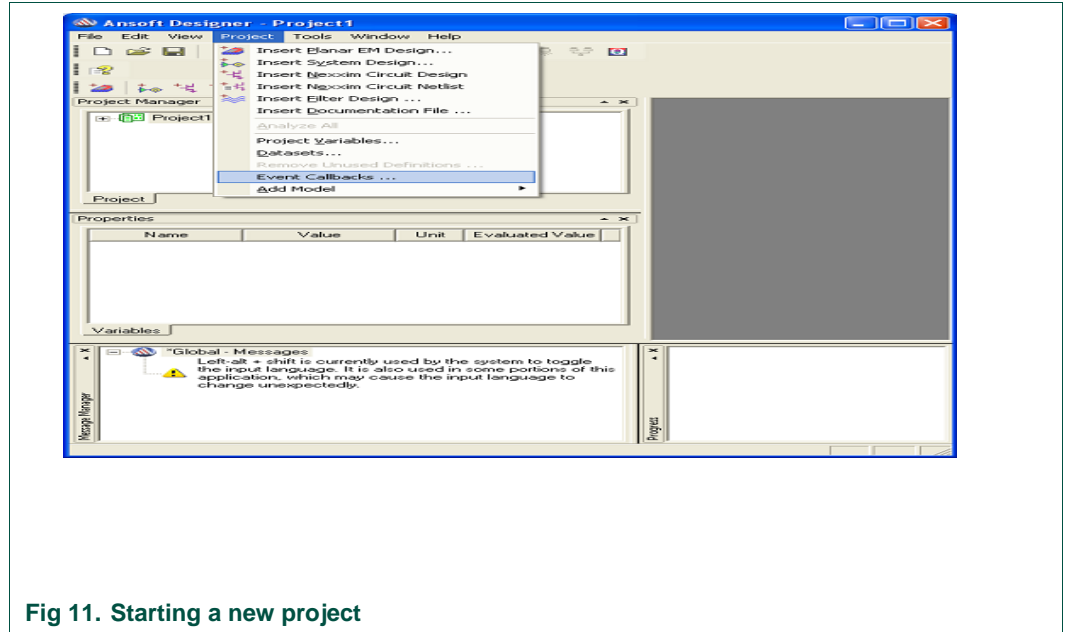


Fig 11. Starting a new project

In the row labeled "After placing component", click on "Set script"

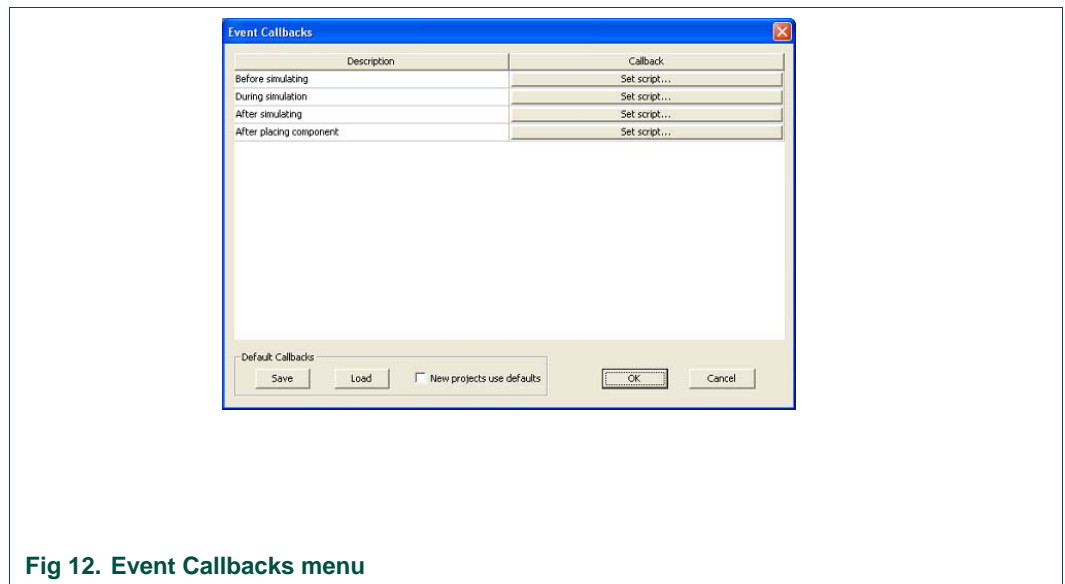


Fig 12. Event Callbacks menu

In the "Choose Scripts" window, click on "Add Scripts"

