

# **OrCAD X Capture Part Authoring Tutorial**

**Product Version 23.1**

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# Module1: Introduction to Part Authoring in OrCAD X Capture

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This tutorial aims to provide a functional overview of the new OrCAD® X Capture part authoring capability. The part authoring capability can be almost entirely accessed from the Component Explorer interface, which provides a unified environment to:

- Create new a component from scratch
- Add and edit all the relevant details about the component
- Search and add components directly available from different content providers
- Link component details with up-to-date information with live connection with content providers
- Access all the components from this single interface – online and offline
- Access data from anywhere with Cloud storage
- Create separate workspace for sharing components and add team members:
  - To access a central repository of components specific to the project
  - To publish components on the go after review
  - To directly place components specific to the design

# Tutorial Overview

This tutorial demonstrates the ease with which you can create electrical and mechanical parts in the OrCAD X Capture solution. You can run through the detailed steps in the tutorial to perform the basic tasks for part authoring. This document does not cover all the features of the tool. It only highlights the tasks that you need to perform in Capture to author parts from existing symbols and footprint information and from external search providers, such as Samacsys, SnapEDA, and Ultra Librarian.

## Tutorial Setup

The tutorial is designed for OrCAD X Capture release 23.1. You need the following setup to work with this tutorial:

- OrCAD X Capture installed in the system
- OrCAD X Professional (POX200 Pro) license
- An email ID registered with Cadence
- An active subscription to OrCAD X Cloud - Authorization of the email ID to use OrCAD X

 Subscription is bundled with the POX200 Pro license.

## Audience

This tutorial is useful for:

- Designers who want to use OrCAD X Capture to create parts to be consumed in the schematic creation process in a collaborative environment.
- First-time users of OrCAD X Capture.

## Tutorial Files

To work with the tutorial:

- Copy *breakout.lib* from `<installation_folder_for_23.1>\tools\pspice\Library` to the following location:

`%HOME%\cdssetup\workspace\libraries\pspicemodels`

## Using the Tutorial

To run through the complete tutorial, you need OrCAD X Capture available with the OrCAD X Professional (POX200 Pro) license.

For a better understanding of the tasks covered in the tutorial, it is strongly recommended to go through the links under Related Documentation.

## Related Documentation

- [Component Explorer](#)
- [Creating Components](#)
- [Sharing Components](#)
- [Managing Libraries on OrCAD X Cloud](#)
- [Managing a Local Component Library](#)
- [Configuring Workspaces](#)
- [Sharing Workspaces](#)

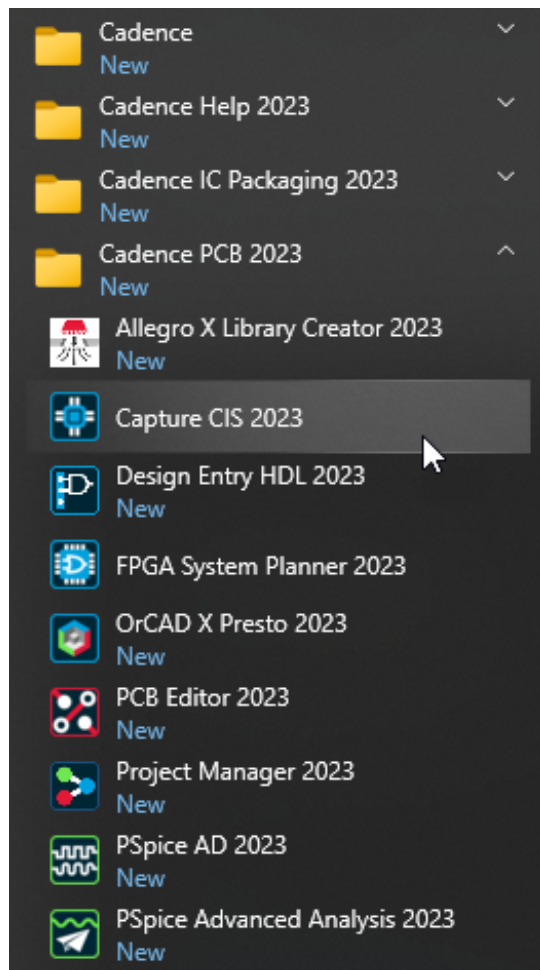
# Exploring Component Explorer

With the OrCAD X Professional (POX200 Pro) and OrCAD X Standard (POX100 Standard) licenses, you can create local libraries of parts sourced from various content providers. Component Explorer is a component management system that provides an intuitive user interface to access components from various sources including Cadence-supplied libraries and content providers.

## Launching Capture

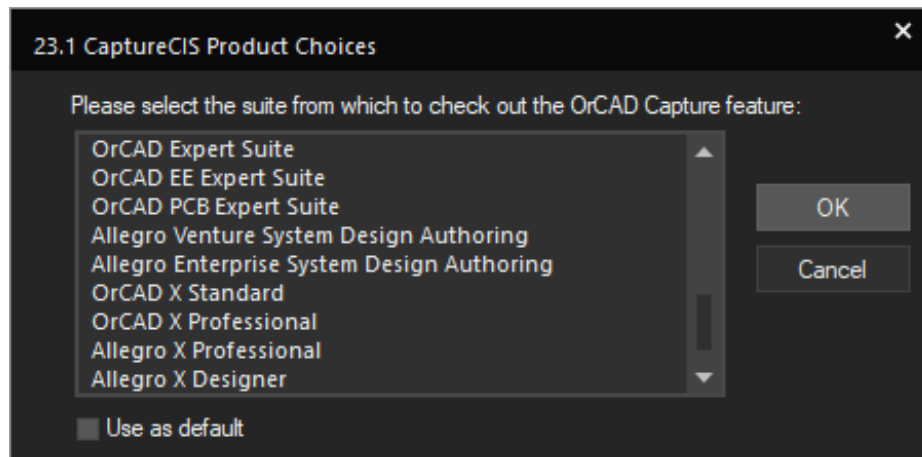
To start Capture from the Windows Start menu, do the following:

1. Choose *Start – All Programs – Cadence PCB 2023 – Capture CIS 2023*.



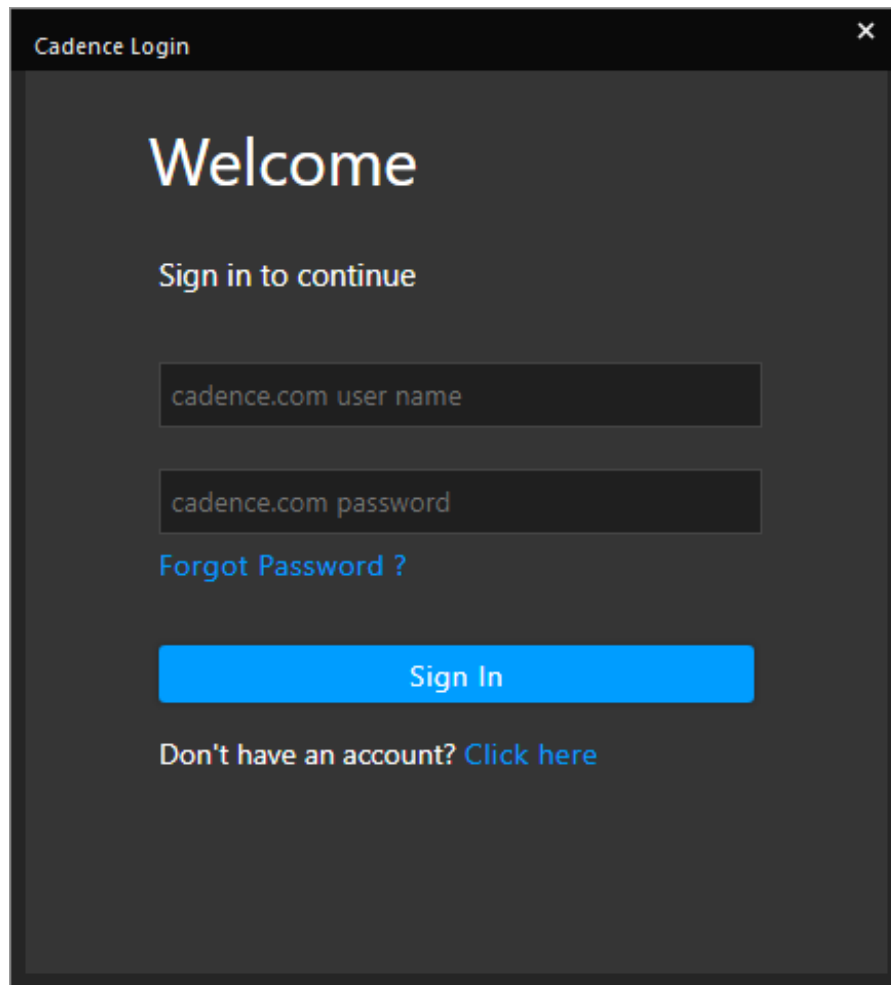
The *23.1 CaptureCIS Product Choices* dialog box is displayed.





2. Choose *OrCAD X Professional* and click *OK*.

When you launch OrCAD X Capture CIS for the first with this license, you are prompted to specify your Cadence login credentials.

A screenshot of a 'Cadence Login' dialog box. The dialog has a dark gray background and a title bar with 'Cadence Login' and a close button. The main content area is white. It features a large 'Welcome' heading, followed by the text 'Sign in to continue'. Below this are two input fields: the first is labeled 'cadence.com user name' and the second is labeled 'cadence.com password'. Under the password field is a blue link that says 'Forgot Password ?'. A large blue button labeled 'Sign In' is positioned below the links. At the bottom, there is a line of text: 'Don't have an account? Click here' with 'Click here' being a blue link.

Cadence Login

# Welcome

Sign in to continue

cadence.com user name

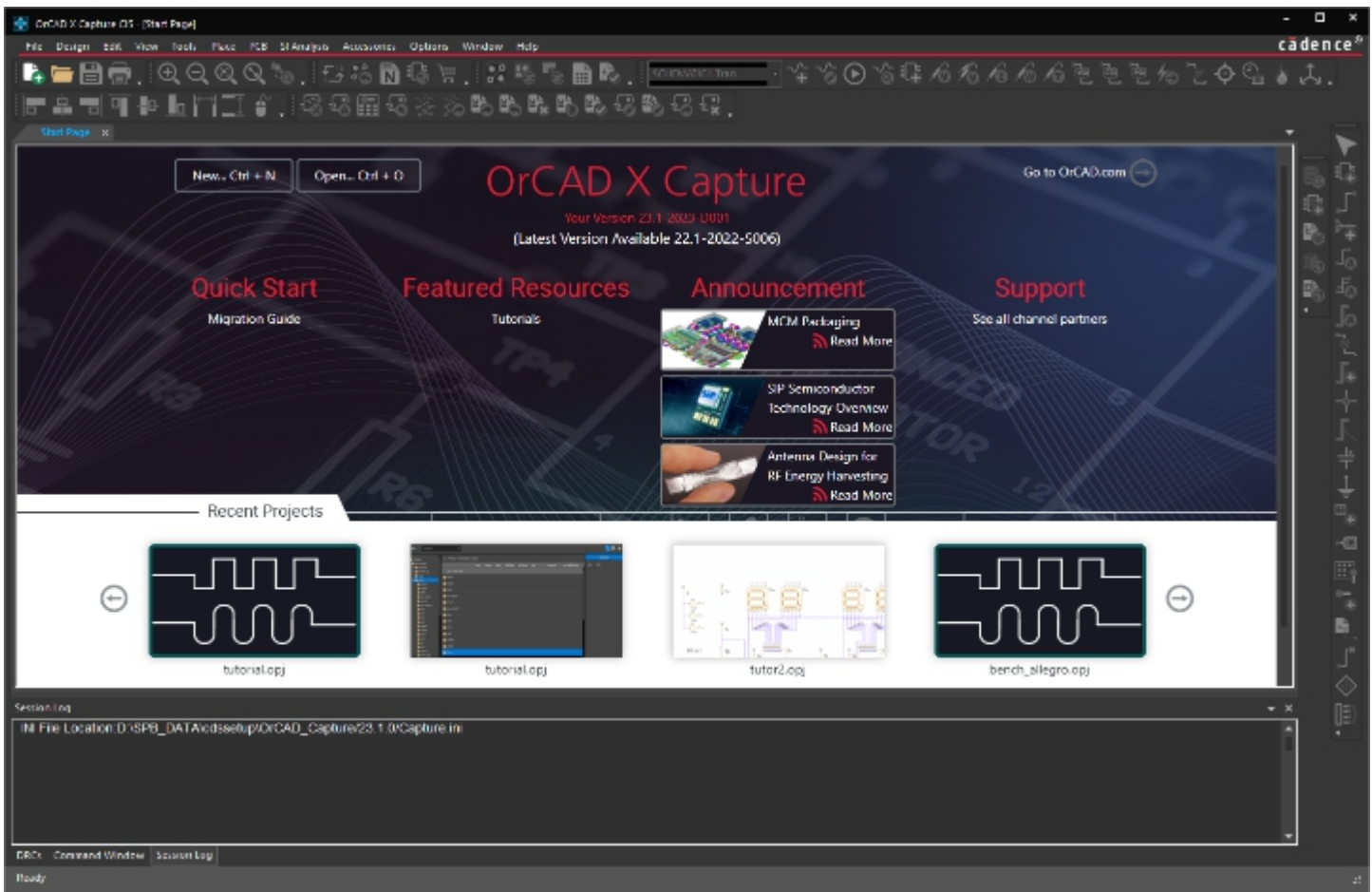
cadence.com password

[Forgot Password ?](#)

[Sign In](#)

Don't have an account? [Click here](#)

3. Specify the user name and password provided by Cadence and click *Sign In*.



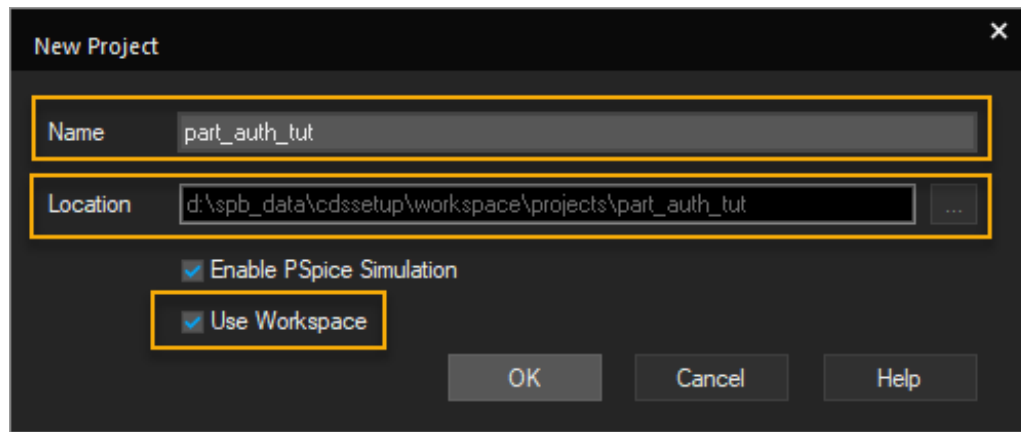
## Creating a New Project

To create a project, do the following:

1. Choose *File – New*.
2. In the *Name* text box, type `part_auth_tut` as the name of the new project.

The *Location* field is pre-seeded with the workspace path (the location where this project will be stored) as the *Use Workspace* check box is selected by default.

