



**Freescal Semiconductor**

Rev. 3

10/2015

Document is located at <http://freescal.com/rf/mwomodels>  
Go to Models for AWR Corporation Microwave Office,  
Overview, FAQ and Installation Instructions

# **RF High Power Product Model Design Kits for NI AWR Design Environment®**

## **Overview, FAQ and Installation**



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## I. RF HIGH POWER MODELS AND MODEL OVERVIEW

All RF high power product FET<sup>2</sup> and MET models available in NI AWR Design Environment® (AWRDE) design kits include package, bond wire and internal matching network effects.

### FET<sup>2</sup> and MET Models

The FET<sup>2</sup> and MET models for RF high power transistors and RF ICs are nonlinear models that simulate electrical phenomena and account for dynamic self-heating. The FET<sup>2</sup> and MET models are capable of performing small-signal, large-signal, harmonic-balance and transient simulations. Because of their ability to simulate self-heating, the FET<sup>2</sup> and MET models enable circuit designers to predict prototype performance more accurately.

RF high power product FET<sup>2</sup> and MET models are available for AWRDE using the RF High Power Model Kit.

## II. RF HIGH POWER MODEL KIT

The RF High Power Model Kit contains the model definitions and the nonlinear electrothermal model required to run the product models. Only one RF High Power Model Kit is required per AWRDE installation. The RF High Power Model Kit should be installed prior to installing any product models.

## III. PRODUCT MODEL

This model is for a single RF high power product. Multiple product model design kits can be installed and used simultaneously.

## IV. MODEL LIBRARY

The Product Model Library is a collection of LDMOS models in one library located on AWR Corporation's Web site. Newer models are now available as single Product Model Design Kits from Freescale.

**AWR registered user:** To access the LDMOS model library, start NI AWR Design Environment and drag the parts from the element browser under the Libraries\AWR website\Parts By Vendor\Freescale\Nonlinear\LDMOS folder.

**Not an AWR registered user:** Go to the NI AWR Design Environment Support page at [AWR support](http://www.ni.com/support/awr) and register for downloads to access the LDMOS model library.

Contact [AWR support](http://www.ni.com/support/awr) or e-mail [support@awrcorp.com](mailto:support@awrcorp.com) for issues with installing and using the AWR version of the Freescale LDMOS model library.

## V. PLATFORMS SUPPORTED

NI AWRDE Version	RF High Power Models	Windows Platforms Supported <sup>(1)</sup>	
		32-bit	64-bit
12	Product Model Design Kits with RFPK <sup>(2)</sup>	NA	Y
11	Product Model Design Kits with RFPK <sup>(2)</sup>	Y	Y
10	Product Model Design Kits with RFPK <sup>(2)</sup>	Y	N
9.01	Product Model Design Kits with RFPK <sup>(2)</sup>	Y	N

RFPK = RF High Power Kit      Y = supported by Freescale      N = not supported by Freescale  
 from <http://www.freescale.com/rf/mwomodels>      NA = not supported by NI-AWR

(1) See AWRDE installation guide for a listing of platforms and operating systems supported.

(2) Installation of the RF High Power Kit is required to run all RF High Power AWR models.