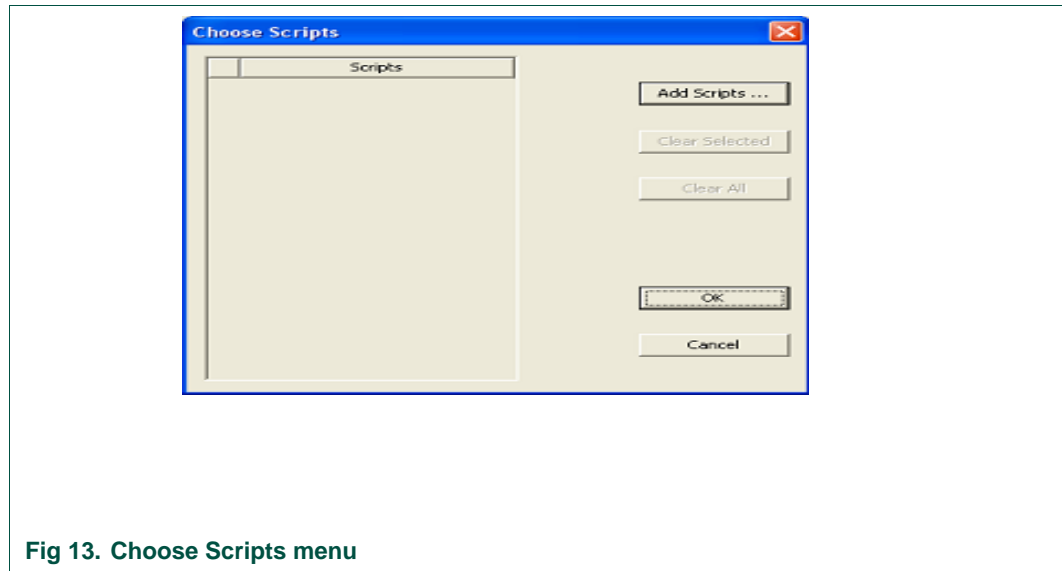


Fig 13. Choose Scripts menu

Select “[user] Vendor Elements \Vendor Elements Scripts V5 Only” and “APC Vendor Initialize” as shown below and click OK