3. Select the *Enable PSpice Simulation* check box if you intend to include simulation capabilities in your PCB design.



4. Click *OK*.

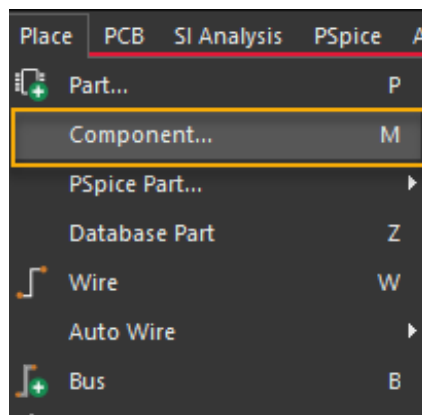
A new project is created at the following location and a blank schematic page is displayed:

```
%HOME%\cdssetup\workspace\projects\part_auth_tut
```

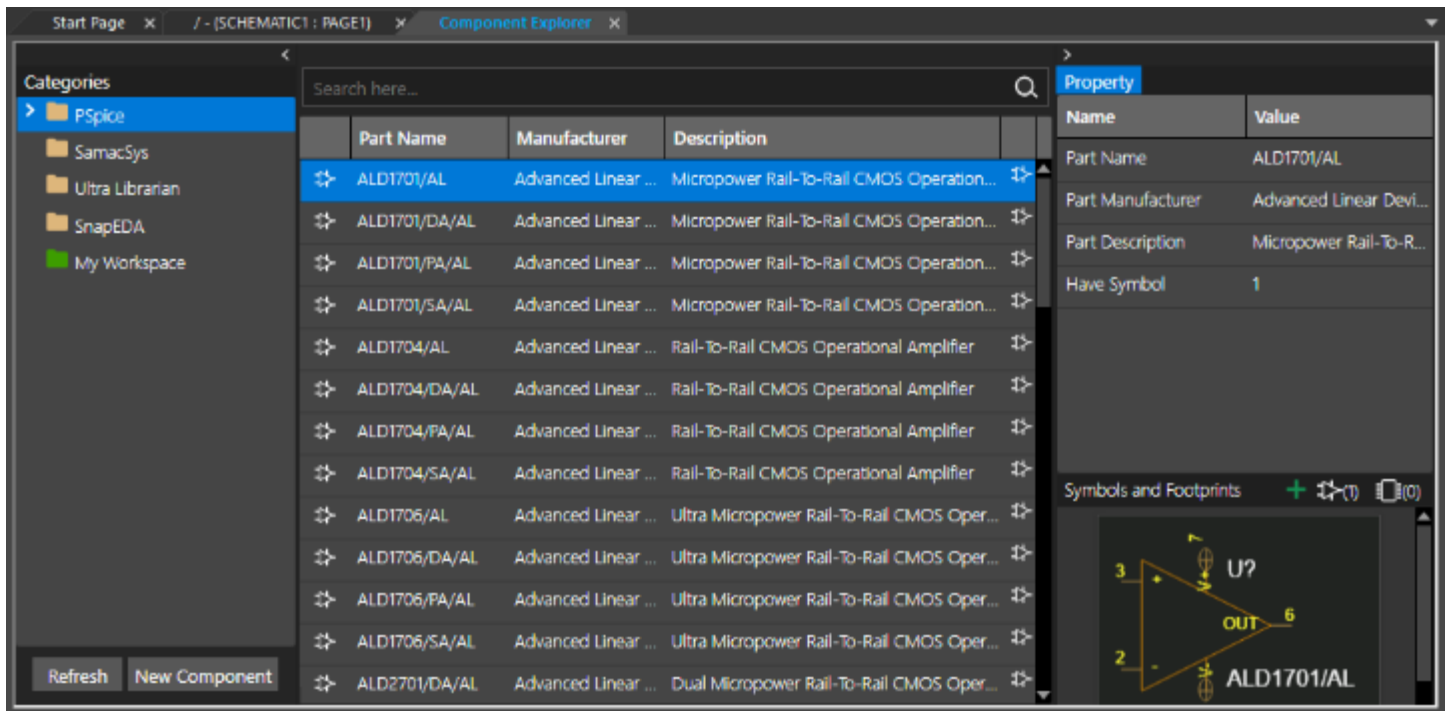
## Launching Component Explorer

You can search for components from various sources and place them on the schematic canvas from the Component Explorer interface. You can search and place components from the Cadence-supplied PSpice library, Cadence-supported content providers— SamacSys, Ultra Librarian, SnapEDA, or a workspace with previously-added parts from these sources.

- To launch Component Explorer from the main menu of Capture, choose *Place – Component*. Alternatively, press **M** to display Component Explorer.



The Component Explorer interface opens in a new tab.



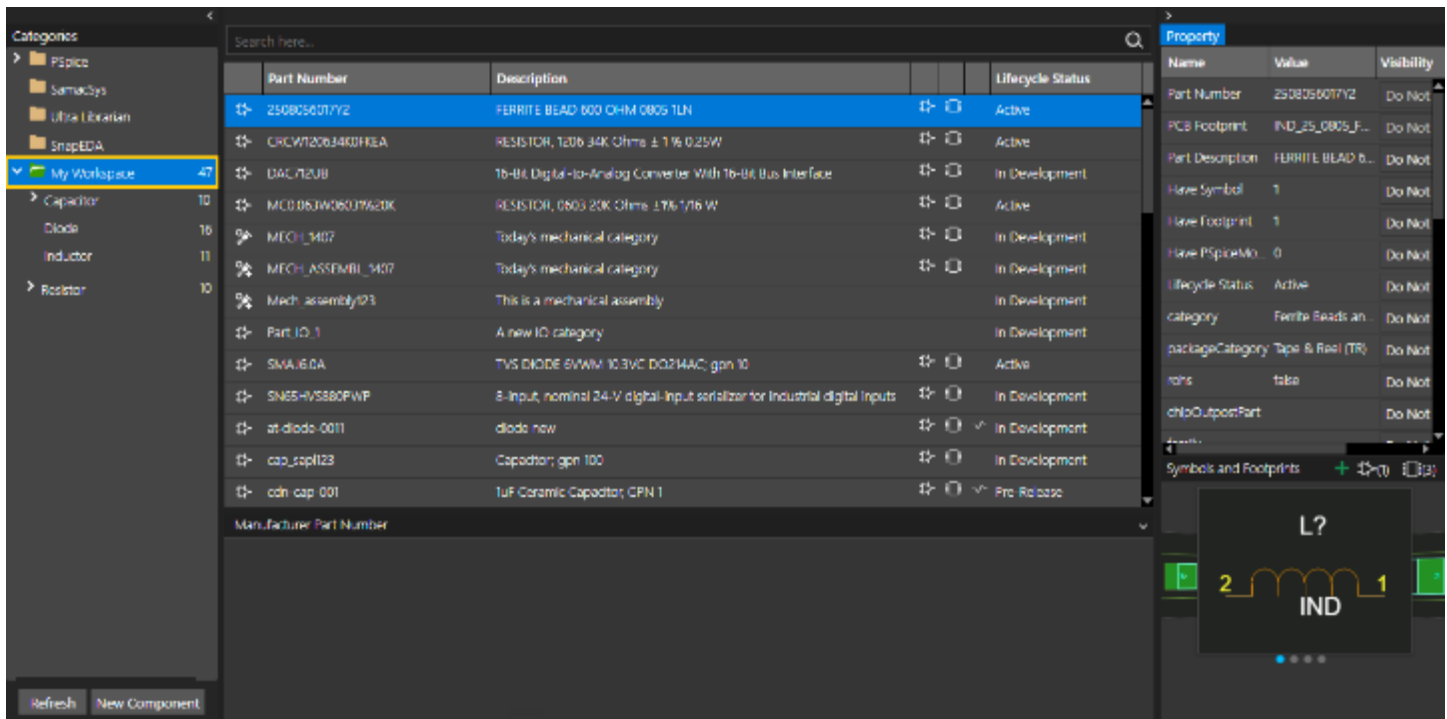
The Component Explorer interface is divided into three distinguishable panes:

Pane	Description
Left Pane	<p>The left pane or the Categories browser displays a list of sources from where you can place components in the design. The Categories tree includes the following nodes:</p> <ul style="list-style-type: none"> <li><b>PSpice:</b> Includes thousands of components shipped with the OrCAD X installation.</li> <li><b>SamacSys, Ultra Librarian, and SnapEDA:</b> Cadence-supported content search providers with a database of components available from various component manufacturers.</li> <li><b>My Workspace:</b> Includes the new components you create from scratch or add from the search providers. For any component, you can create and assign categories or sub-categories, attach default symbols and footprints, and add Manufacturer Part Number (MPN) details. You can share your local workspace components with others using shared workspaces.</li> </ul>

Middle pane	The middle pane or the part browser displays the components from the node selected in the left pane. This pane also includes a <i>Search</i> box at the top where you can search for a component within a selected category or subcategory by specifying keywords associated with the component. You can also use search queries to perform a more specific search on the selected source in the left pane. Additionally, for the components in My Workspace, a <i>Manufacturer Part Number</i> table shows MPN details in the bottom of the middle pane, if they are linked to the component.
Right pane	<p>The right pane includes the <i>Property</i> browser that displays the properties of the component selected in the part browser.</p> <p>The <i>Symbols and Footprints</i> section in this pane displays the symbol and footprint information of the selected component in a carousel view. If a part has multiple symbols, the symbol that appears in the Symbols and Footprints view at the time of selection, is placed.</p>

- Select the *My Workspace* node to view all the parts located in your local workspace

All the components from the Cloud workspace are displayed in the part browser (middle pane).





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## Module 2: Authoring Component Categories as a Librarian

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A category is a template that simplifies and speeds up the creation of components. You can create a category with pre-defined symbols, footprints, and properties, and then create components based on the category. A category not only helps in categorizing parts in the category tree, but also acts as a template at the time of creating a new component. In this module, you will learn to create component categories or templates as a librarian.

In this module, you will do the following tasks:

- [Creating Electrical Part Category](#)
- [Creating Mechanical Part Category](#)

### Creating Electrical Part Category

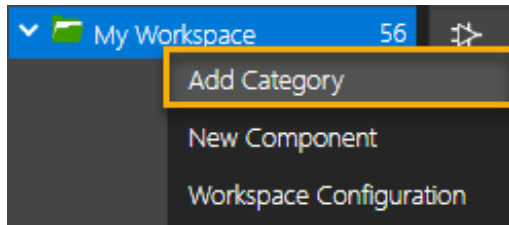
Creating an electrical part category involves adding a new category, associating properties and associating symbols, PSpice models, footprints, and properties with the category.

#### Adding an Electrical Category

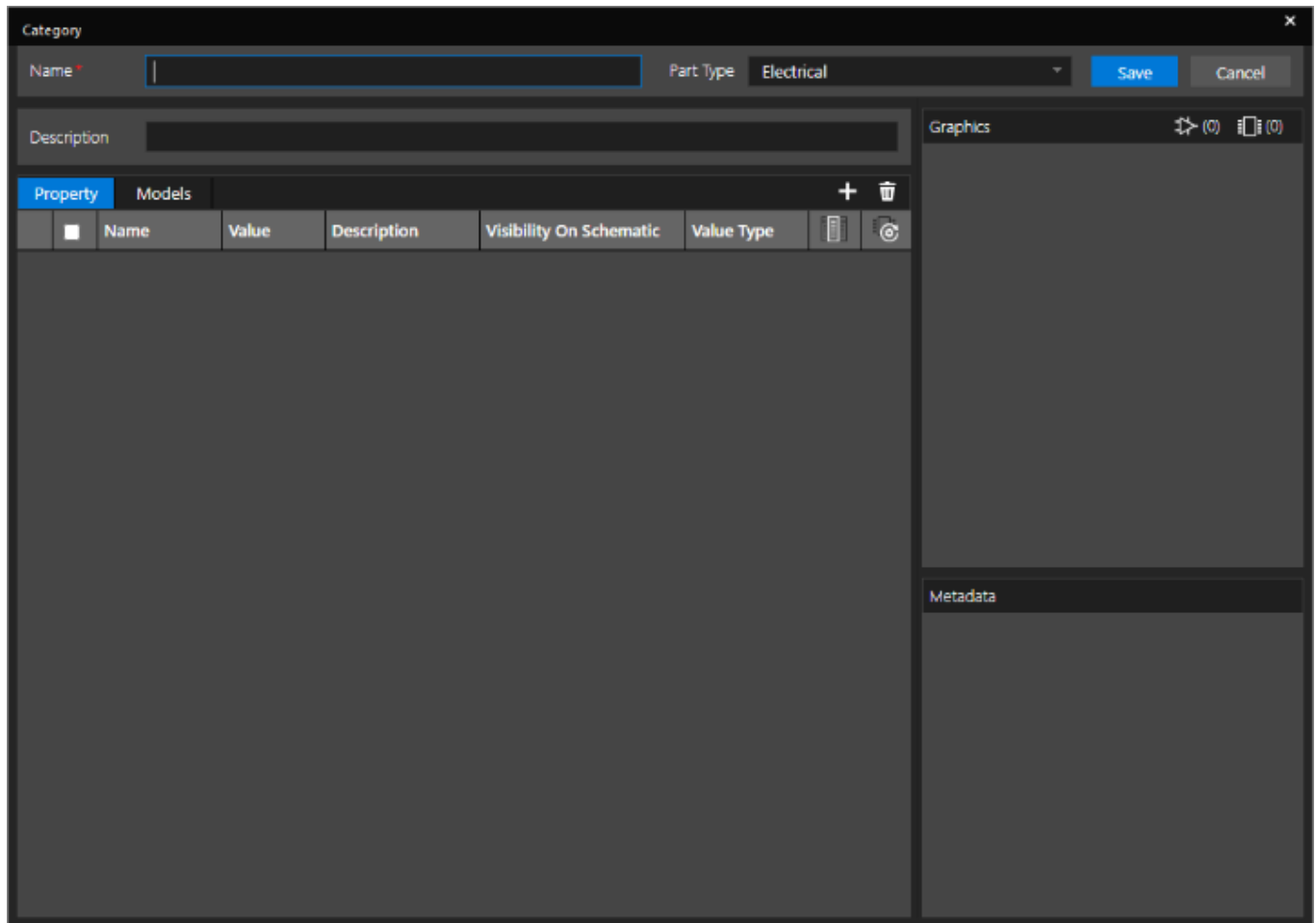
To create an electrical part category, do the following:

1. In Component Explorer, right-click *My Workspace* and choose *Add Category*.





The *Category* dialog box opens. This is where you create a new category.



2. Add fields and values as shown in the following: table.

Field	Value	Description
Name	MOSFET	Name of the category
Part Type	Electrical	A drop-down list to select the type of category

Description	MOSFET category	Category description
-------------	-----------------	----------------------

## Adding Properties

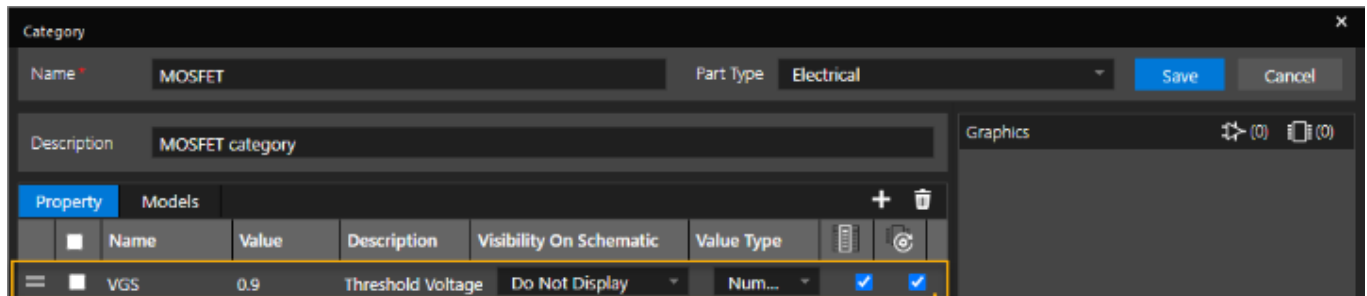
To add properties to the part category, do the following:

1. Select the + button in the *Property* tab to add a property row:

2. Specify the following values in the respective fields of the property row you added:

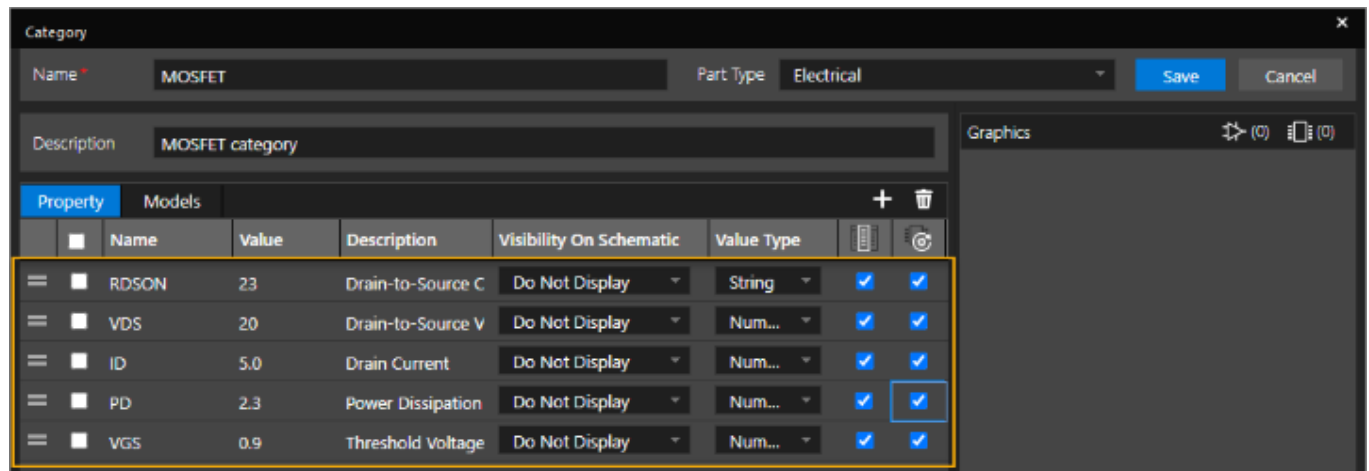
Field	Value
<b>Name</b>	VGS
<b>Value</b>	0.9
<b>Description</b>	Threshold Voltage
<b>Visibility on Schematic</b>	Do Not Display
<b>Value Type</b>	Numeric

<b>Show in Place Component</b> (Checkbox)	Selected
<b>Update Part Property</b> (Checkbox)	Selected



3. Select the + button again to add four more property rows and populate the fields for each property row with the following values:

Name	Value	Description	Visibility On Schematic	Value Type	Show in Place Component (Checkbox)	Update Part Property (Checkbox)
R <sub>DS(on)</sub>	23	Drain-to-Source On Resistance	Do Not Display	String	Selected	Selected
V <sub>DS</sub>	20	Drain-to-Source Voltage	Do Not Display	Numeric	Selected	Selected
I <sub>D</sub>	5.0	Drain Current	Do Not Display	Numeric	Selected	Selected
P <sub>D</sub>	2.3	Power Dissipation	Do Not Display	Numeric	Selected	Selected



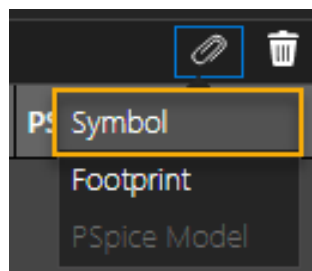
## Associating Models

You associate symbols, PSpice models, and primary and alternative footprints with a category in the *Models* tab.