## VI. NI AWR DESIGN ENVIRONMENT – DESIGN KIT AND INSTALLATION

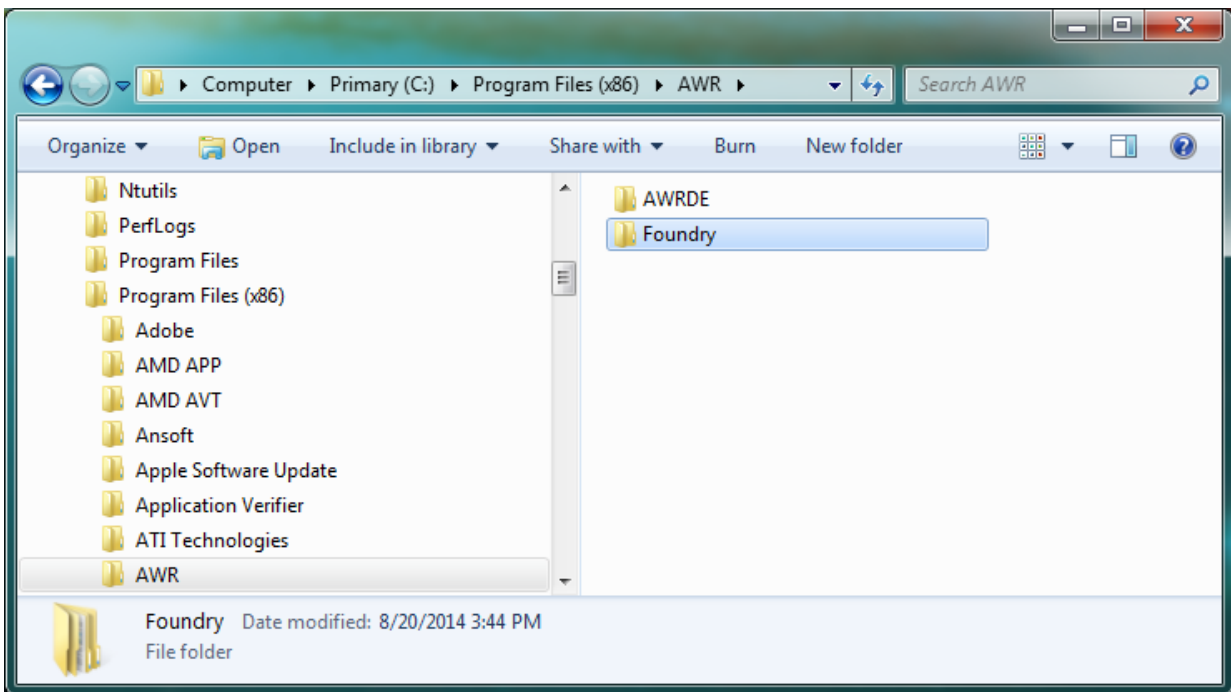
### AWRDE Process Design Kits

A process design kit (PDK) is a logical grouping of files related to a set of AWRDE components. The PDK structure is self-contained to provide easy transfer between different users. All component information needed by AWRDE is stored within the PDK.

### Installation

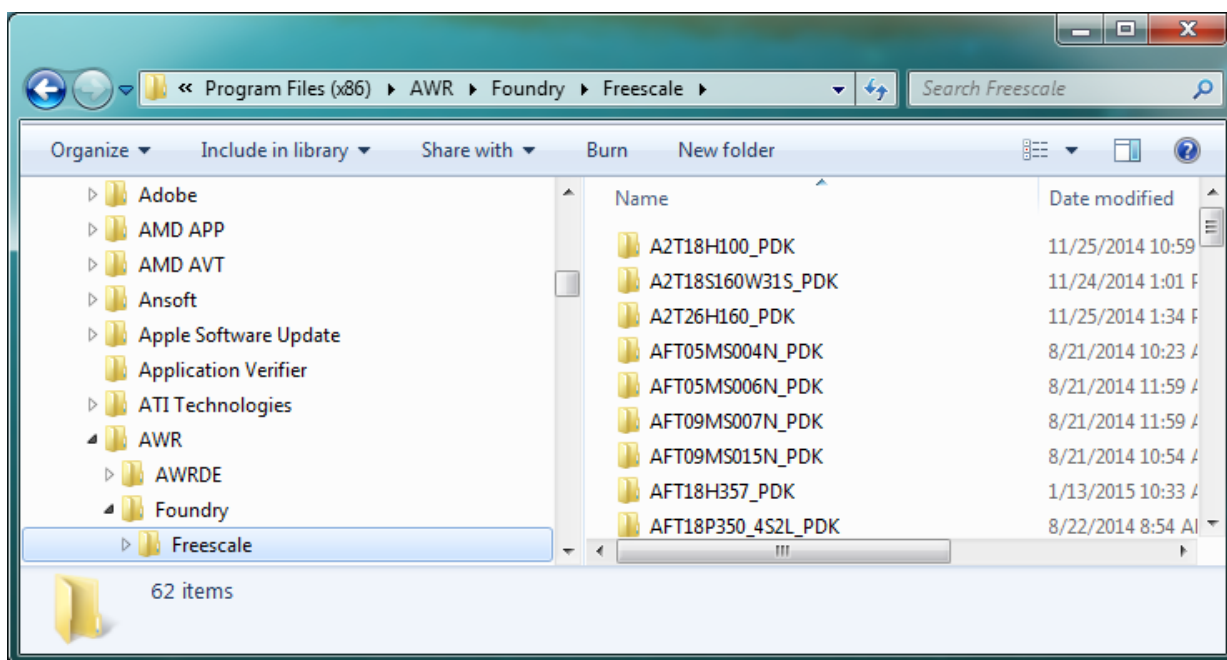
Use the following links and information to obtain instructions for unzipping, installing and setting up external models. Note that the PDK infrastructure has been developed and tested to provide a standard method for building, testing, installing and using PDK files within AWRDE.

A Process Development Kit (PDK) or Foundry Library is a customization of the AWR Design Environment for a particular process. The main AWR program is installed, typically, in the **C:\Program Files (x86)\AWR\** folder. Adjacent to this folder is the **Foundry** folder used to store the vendor process design kits. Create the **Foundry** folder once to install Freescale design kits.



WR Foundry Folder

Custom PDK files should be added to the main AWR program by creating a company folder under the **Foundry** folder with the process folders under the company folder. Create the **Freescal** folder within the **Foundry** folder once to install Freescale design kits.