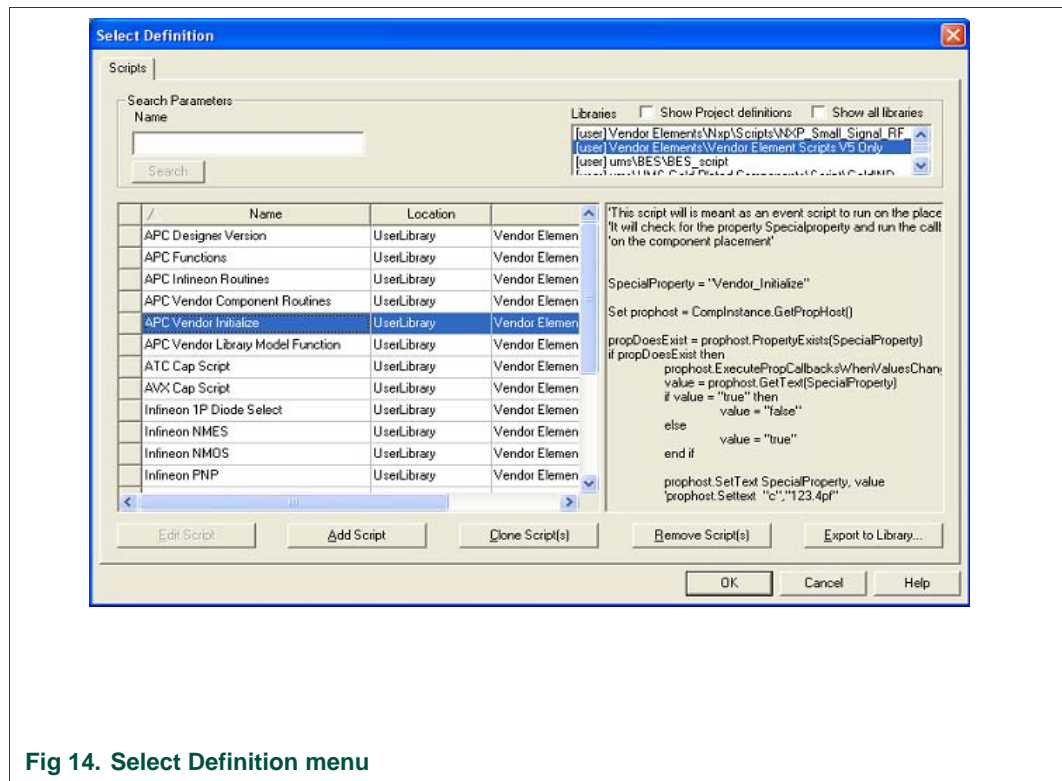


Fig 14. Select Definition menu

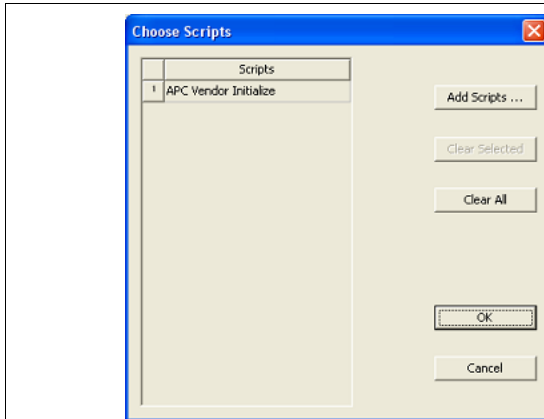


Fig 15.

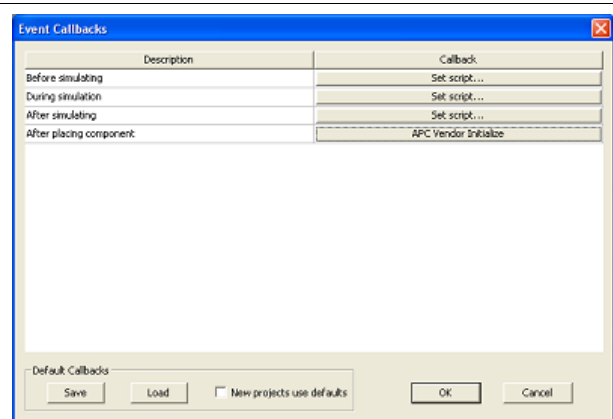


Fig 16.