## Associating Symbol

To associate symbols with the part category, do the following:

1. Select the *Models* tab.
2. Select the *Attach* (clip) icon.
3. Choose *Symbol* from the drop-down menu.

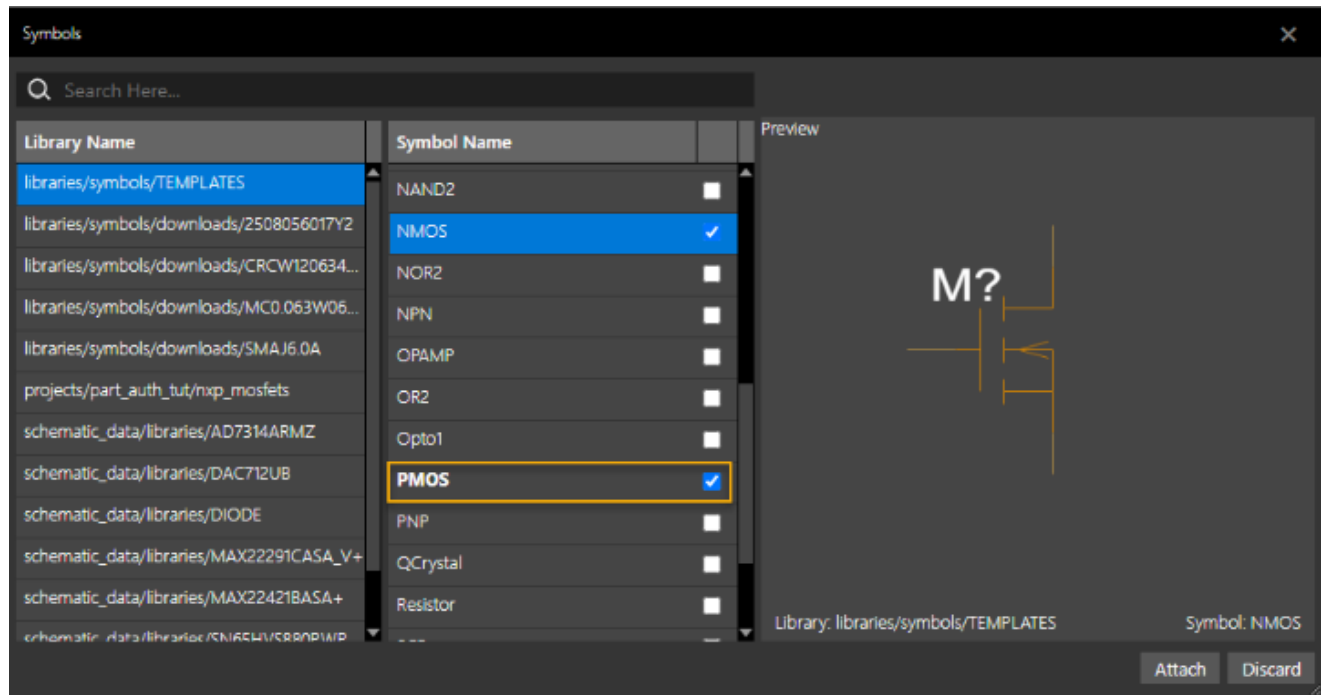


The *Symbol* dialog box is displayed.

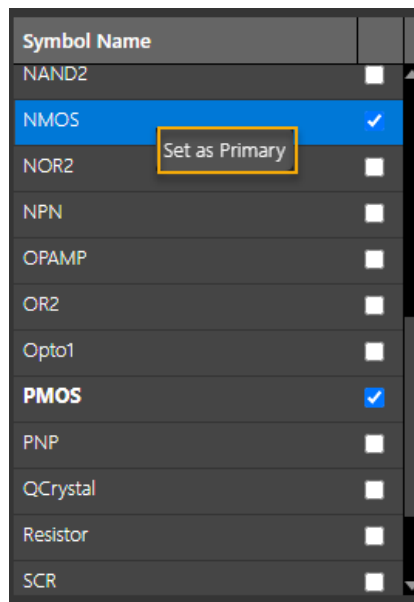
4. In the *Symbol* dialog box, select the *TEMPLATES* library from the *Library Name* list and select the checkboxes to the right of the *PMOS* and *NMOS* symbols.

The first symbol you select is the primary symbol and is indicated by bold as shown in the

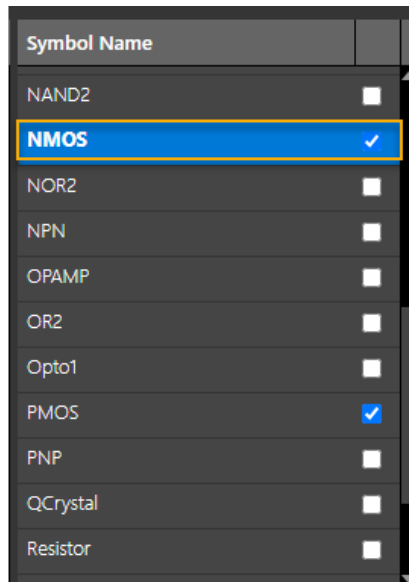
following image:



5. Right-click *NMOS* and choose *Set as Primary* to make NMOS the primary symbol.

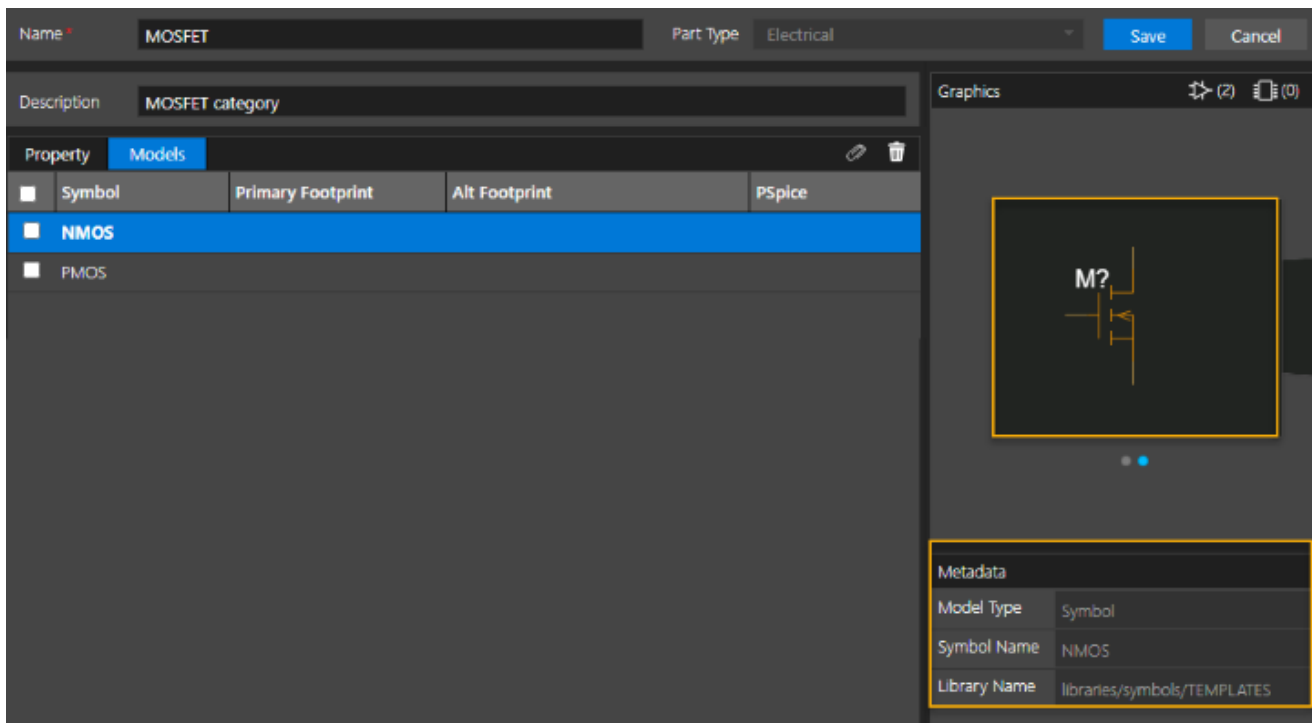


NMOS is the primary symbol



6. Click *Attach*.

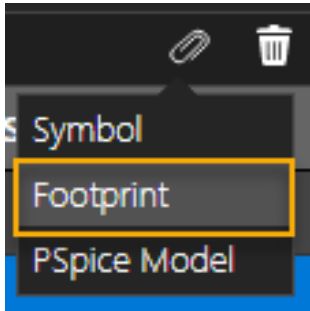
The selected symbols are associated with the category. The Graphics section provides a preview of the selected symbol and its metadata is also displayed.



## Associating Footprint Information

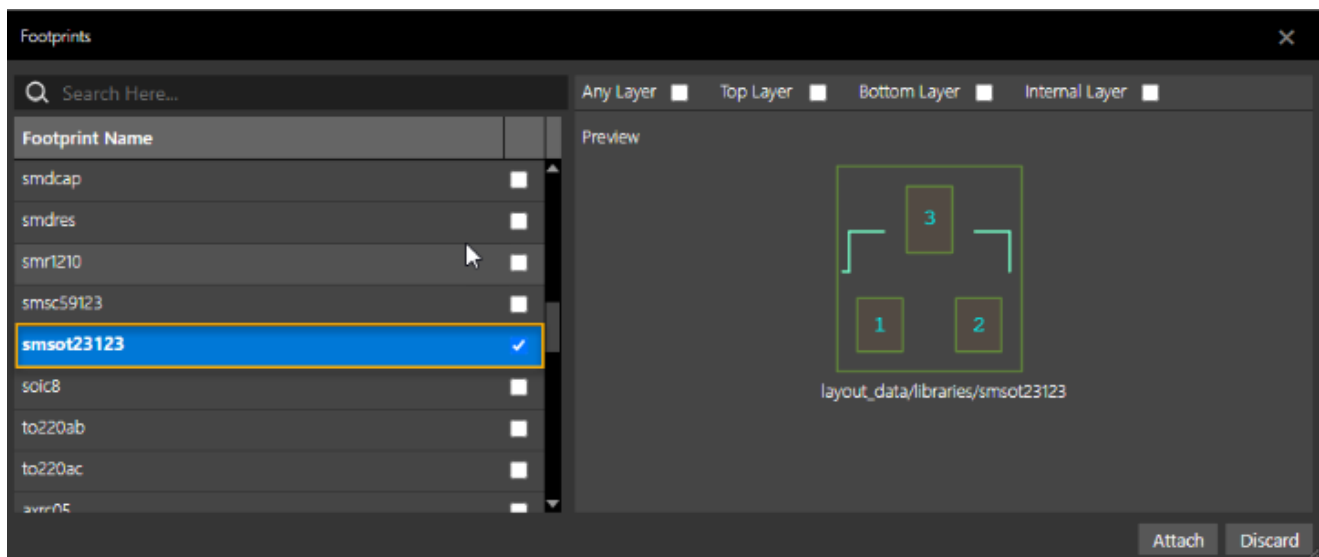
To associate a footprint and alternative footprints with the part category, do the following:

1. Select the *Attach* (clip) icon.
2. Choose *Footprint* from the drop-down menu. Alternatively, double-click the *Primary Footprint* or the *Alt Footprint* cell.

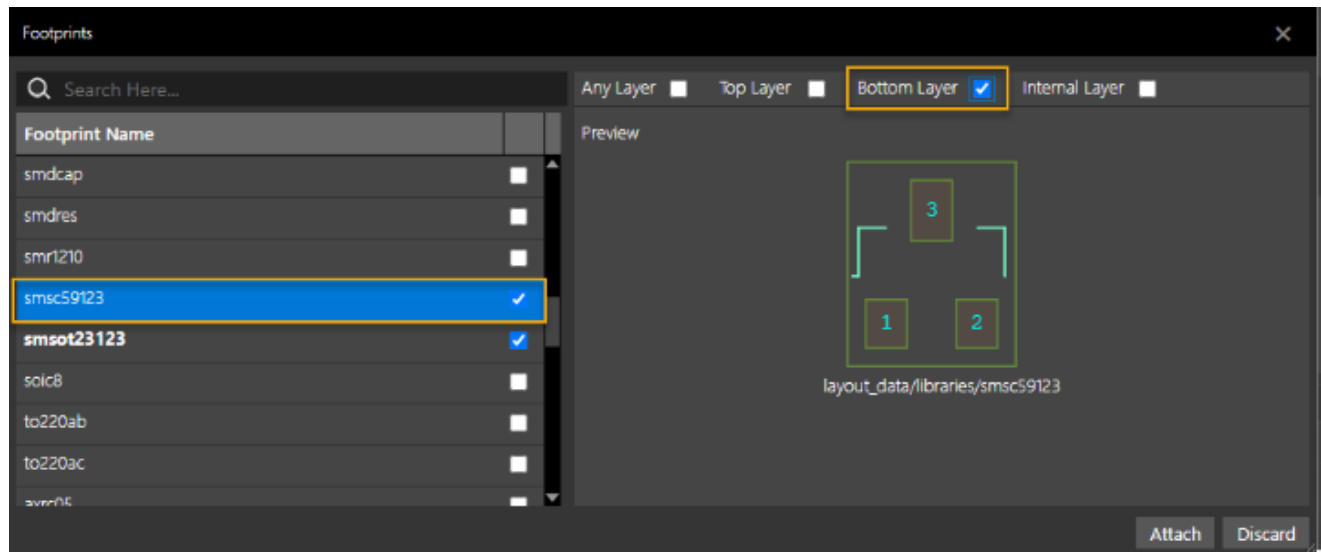


The *Footprints* dialog box is displayed.

3. Search for *smsot23123* and select the checkbox next to it.  
The first footprint selected appears in bold identifying it as the primary footprint.



4. Now select the following checkboxes:
  - *sm5c59123*
  - *Bottom Layer*



5. Click the *Attach* button.

All the footprints selected after the primary footprint are assigned to the `ALT_SYMBOL` property of the schematic instance. In the *Component* dialog box, these appear under the *Alt Footprint* field as illustrated in the following image:

Property		Models		
	Symbol	Primary Footprint	Alt Footprint	PSpice
<input checked="" type="checkbox"/>	NMOS	smsot23123	(Bottom:smsc59123)	
<input type="checkbox"/>	PMOS	smsot23123	(Bottom:smsc59123)	

The footprints are assigned to all the symbols in the *Models* tab.