Freescale Product Model Folder

1. Once the RF High Power Kit, **RF\_POWER\_AWR\_PDK.zip**, is in the **C:\Program Files (x86)\AWR\Foundry\Freescale** folder, extract the entire library to this location before extracting any product models. This will create the **Common** folder, which is installed once.
2. Once the product model is in the **C:\Program Files (x86)\AWR\Foundry\Freescale** folder, extract the entire design kit to this location. To add another design kit, install it under the **Freescale** folder, i.e.,  
**C:\Program Files (x86)\AWR\Foundry\Freescale\MRF8S21200H\_PDK.**

**Caution:** In Microsoft Windows® 7, **C:\Program Files (x86)\** is a secured folder. Extracting the PDK files without additional administrator rights will store the PDK files in the Virtual Store (**C:\Users\loginname\AppData\Local\VirtualStore**). If the user has admin rights when the PDK extraction is done, no conflicts should occur. However, if the user does not have admin rights and the PDK extraction has placed files in Virtual Store, PDK simulation errors could occur. If this occurs you will need to do one of following:

- If you have administrator rights or write permissions to **C:\Program Files (x86)\**, extract the PDK files to any location first. Copy the entire folder to the exact location as described in the “Installation” section.
- If you do not have administrator rights or write permissions, then first create a **My Documents\Freescale** folder. Second, extract all the PDK files to this folder exactly as described in the previous “Installation” section, and third, load the PDK files into AWRDE from this location.

Instructions to add this design kit into the AWRDE project can be found in the “Organizing a Design: Working with Foundry Libraries” section of the *AWR Design Environment User Guide*.

## VII. INSTALLATION FAQ AND SUPPORT

Below is a table of common problems and answers to questions that may help you complete your installation. Verify that the design kits were installed correctly by reviewing the AWRDE model installation procedures before attempting to troubleshoot problems.

Problem	Possible Solution
<p>The <b>Product Model</b> exists within the elements window, and I can pick and place model parts to the schematic; however, when I simulate, I receive the following error message within the simulator window:</p> <p>Unable to locate the component named 'FSLRFPK_FET2</p>	<p>Install the RF High Power Kit into the <b>Foundry\Freescale</b> folder and reinstall the product model PDK.</p>
<p>The <b>Product Model</b> exists within the elements window, and I can pick and place model parts to the schematic; however, when I simulate, I receive the following error messages within the simulator window:</p> <p>FSL_MRF8S18120H_Level2_Rev0_SPmodel_FET2.X1 Error initializing a component of this aggregate model</p>	<p><b>32 bit:</b> Copy all model files from the product model PDK, <b>models\Freescale\FET2models</b> folder into the <b>Common\models\Freescale\FET2_models</b> folder.</p> <p><b>64 bit:</b> Copy all model files from the product model PDK, <b>models64\Freescale\FET2models</b> folder into the <b>Common\models64\Freescale\FET2models</b> folder.</p>
<p>The <b>Product Model</b> exists within the elements window, and I can pick and place model parts to the schematic; however, when I simulate, I receive the following error messages within the simulator window:</p> <p>...'FSL_MRF7S15100H_Level2_Rev1_SPmodel_MET.X1 Error initializing a component of this aggregate model</p>	<p><b>32 bit:</b> Copy all model files from the product model PDK, <b>models\Freescale\MET_models</b> folder into the <b>Common\models\Freescale\MET_models</b> folder.</p> <p><b>64 bit:</b> Copy all model files from the product model PDK, <b>models64\Freescale\MET_models</b> folder into the <b>Common\models64\Freescale\MET_models</b> folder.</p>
<p>The <b>Product Model</b> exists within the elements window, and I can pick and place model parts to the schematic; however, when I simulate, I receive the following error messages within the simulator window:</p> <p>DecryptFile():Error opening Ciphertext file: C:\Program Files (x86)\AWR\AWRDE\11_02_7015_1_64bit\models\Motorola\MET_Models\MMRF1315N_Level2_Rev0_MET.mdl</p>	<p>Copy all model files from the product model PDK, <b>models\Freescale\MET_models</b> folder into the <b>C:\Program Files (x86)\AWR\AWRDE\(\version)\models\Motorola\MET_models</b> folder.</p>
<p>The desired <b>Product Model</b> exists within the elements window; however, when picking and placing an element, it displays an incorrect component symbol.</p>	<ol style="list-style-type: none"> <li>1. Verify the PDK directory and the symbols subdirectory are present.</li> <li>2. Verify the <b>Common</b> library and the symbols subdirectory with a *.syf file are present.</li> </ol>

### Freescale Support

Refer to [RF High Power Model Help](#) to submit a Service Request (SR) if you are experiencing installation and/or use problems with any of the Freescale RF high power model libraries or design kits.

### ***How to Reach Us:***

**Home Page:**  
[freescale.com](http://freescale.com)

**Web Support:**  
[freescale.com/support](http://freescale.com/support)

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