Click OK in the Choose Scripts window

Click OK in the Event Callbacks window

Insert a new circuit by selecting “Insert Nexxim Circuit Design” from project

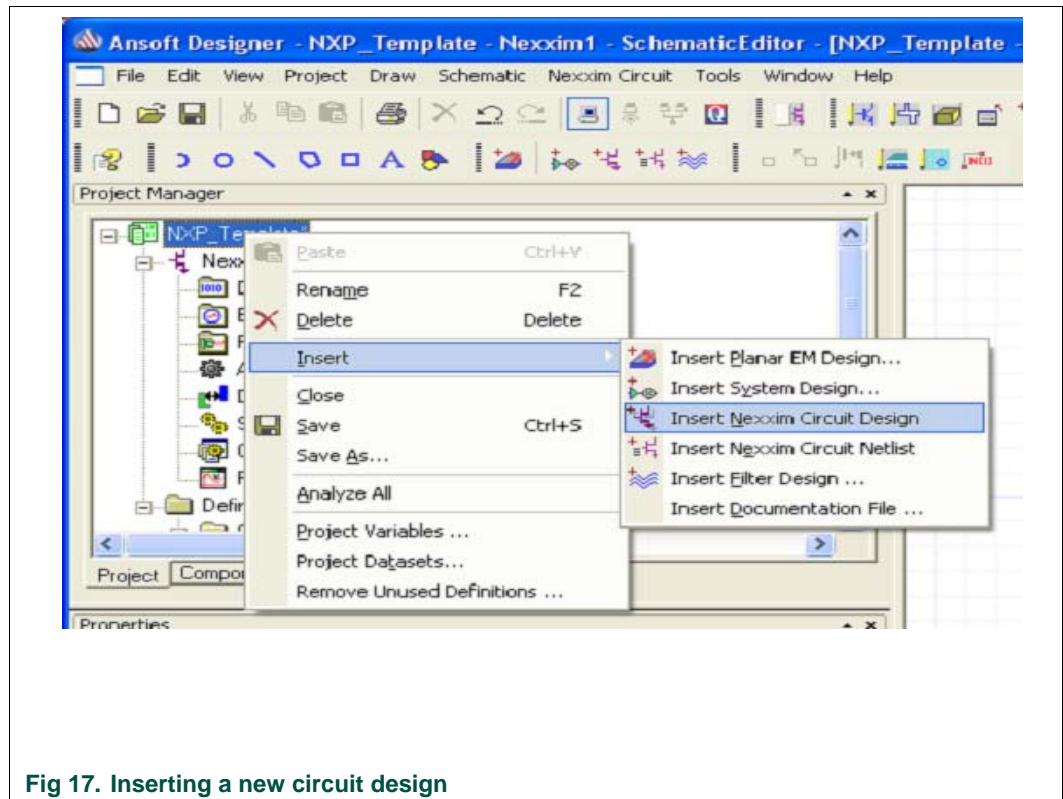


Fig 17. Inserting a new circuit design

Select “Layout Technology File” NXP_RF_Small_Signal_Library, this will load the NXP Small Signal RF library.

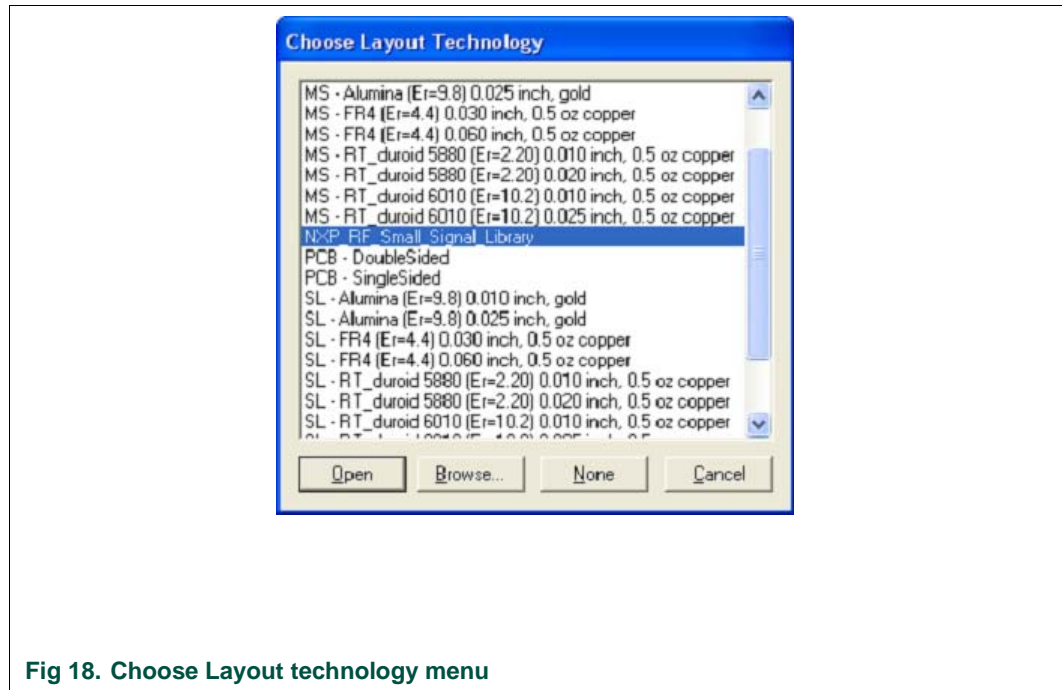


Fig 18. Choose Layout technology menu

Click Components tab from “Project Manager” window, expand the “User Libraries/Vendor Elements/NXP” folder as shown below and start to create the schematic.