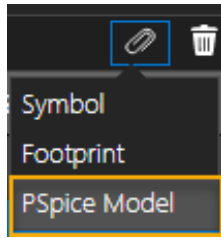
## Associating PSpice Models

You will now associate PSpice models to the symbols.

1. Select the checkbox to the left of the *NMOS* symbol.
2. Select the *Attach* (clip) icon.
3. Choose *PSpice Model* from the drop-down menu to launch the Associate PSpice. Alternatively, click the individual cell entry under the *PSpice* column to launch the

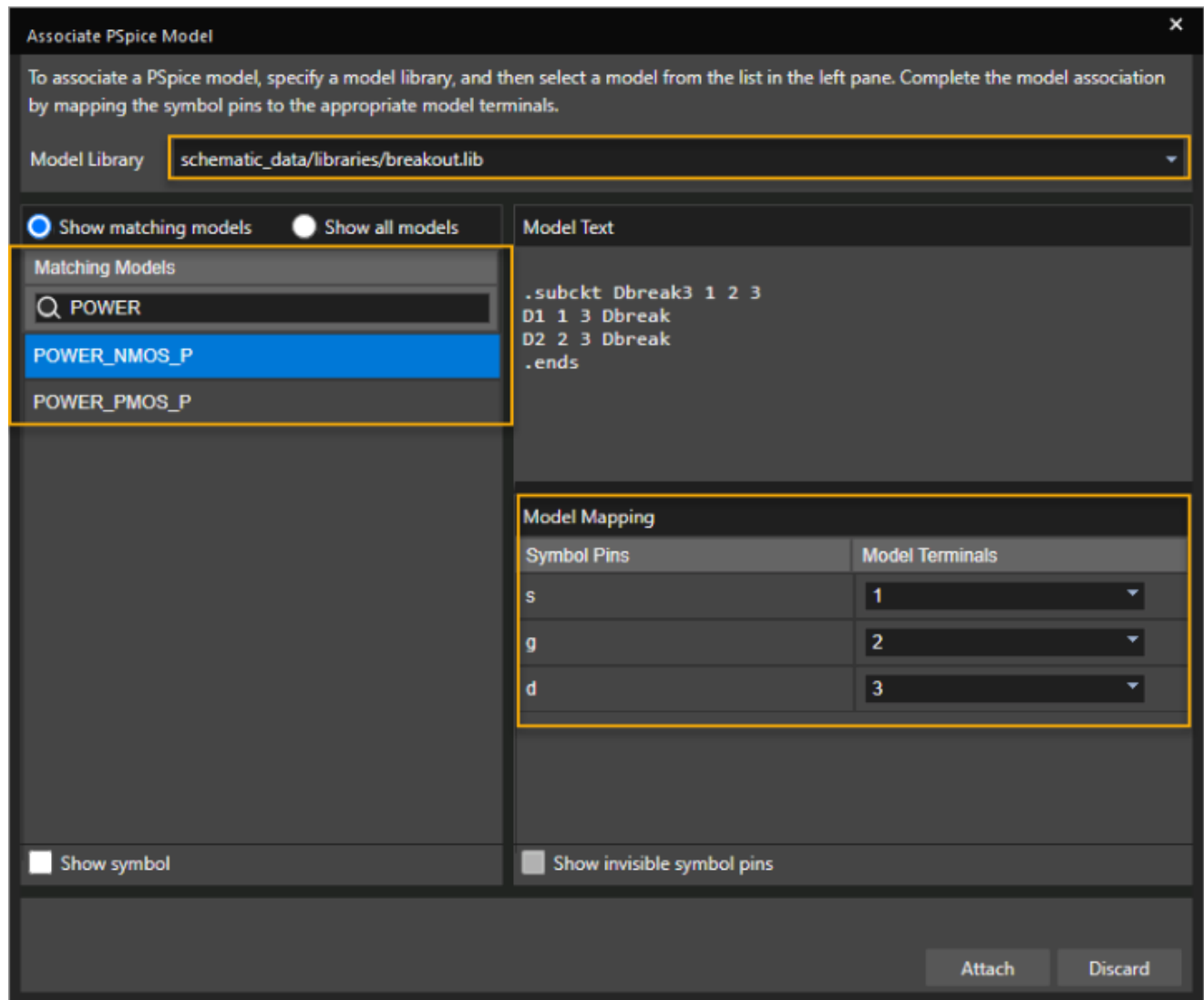


Associate *PSpice* dialog box.

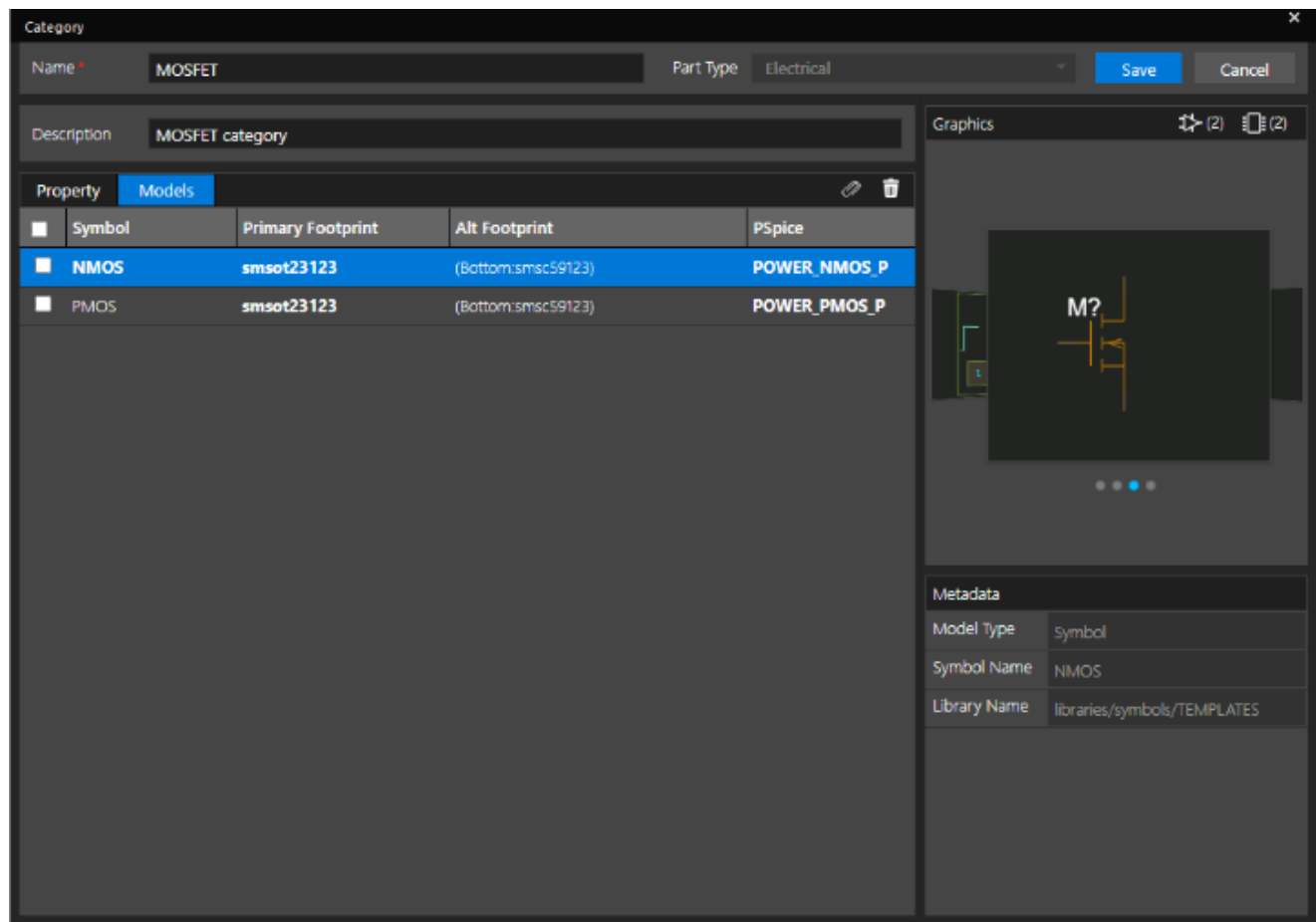


The *Associate PSpice* dialog box is displayed.

4. In the *Associate PSpice* dialog box, do the following:
  - In the Model Library list, select *breakout.lib*
  - In the Search bar, type *POWER*.
5. From the filtered list select the model, *POWER\_NMOS\_P*.
6. If the model terminals match the symbol pins, they are automatically mapped. Else, map the pins manually as shown in the following image:

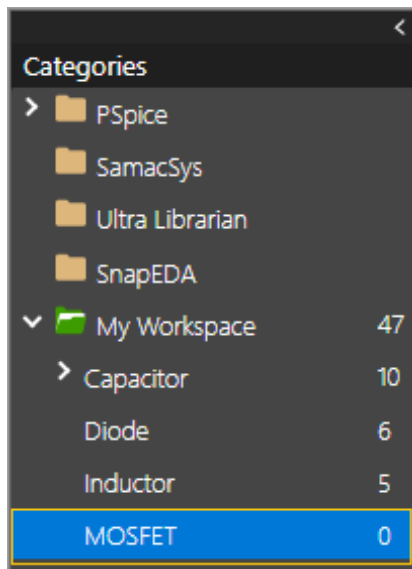


- Repeat steps 1 to 6 and attach the *POWER\_PMOS\_P* model to the *PMOS* symbol.



8. Click *Save* to save the category.

The category is created and appears under the *My Workspace* node in the Categories pane:

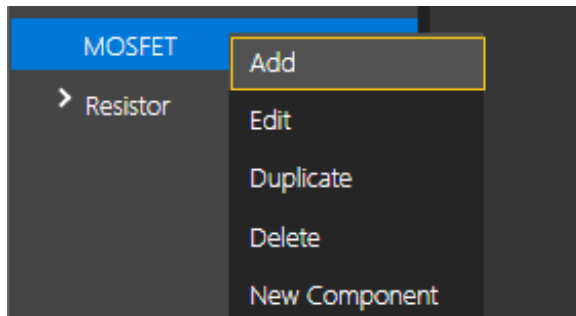


## Creating a Subcategory

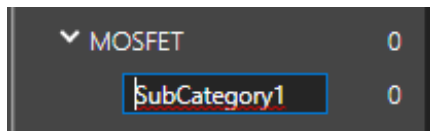
After creating the category, you will now create a subcategory under it.

To create a subcategory, do the following steps:

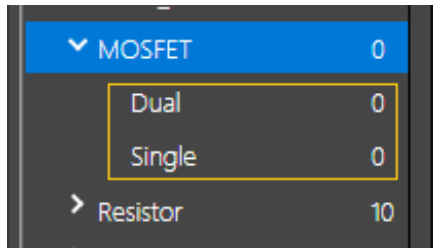
1. Right-click the *MOSFET* category under the *My Workspace* node and choose *Add*.



2. A subcategory is added under *MOSFET*.



3. Specify *Single* as a name for the subcategory, overwriting the default name, *SubCategory1*.
4. Add another subcategory and name it *Dual*.

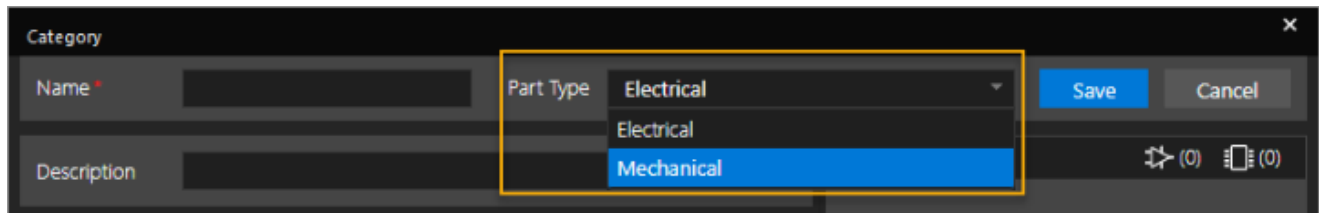


## Creating Mechanical Part Category

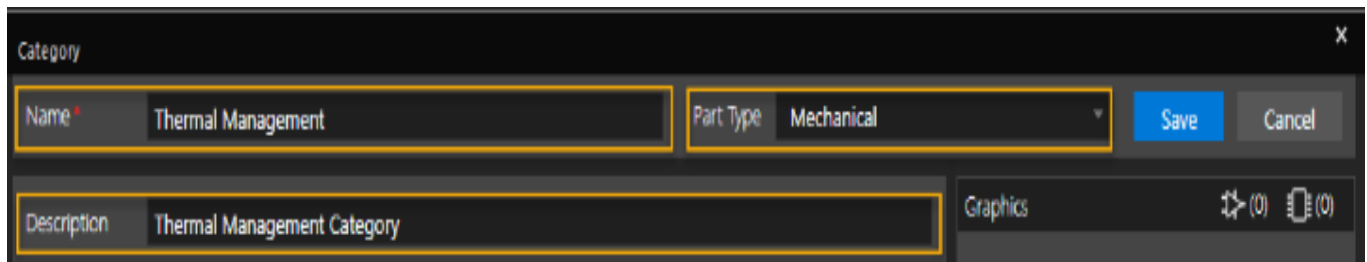
In addition to electrical components, some non-electrical components on a PCB are used for mechanical support, such as screws and connectors. You can create categories or templates for mechanical assemblies and parts and then associate them with components.

To create a mechanical category, do the following:

1. In Component Explorer, right-click the *My Workspace* node and choose *Add*.
2. In the *Part Type* field, select *Mechanical*.

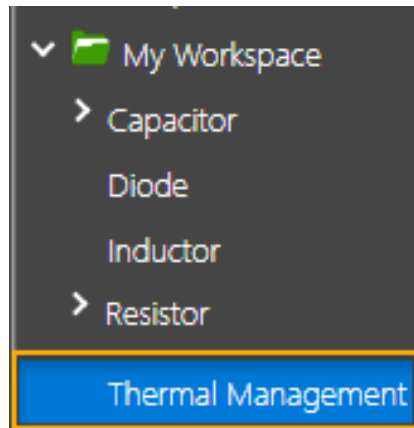


3. Specify the name as `Thermal Management`.
4. Specify the description as `Thermal Management Category`.



5. Click *Save*.

The category is added under *My Workspace*.



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## Module 3: Creating New Components in Component Explorer

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Use the Component Explorer interface to create new electrical and mechanical parts, and mechanical assemblies.