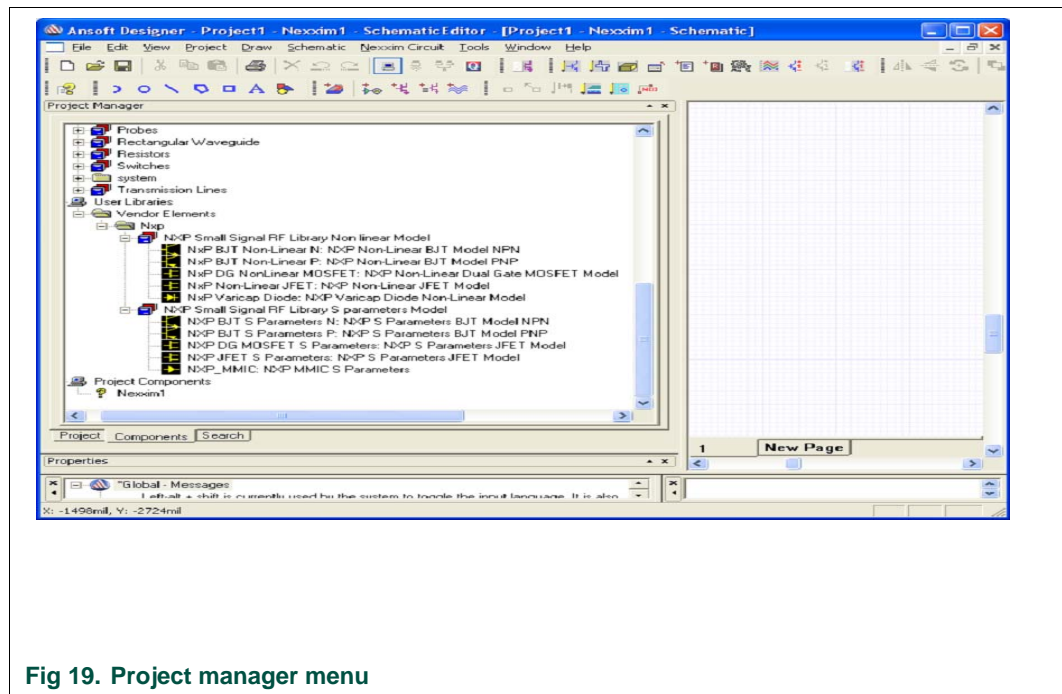


Fig 19. Project manager menu

6. Example projects

To become more familiar with library usage, open the project examples and look at the designs. Two projects are provided:

- NXP_S_PARAMETERS.adsn
- NXP Non-Linear Elements.adsn

6.1 Project NXP_S_PARAMETERS.adsn

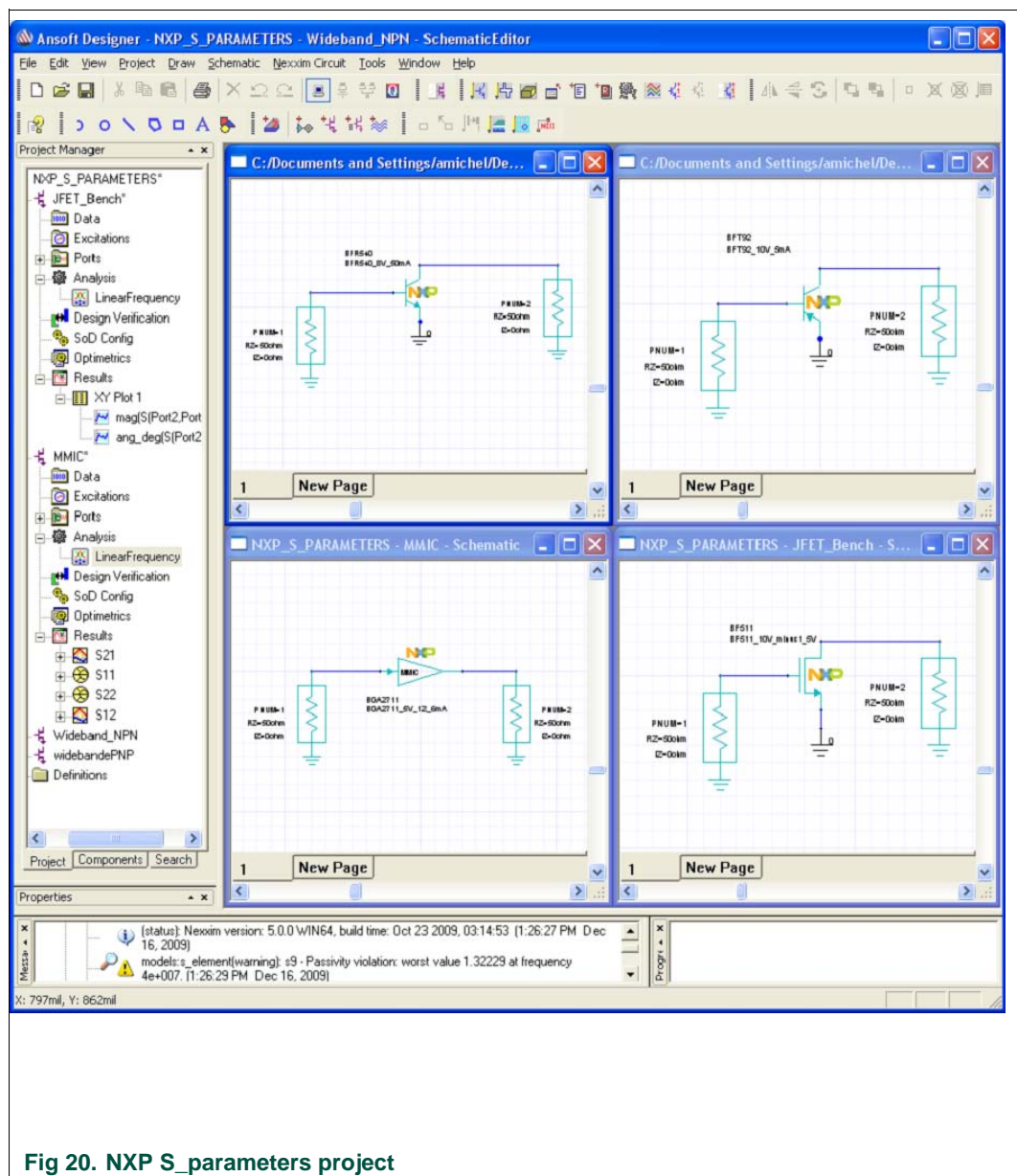


Fig 20. NXP S_parameters project

4 designs: JFET_Bench, MMIC, Wideband_NPN and Wideband_PNP shows simple example of S parameters library usage with frequency sweep setup as well as different kind of results plots.