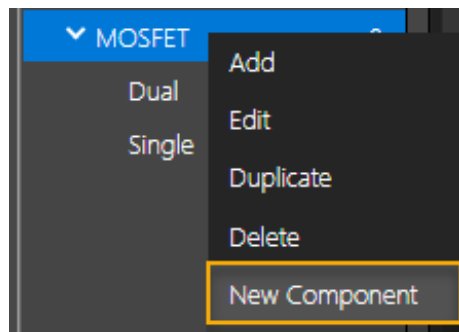
In this module, you will complete the following tasks:

- [Creating Electrical Parts Based on a Category](#)
- [Creating Mechanical Part Based on a Category](#)
- [Creating Mechanical Assembly](#)

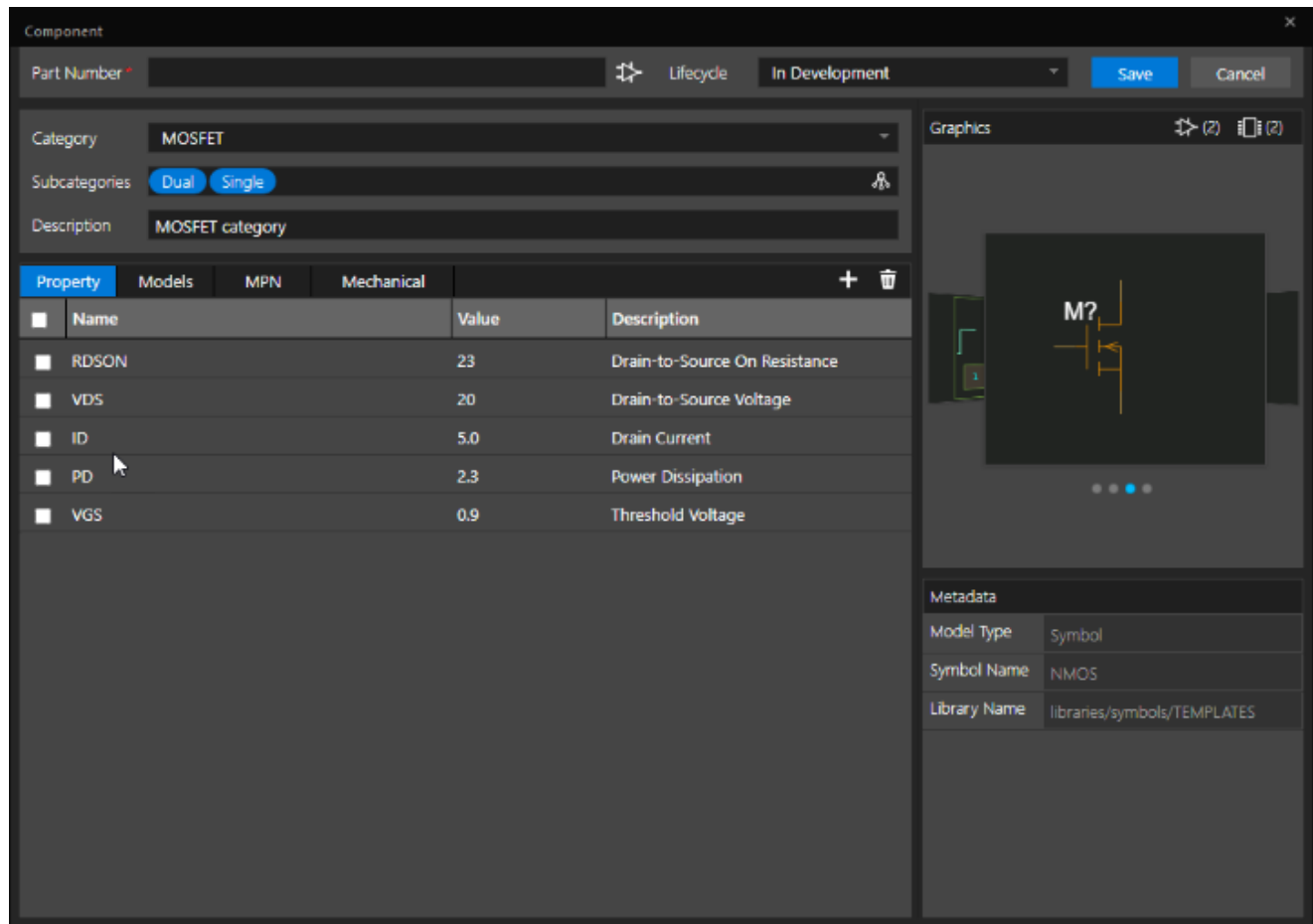
### Creating Electrical Parts Based on a Category

To create an electrical part, do the following:

1. In Component Explorer, right-click the *MOSFET* category and choose *Add*.



The *Component* dialog box opens with pre-filled values from the MOSFET category.



- Specify the following details:

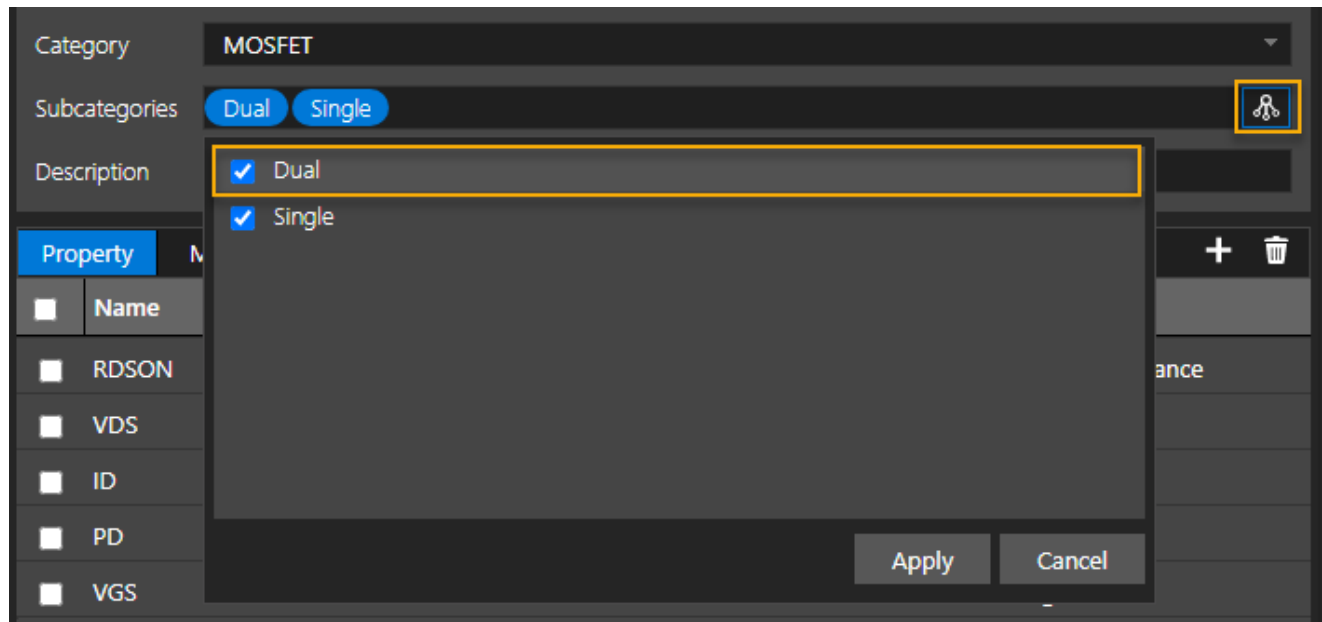
**Part Number:** cdn-nmos-001

**Lifecycle:** Active

**Description:** 20-V, N channel single MOSFET, 19.2 mOhm

- In the *Subcategories* field, click the *Category* icon and deselect the checkbox for the *Dual* subcategory and click *Apply*.






4. Update the property values for the component as given in the following table:


Property Name	Value
RDSON	19.2m
VDS	20
ID	10
PD	2.5
VGS	1.45

5. Select the *MPN* tab.

**Component**

Part Number \*   Lifecycle **Active**

Category

Subcategories  

Description

Property	Models	MPN	Mechanical	
<input type="checkbox"/> Name		Value		Description
<input type="checkbox"/> RDSON		19.2m		Drain-to-Source On Resistance
<input type="checkbox"/> VDS		20		Drain-to-Source Voltage
<input type="checkbox"/> ID		10		Drain Current
<input type="checkbox"/> PD		2.5		Power Dissipation
<input type="checkbox"/> VGS		1.45		Threshold Voltage

6. Click the *Add* icon and specify the following values in the MPN row.

**MPN:** CSD15571Q2

**Manufacturer:** Texas Instruments

**Datasheet URL:** <https://www.ti.com/general/docs/suppproductinfo.tsp?distId=10&gotoUrl=https%3A%2F%2Fwww.ti.com%2Flit%2Fgpn%2Fc%2Fcsd15571q2>

**RoHS:** ROHS3

**Status:** Active

**Component**

Part Number \*  ⚡ Lifecycle **Active**

Category

Subcategories  🔗

Description

Property Models **MPN** Mechanical + 🗑️

MPN	Manufacturer	Datasheet URL	RoHS	Status
CSD15571Q2	Texas Instruments	<a href="https://www.ti.com/general/c">https://www.ti.com/general/c</a>	ROHS3	Active

### 7. Click Save.

The component is added and all the details you specified are available in the *Property* and *Manufacturer Part Number* sections.

Search Here...

Part Number	Description	Lifecycle Status	ROHS3	VDS
cdn-nmos-001	20-V, N channel single MOSFET, 19.2 mOhm	Active	19.2m	20

Property

Name	Value	Visibility
Part Number	cdn-nmos-001	Do Not
PCB Footprint	smx23123	Do Not
Part Description	20-V, N channel...	Do Not
Have Symbol	1	Do Not
Have Footprint	1	Do Not
Have PSpicMo...	1	Do Not
Lifecycle Status	Active	Do Not
ROHS3	19.2m	Do Not
VDS	20	Do Not
ID	10	Do Not
PD	2.5	Do Not

Manufacturer Part Number

MPN	Manufacturer	Datasheet URL	RoHS	Status
CSD15571Q2	Texas Instruments	<a href="https://www.ti.com/general/docs/suppl...">https://www.ti.com/general/docs/suppl...</a>	ROHS3	Active

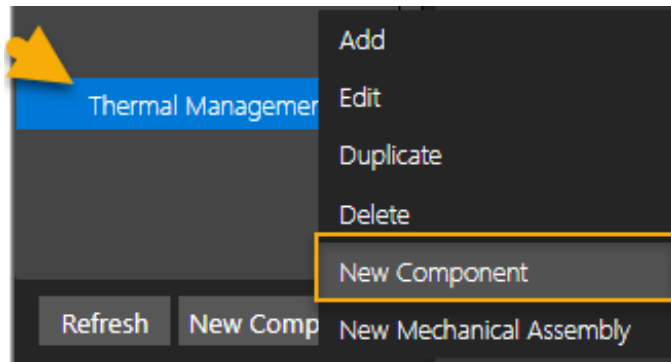
Symbols and Footprints + ⚡ 🗑️

M?

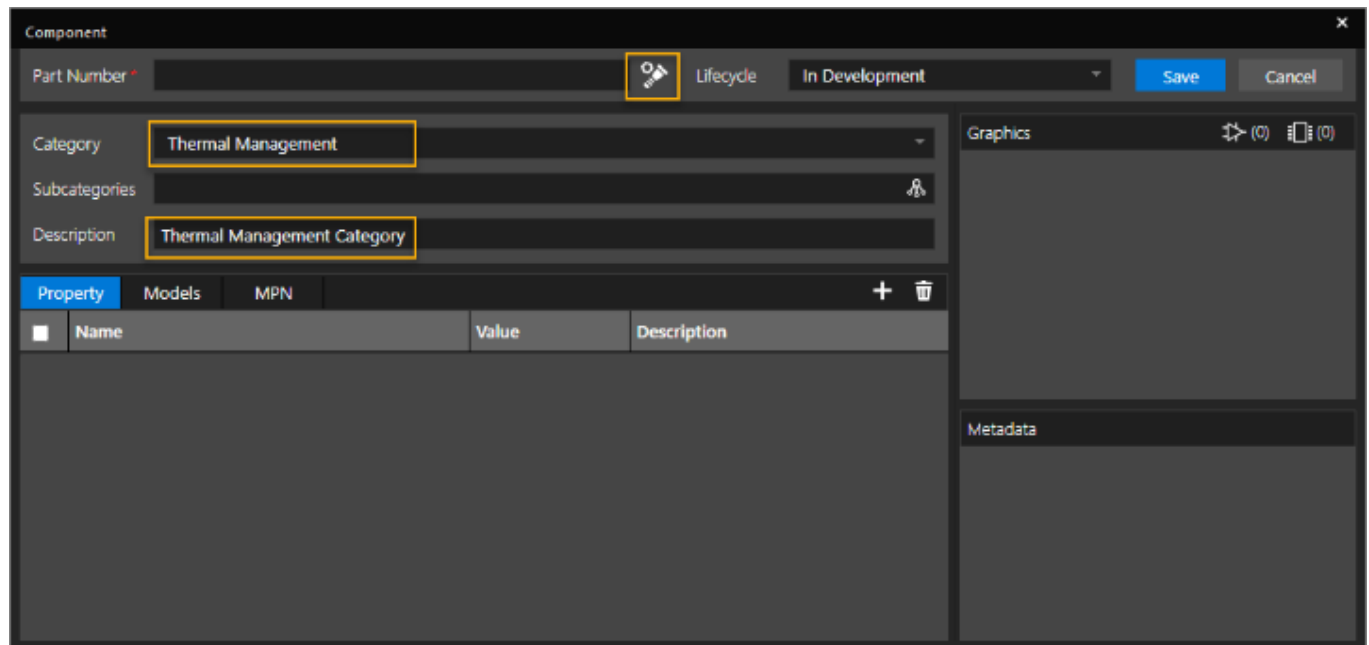
## Creating Mechanical Part Based on a Category

To create a mechanical part, do the following:

1. Right-click *Thermal Management* and choose *New Component*.



The *Component* dialog box opens pre-filled with the values inherited from the category.



2. Specify the following part details:  
**Part Number:** cdn-heatsink-001  
**Lifecycle:** Active  
**Description:** Heatsink with a slotted hole and integral fixing tags
3. Click the *Add (+)* icon in the *Property* tab to add new property rows with the following properties:

Property Name	Value	Description
Thermal Resistance	13.6 C/W	Thermal resistance
Height	12.7mm	Heat sink height
Width	25.4mm	Heat sink width
Length	30mm	Heat sink length

The screenshot shows the 'Component' window in OrCAD X Capture. The 'Part Number' is 'cdn-heatsink-001'. The 'Category' is 'Thermal Management'. The 'Description' is 'Heatsink with a slotted hole and integral fixing tags'. The 'Property' tab is selected, showing a table with columns 'Name', 'Value', and 'Description'. The table contains the following data:

Name	Value	Description
Length	30mm	Heat sink length
Width	25.4	Heat sink width
Height	12.7mm	Heat sink height
Thermal Resistance	13.6 C/W	Thermal resistance

The 'MPN' tab is also visible, and the 'Add (+)' icon is used to add new rows.

4. Select the *MPN* tab.
5. Click the *Add (+)* icon to add a new row and add the following MPN details:

**MPN:** MC33260

**Manufacturer:** Multicomp

**Datasheet URL:** <https://www.farnell.com/datasheets/3760481.pdf>

**RoHS:** -

**Status:** Active

Property	Models	MPN				+	✖
✓	MPN	Manufacturer	Datasheet URL	RoHS	Status		
✓	MC33260	Multicomp	<a href="https://www.farnell.com/data">https://www.farnell.com/data</a>	-	Active		

6. Click the *Save* button.

Search here...				Q	Property		
Part Number	Description			Lifecycle Status	Name	Value	Visibility
cdn-heatink-001	Heatink with a slotted hole and integral fixing tags			Active	Part Number	cdn-heatink-001	Do Not D
					PCB Footprint		Do Not D
					Part Description	Heatink with a ...	Do Not Tr
					Have Symbol	0	Do Not In
					Have Footprint	0	Do Not Tr
					Have PSpiceMo...	0	Do Not Tr
					Lifecycle Status	Active	Do Not In
					Length	30mm	Do Not Tr
					Width	25.4	Do Not Tr
					Height	12.7mm	Do Not Tr
					Thermal Resista...	13.6 C/W	Do Not Tr
					Symbols and Footprints + (0) (0)		
Manufacturer Part Number							
MPN	Manufacturer	Datasheet URL	RoHS	Status			
MC33260	Multicomp	<a href="https://www.farnell.com/datasheets/376...">https://www.farnell.com/datasheets/376...</a>	-	Active			

7. Similarly, create two more mechanical parts with the following details:

- Screw washer set

**Part Number:** cdn-screw-001

**Lifecycle:** Active

**Description:** M3 - 8mm (Heat Sink Screw)

For this part, add new property rows in the *Property* tab and add the following properties:

Property Name	Value	Description
---------------	-------	-------------

Length	8mm	Screw length below head
Thread Size	M3	Thread size
Head Type	Pan Head	Screw head shape type

- Thermal pad

**Part Number:** cdn-thp-001

**Lifecycle:** Active

**Description:** Thermal pad for Heat sink

For this part, add new property rows in the *Property* tab and add the following properties:

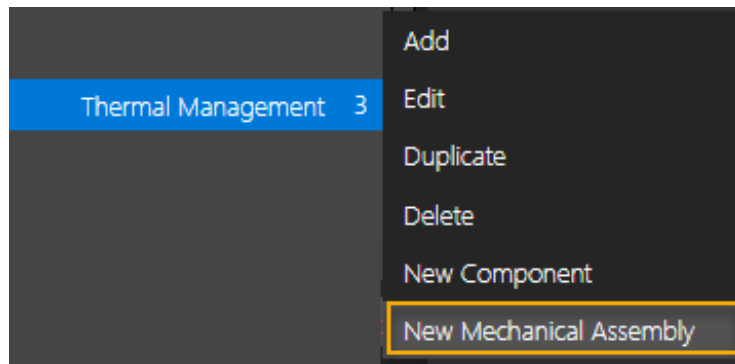
Property Name	Value	Description
Width	19.05mm	Thermal pad width
Length	12.70mm	Thermal pad length

	Part Number	Description						Lifecycle Status
	cdn-heatsink-001	Heatsink with a slotted hole and integral fixing tags						Active
	cdn-screw-001	M3 - 8mm (Heat Sink Screw)						Active
	cdn-thp-001	Thermal pad for Heat sink						Active

## Creating Mechanical Assembly

To create a new mechanical assembly, do the following:

1. Right-click the mechanical category, choose *New Mechanical Assembly*.

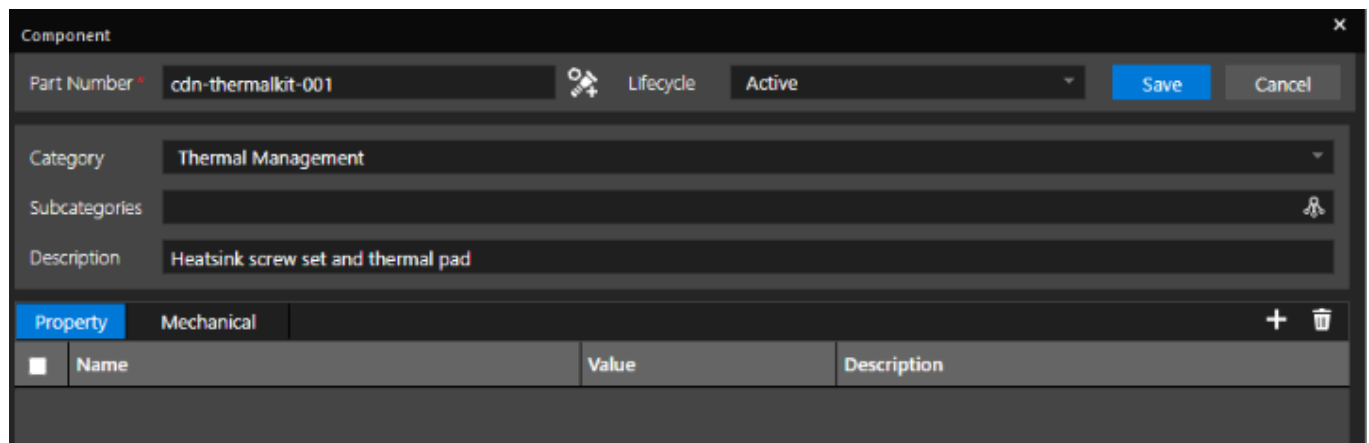


2. In the *Component* dialog box, specify the following details:

**Part Number:** cdn-thermalkit-001

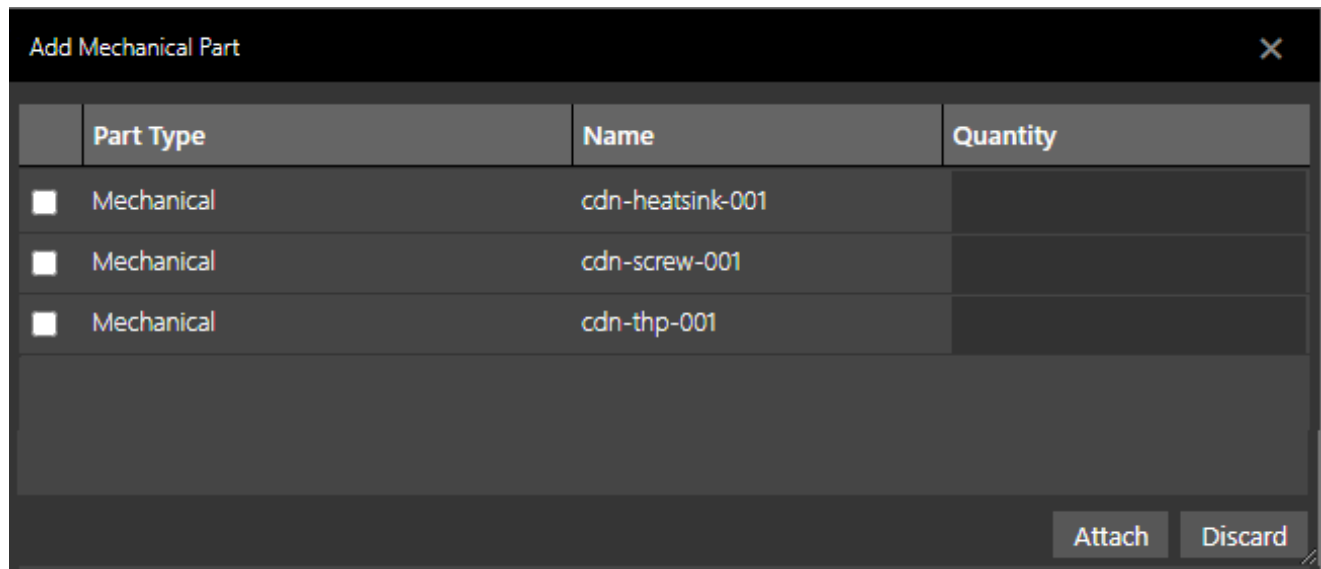
**Lifecycle:** Active

**Description:** Heatsink screw set and thermal pad



3. Select the *Mechanical* tab.
4. Click the *Add* (+) icon.  
The *Add Mechanical Part* dialog box opens. A list of available mechanical parts is displayed.





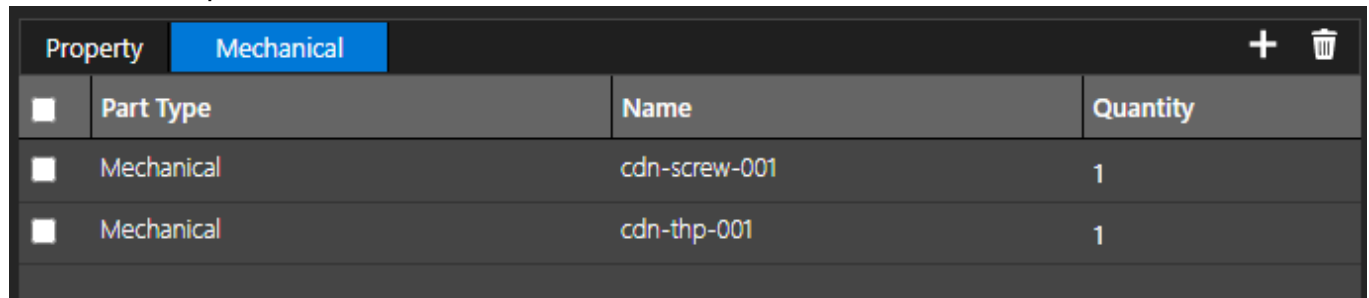
The 'Add Mechanical Part' dialog box is shown. It has a title bar with a close button (X). The dialog contains a table with three columns: 'Part Type', 'Name', and 'Quantity'. There are three rows of data, each with a checkbox in the first column. The first row has 'Mechanical' as the part type, 'cdn-heatsink-001' as the name, and an empty quantity field. The second row has 'Mechanical' as the part type, 'cdn-screw-001' as the name, and an empty quantity field. The third row has 'Mechanical' as the part type, 'cdn-thp-001' as the name, and an empty quantity field. At the bottom right, there are two buttons: 'Attach' and 'Discard'.

	Part Type	Name	Quantity
<input type="checkbox"/>	Mechanical	cdn-heatsink-001	
<input type="checkbox"/>	Mechanical	cdn-screw-001	
<input type="checkbox"/>	Mechanical	cdn-thp-001	

Attach Discard

5. Select the check box to the left of *cdn-screw-001* and *cdn-tp-001*.  
The quantity is automatically set as 1 for each of the mechanical parts to be included in the assembly.

6. Click *Attach*.  
The selected parts are added in the *Mechanical* tab.



The Component Explorer shows the 'Mechanical' tab selected. It contains a table with three columns: 'Part Type', 'Name', and 'Quantity'. There are two rows of data, each with a checkbox in the first column. The first row has 'Mechanical' as the part type, 'cdn-screw-001' as the name, and '1' as the quantity. The second row has 'Mechanical' as the part type, 'cdn-thp-001' as the name, and '1' as the quantity. At the top right, there are two icons: a plus sign (+) and a trash can icon.

	Part Type	Name	Quantity
<input type="checkbox"/>	Mechanical	cdn-screw-001	1
<input type="checkbox"/>	Mechanical	cdn-thp-001	1





7. Click *Save*.

The mechanical assembly is displayed in the part browser (middle pane) of Component Explorer.

## OrCAD X Capture Part Authoring Tutorial

### Module 3: Creating New Components in Component Explorer--Creating Mechanical Assembly

---

Search here...						
	Part Number	Description				Lifecycle Status
	cdn-heatsink-001	Heatsink with a slotted hole and integral fixing tags				Active
	cdn-screw-001	M3 - 8mm (Heat Sink Screw)				Active
	cdn-thermalkit-001	Heatsink screw set and thermal pad				Active
	cdn-thp-001	Thermal pad for Heat sink				Active

## Module 4: Creating New Components from Content Provider Databases

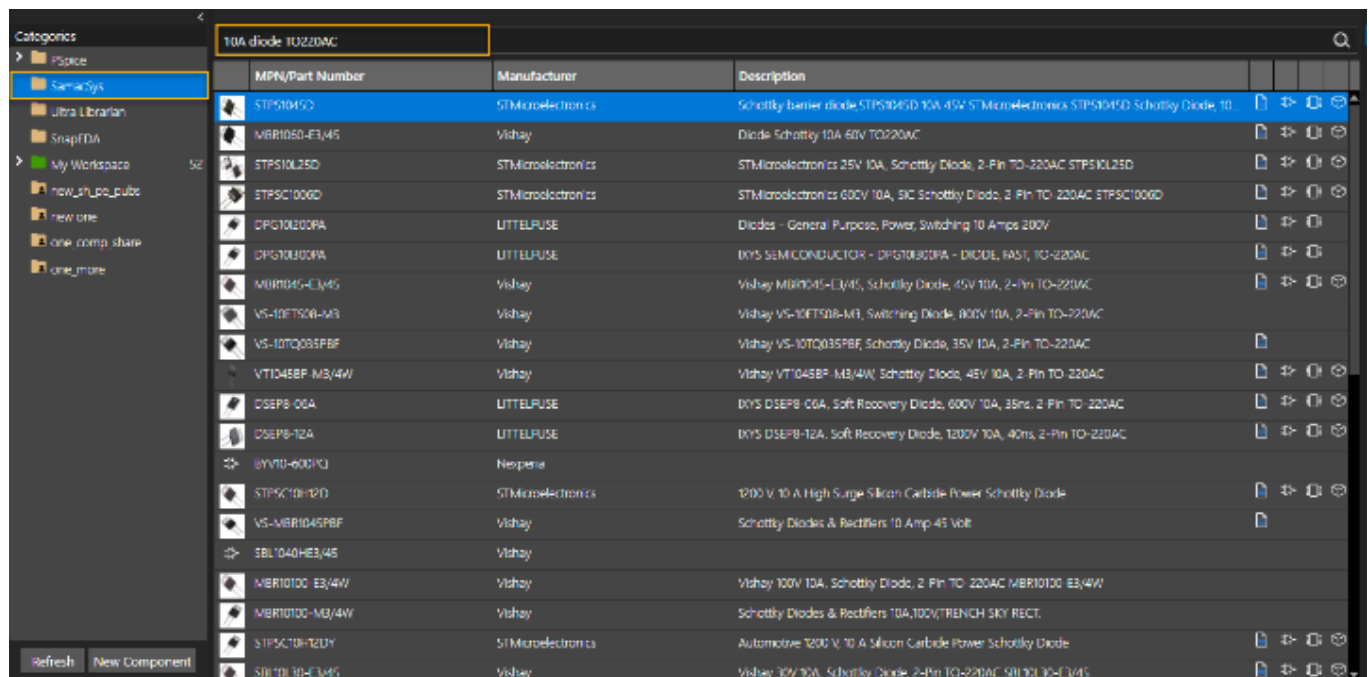
You can use parts provided by external content providers, such as SamacSys, Ultra Librarian, and SnapEDA to create new parts and save them in the workspace.

### Adding Components to Workspace

To create an electrical part, do the following:

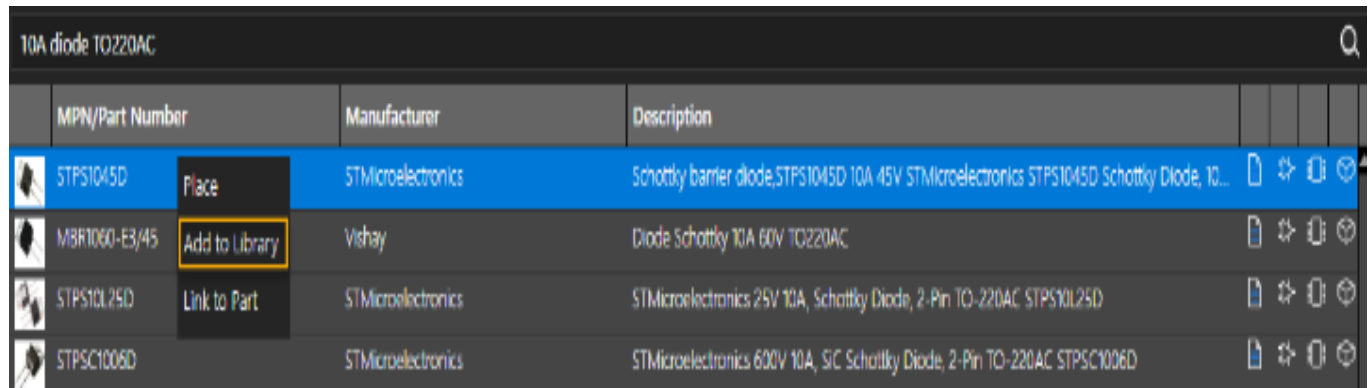
1. In Component Explorer, select the *SamacSys* node.
2. Type the string, *10A diode TO220AC*, in the Search bar and press *Enter*.

Search results matching the specified search string are displayed:



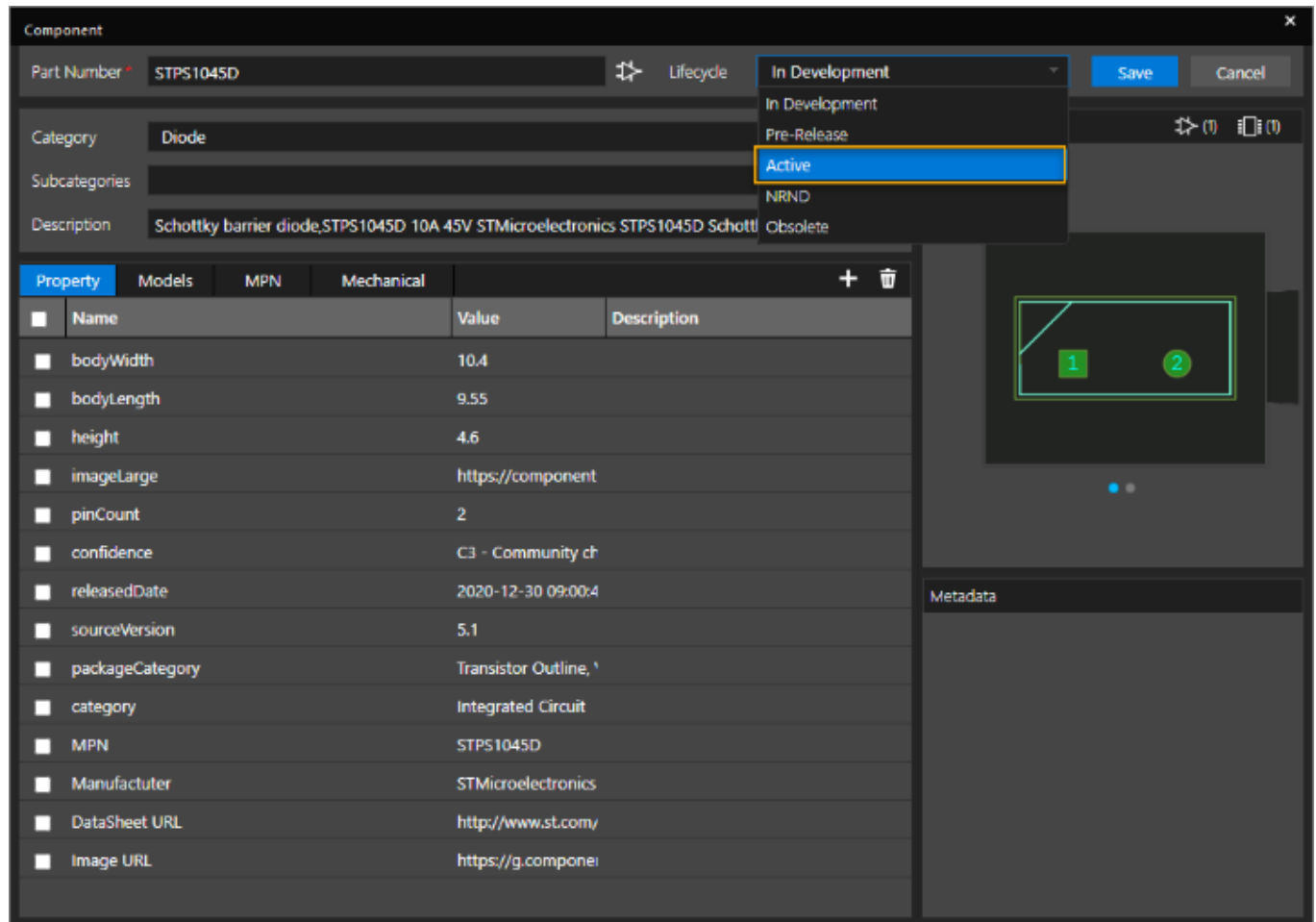
	MPN/Part Number	Manufacturer	Description				
	STPS1045D	STMicroelectronics	Schottky barrier diode STPS1045D 10A 45V STMicroelectronics STPS1045D Schottky Diode, 10				
	MBR1050-E3/45	Vishay	Diode Schottky 10A 60V TO220AC				
	STPS10L25D	STMicroelectronics	STMicroelectronics 25V 10A, Schottky Diode, 2-Pin TO-220AC STPS10L25D				
	STPS1006D	STMicroelectronics	STMicroelectronics 600V 10A, SiC Schottky Diode, 2-Pin TO-220AC STPS1006D				
	DPG10L00PA	LITTELFUSE	Diodes - General Purpose, Power, Switching 10 Amps 200V				
	DPG10L00PA	LITTELFUSE	DIYS SEMICONDUCTOR - DPG10L00PA - DIODE, FAST, 10-220AC				
	MUR1045-E3/45	Vishay	Vishay MUR1045-E3/45, Schottky Diode, 45V 10A, 2-Pin TO-220AC				
	VS-10ETS08-M3	Vishay	Vishay VS-10ETS08-M3, Switching Diode, 800V 10A, 2-Pin TO-220AC				
	VS-10TQ035PBF	Vishay	Vishay VS-10TQ035PBF, Schottky Diode, 35V 10A, 2-Pin TO-220AC				
	VT1045BF-M3/4W	Vishay	Vishay VT1045BF-M3/4W, Schottky Diode, 45V 10A, 2-Pin TO-220AC				
	DSEP8-06A	LITTELFUSE	DIYS DSEP8-06A, Soft Recovery Diode, 600V 10A, 35ns, 2-Pin TO-220AC				
	DSEP8-12A	LITTELFUSE	DIYS DSEP8-12A, Soft Recovery Diode, 1200V 10A, 40ns, 2-Pin TO-220AC				
	8V10-600PQ	Neosense					
	STPS10H12D	STMicroelectronics	1200 V, 10 A High Surge Silicon Carbide Power Schottky Diode				
	VS-MBR1045PBF	Vishay	Schottky Diodes & Rectifiers 10 Amp 45 Volt				
	SBL1040HE3/45	Vishay					
	MBR10100-E3/4W	Vishay	Vishay 100V 10A, Schottky Diode, 2-Pin TO-220AC MBR10100-E3/4W				
	MBR10100-M3/4W	Vishay	Schottky Diodes & Rectifiers 10A,100V(TRENCH SIKY RECT.				
	STPS10H12DY	STMicroelectronics	Automotive 1200 V, 10 A Silicon Carbide Power Schottky Diode				
	SBL10L10-E3/45	Vishay	Vishay 30V 10A, Schottky Diode, 2-Pin TO-220AC SBL10L10-E3/45				

3. Right-click the component row, *STPS1045D*, and choose *Add to Library*.



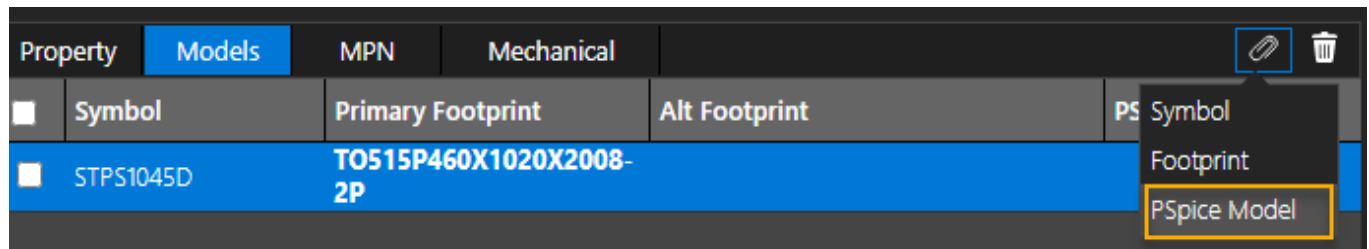
The *Component* dialog box opens with the details of the component provided in the SamacSys database.

4. Change the Lifecycle status of the component from *In Development* to *Active*.

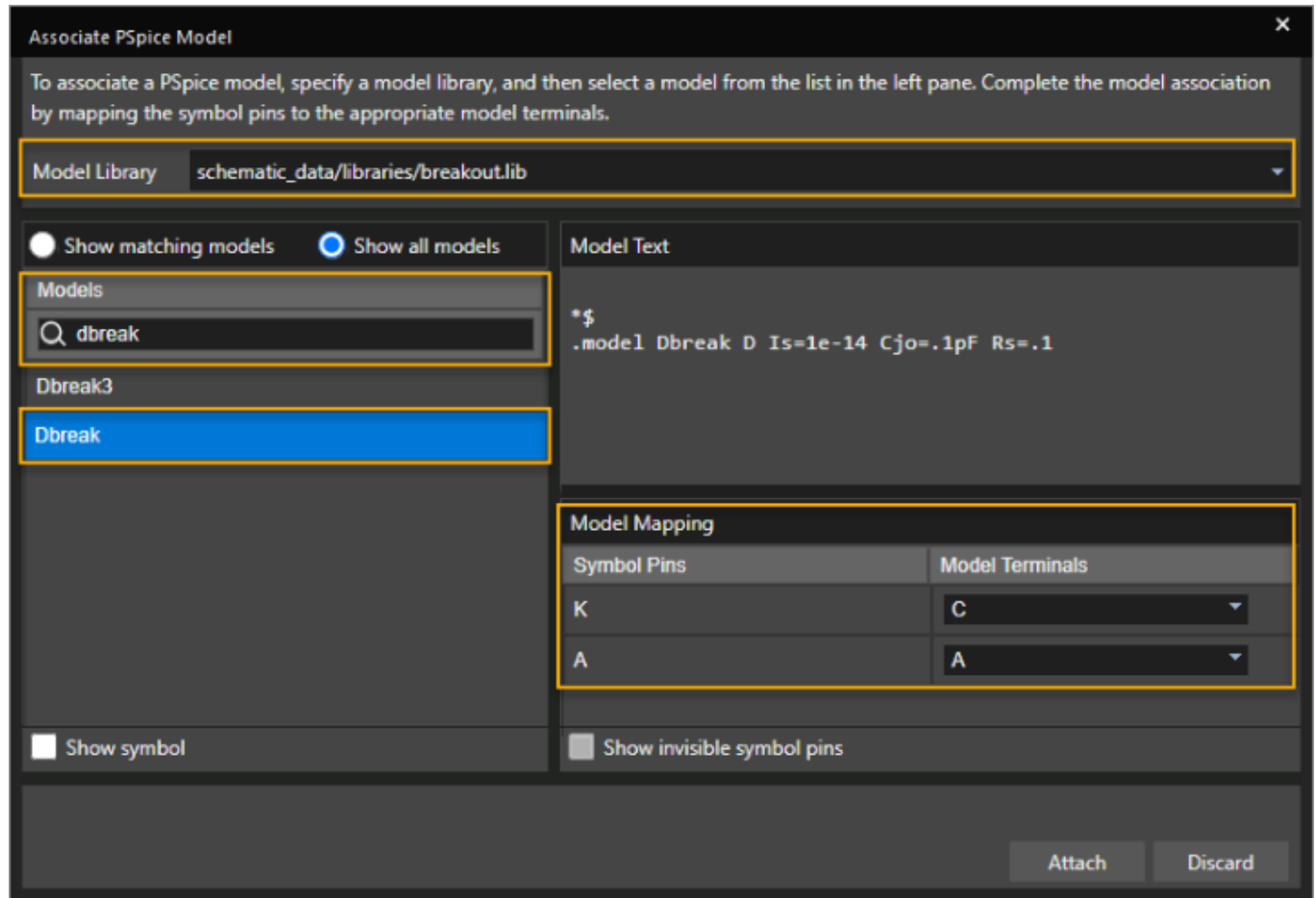


## Associating Multiple PSpice Models to a Component

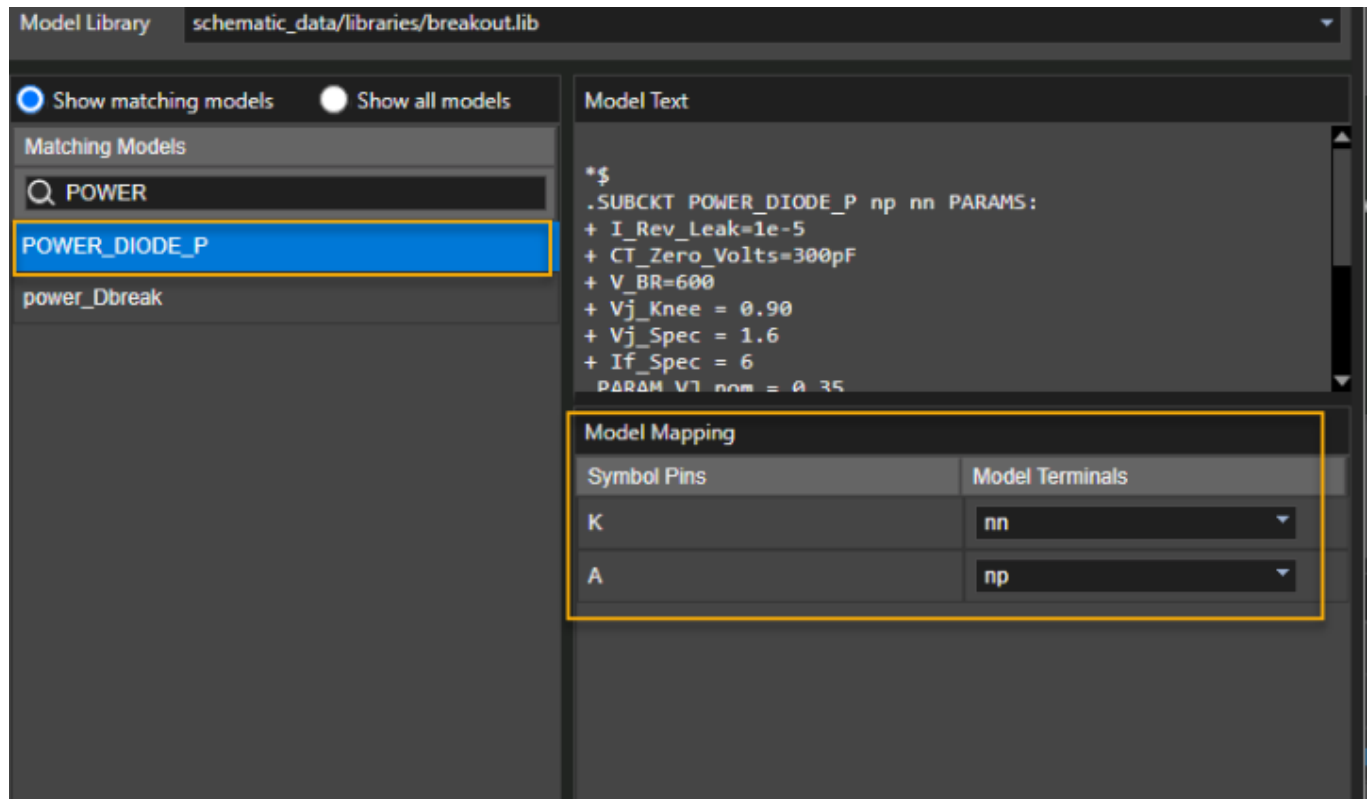
1. In the *Models* tab, select the model, click the *Attach* (clip) icon and choose *PSpice Model*.



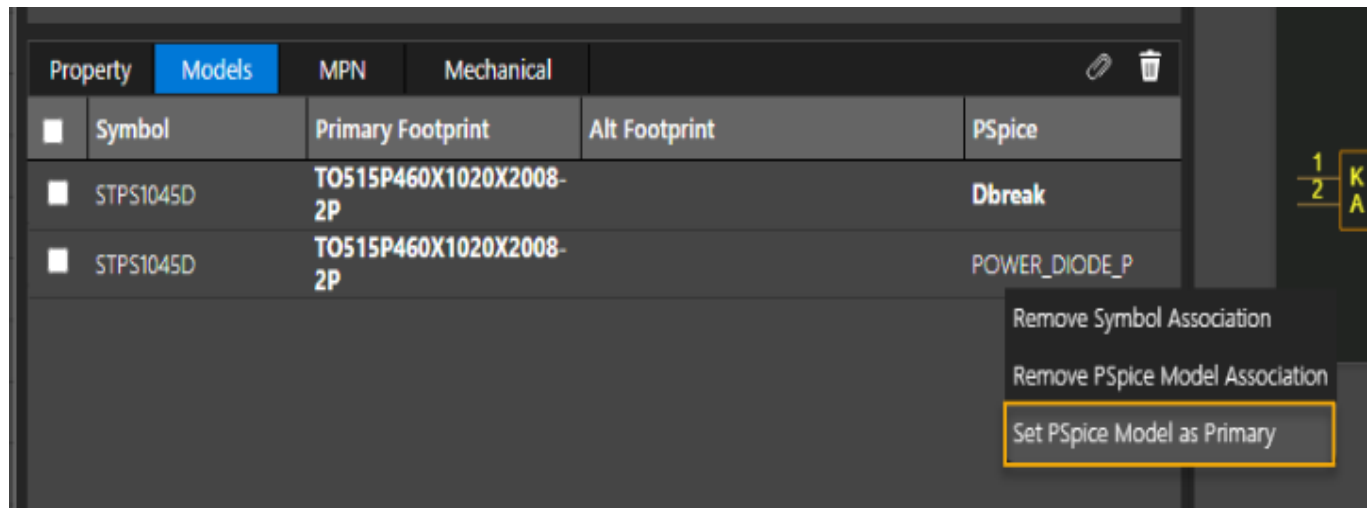
2. In the *Associate PSpice Model* dialog box, search for the PSpice model, *Dbreak* and map the model pins with the component pins as shown in the following image:



3. Click *Attach*.
4. Repeat steps 1-3 to associate another PSpice model, `POWER_DIODE_P`, with the symbol.



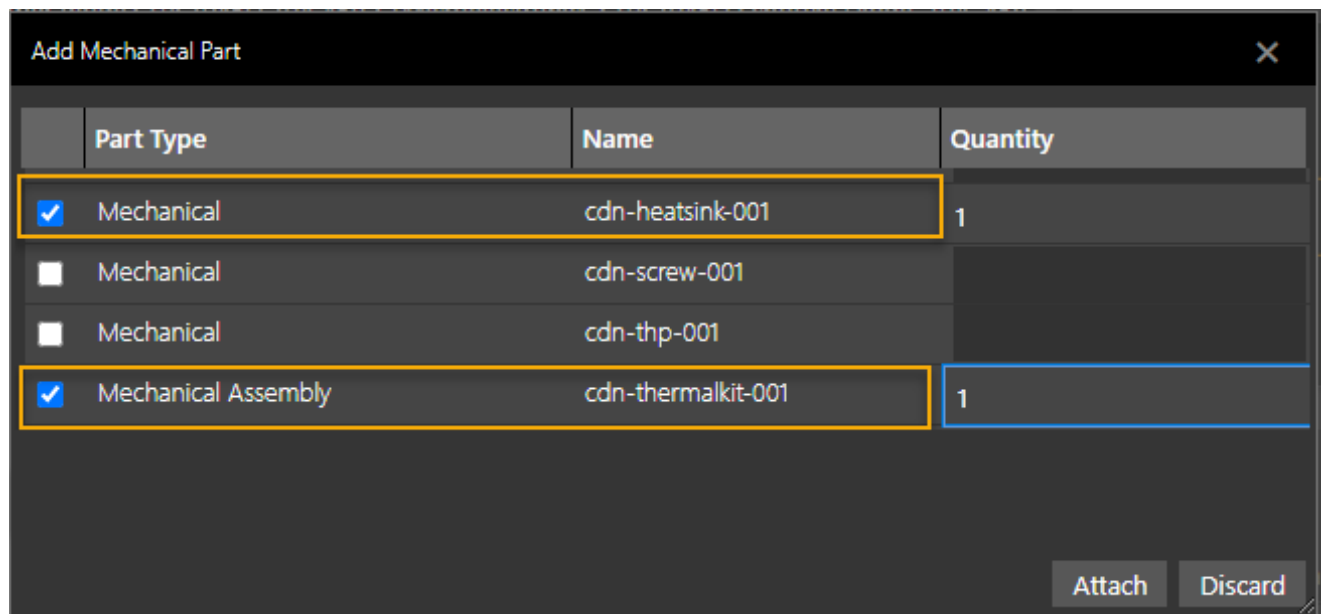
5. Right-click the second row and choose *Set PSpice Model as Primary*.