6.2 Project NXP Non-Linear Elements.adsn

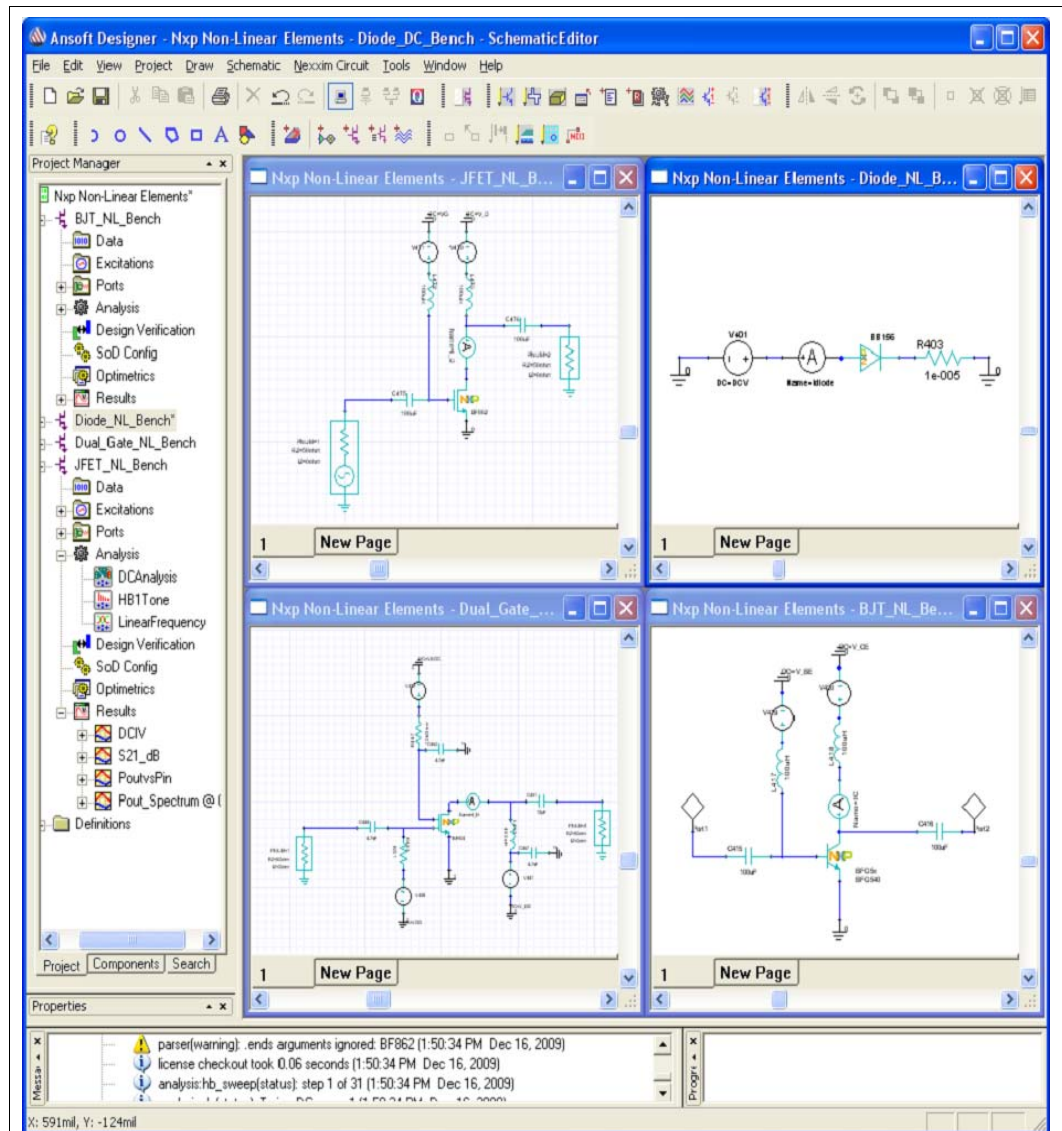


Fig 21. NXP Non-linear project

4 designs: BJT_NL_Bench, Diode_NL_Bench, Dual_Gate_NL_Bench and JFET_NL_Bench shows simple examples of Non Linear Model library usage with different kind of analysis setup for DC, Frequency sweep and Harmonic Balance as well as different kinds of results plots.

7. Legal information

7.1 Definitions

Draft — The document is a draft version only. The content is still under internal review and subject to formal approval, which may result in modifications or additions. NXP Semiconductors does not give any representations or warranties as to the accuracy or completeness of information included herein and shall have no liability for the consequences of use of such information.

7.2 Disclaimers

General — Information in this document is believed to be accurate and reliable. However, NXP Semiconductors does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information.

Right to make changes — NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use — NXP Semiconductors products are not designed, authorized or warranted to be suitable for use in medical, military, aircraft, space or life support equipment, nor in applications where failure or malfunction of a NXP Semiconductors product can reasonably be expected to result in personal injury, death or severe property or environmental

damage. NXP Semiconductors accepts no liability for inclusion and/or use of NXP Semiconductors products in such equipment or applications and therefore such inclusion and/or use is for the customer's own risk.

Applications — Applications that are described herein for any of these products are for illustrative purposes only. NXP Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Export control — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from national authorities.

7.3 Patents

Notice is herewith given that the subject device uses one or more of the following patents and that each of these patents may have corresponding patents in other jurisdictions.

7.4 Trademarks

Ansoft Designer –is trademark of Ansoft

This page is intentionally left blank

Please be aware that important notices concerning this document and the product(s) described herein, have been included in the section 'Legal information'.

© NXP B.V. 2009. All rights reserved.

For more information, please visit: <http://www.nxp.com>.
For sales office addresses, email to: salesaddresses@nxp.com.

Date of release: 22 December 2009

Document identifier: <DOC ID>