## Associating Mechanical Models with a Component

To associate a mechanical model with a component, do the following:

1. Select the *Mechanical* tab.
2. Click the Add (+) icon to open the *Add Mechanical Part* dialog box.
3. Select the checkboxes for *cdn-heatsink-001* and *cdn-thermalkit-001*.  
As you select a mechanical part, a quantity of 1 is automatically assigned to the part.



4. Click *Attach*.



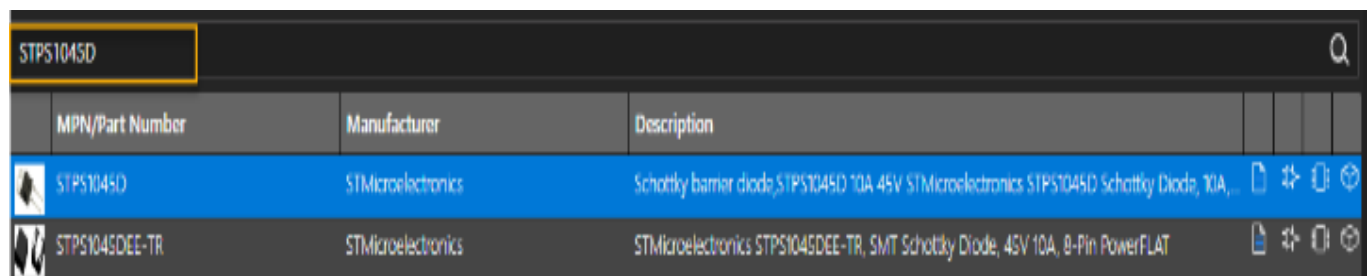


# Associating Manufacturer Part Number from Content Providers

Next, you will associate a Manufacturer Part number (MPN) from the content provider to a component in your local workspace.

To associate an MPN with an existing component, do the following:

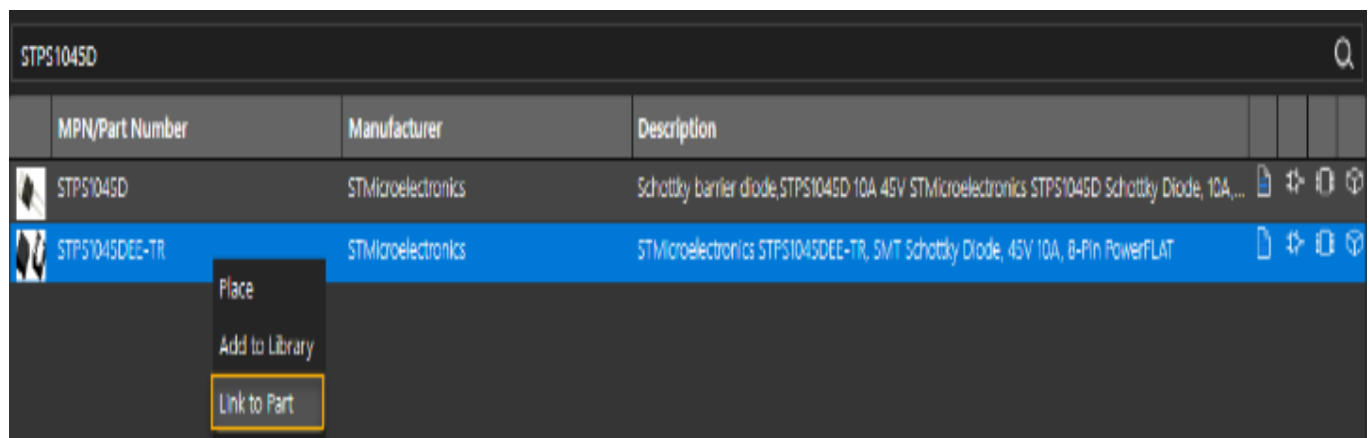
1. In Component Explorer, select the *SamacSys* node and type *STPS1045D* in the search bar and press Enter.



The screenshot shows the Component Explorer interface with a search bar at the top containing the text 'STPS1045D'. Below the search bar is a table with three columns: 'MPN/Part Number', 'Manufacturer', and 'Description'. There are two rows of results. The first row is highlighted in blue and shows 'STPS1045D' from 'STMicroelectronics' with the description 'Schottky barrier diode,STPS1045D 10A 45V STMicroelectronics STPS1045D Schottky Diode, 10A,...'. The second row shows 'STPS1045DEE-TR' from 'STMicroelectronics' with the description 'STMicroelectronics STPS1045DEE-TR, SMT Schottky Diode, 45V 10A, 8-Pin PowerFLAT'. To the right of each row are four small icons: a document, a star, a magnifying glass, and a circular arrow.

MPN/Part Number	Manufacturer	Description
STPS1045D	STMicroelectronics	Schottky barrier diode,STPS1045D 10A 45V STMicroelectronics STPS1045D Schottky Diode, 10A,...
STPS1045DEE-TR	STMicroelectronics	STMicroelectronics STPS1045DEE-TR, SMT Schottky Diode, 45V 10A, 8-Pin PowerFLAT

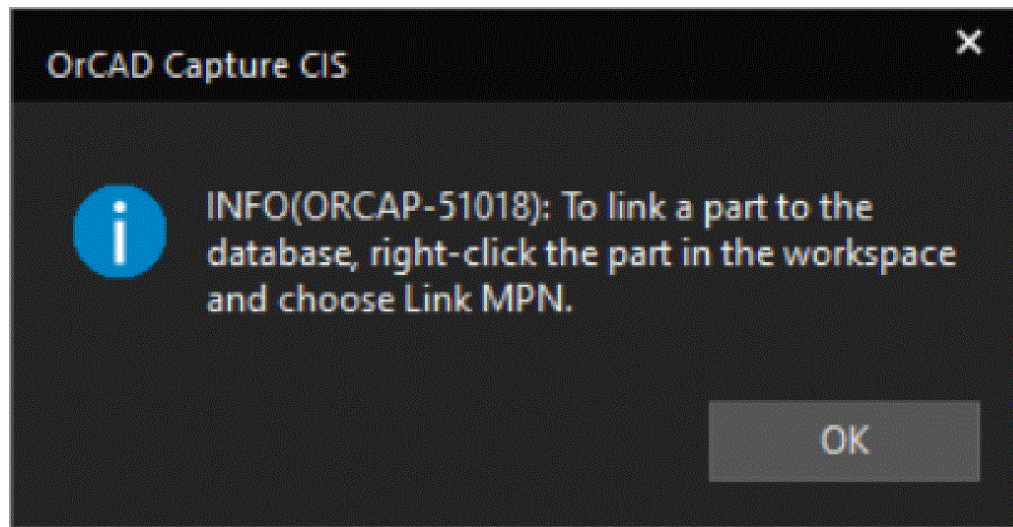
2. Right-click the component row for MPN *STPS1045DEE-TR* and choose *Link to Part*.



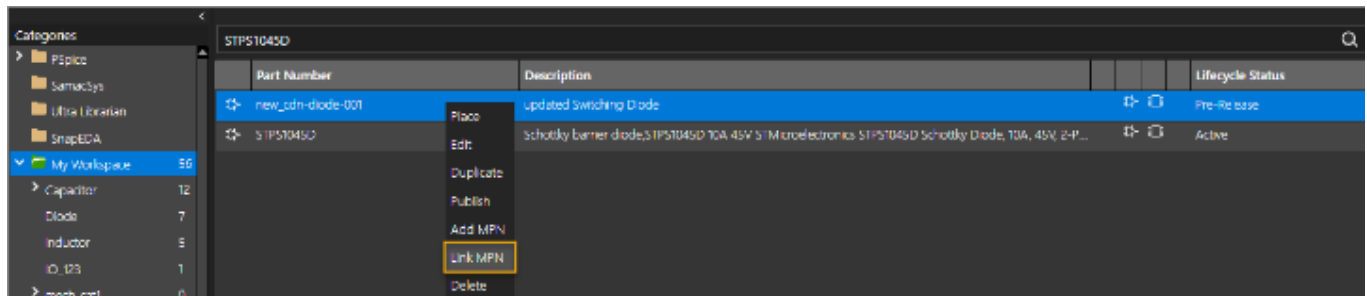
The screenshot shows the same Component Explorer interface as before, but now a right-click context menu is open over the 'STPS1045DEE-TR' row. The menu has three options: 'Place', 'Add to Library', and 'Link to Part'. The 'Link to Part' option is highlighted with a yellow border. The table data remains the same as in the previous screenshot.

MPN/Part Number	Manufacturer	Description
STPS1045D	STMicroelectronics	Schottky barrier diode,STPS1045D 10A 45V STMicroelectronics STPS1045D Schottky Diode, 10A,...
STPS1045DEE-TR	STMicroelectronics	STMicroelectronics STPS1045DEE-TR, SMT Schottky Diode, 45V 10A, 8-Pin PowerFLAT

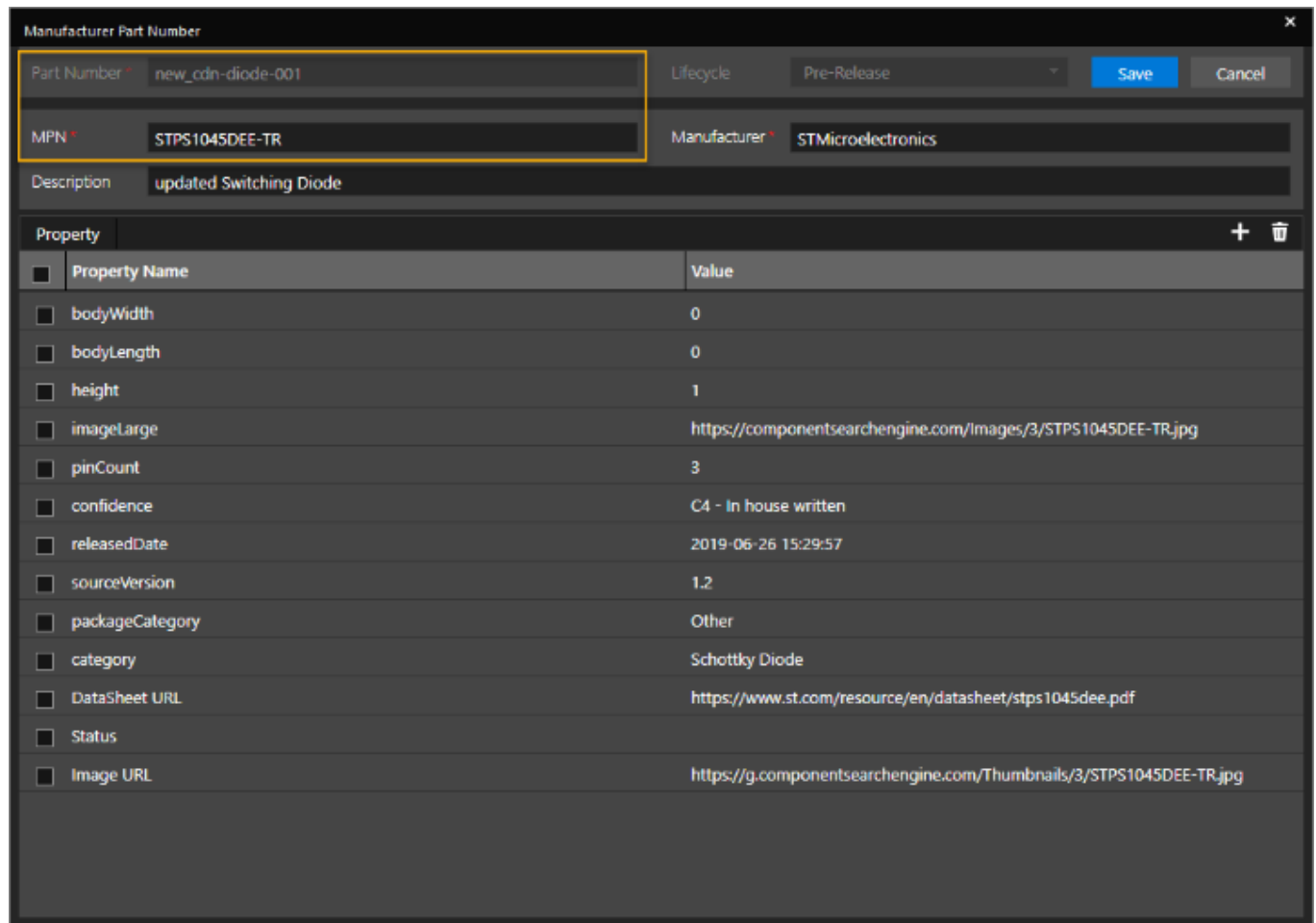
A message pops up informing about the next step.



3. Click *OK*.
4. With the same search string in search bar, select the *My Workspace* node. The part browser displays filtered results from *My Workspace*. The matching component in the workspace is *new\_cdn-diode-001*.
5. Right-click the component to be linked and choose *Link MPN*.



The *Manufacturer Part Number* dialog box is displayed.



Manufacturer Part Number

Part Number: new\_cdn-diode-001

Lifecycle: Pre-Release

Save Cancel

MPN: STPS1045DEE-TR

Manufacturer: STMicroelectronics

Description: updated Switching Diode

Property

Property Name	Value
bodyWidth	0
bodyLength	0
height	1
imageLarge	<a href="https://componentsearchengine.com/Images/3/STPS1045DEE-TR.jpg">https://componentsearchengine.com/Images/3/STPS1045DEE-TR.jpg</a>
pinCount	3
confidence	C4 - In house written
releasedDate	2019-06-26 15:29:57
sourceVersion	1.2
packageCategory	Other
category	Schottky Diode
DataSheet URL	<a href="https://www.st.com/resource/en/datasheet/stps1045dee.pdf">https://www.st.com/resource/en/datasheet/stps1045dee.pdf</a>
Status	
Image URL	<a href="https://g.componentsearchengine.com/Thumbnails/3/STPS1045DEE-TR.jpg">https://g.componentsearchengine.com/Thumbnails/3/STPS1045DEE-TR.jpg</a>

6. Click *Save* to associate this MPN with the component *new\_cdn-diode-001*.

The associated MPN is now seen in the *Manufacturer Part Number* section in the part browser.

## OrCAD X Capture Part Authoring Tutorial

### Module 4: Creating New Components from Content Provider Databases--Associating Manufacturer Part Number from Content Providers

---

Part Number	Description				Lifecycle Status
new_cdn-diode-001	updated Switching Diode				Pre-Release
STPS1045D	Schottky barrier diode,STPS1045D 10A 45V STMicroelectronics STPS1045D Schottky Diode, 10A, 45V, 2-P...				Active
Manufacturer Part Number					
MPN	Manufacturer	Datasheet URL	RoHS	Status	
diode_123	CDNS			Active	
STPS1045DEE-TR	STMicroelectronics	<a href="https://www.st.com/resource/en/datashe...">https://www.st.com/resource/en/datashe...</a>			

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# Module 5: Sharing Components with Team Members

---

In this module, we will share the components created in this tutorial with team members using a shared workspace.

In this module, you will do the following tasks:

- [Publishing Components to Shared Workspace](#)
- [Editing and Copying Components from Shared Workspace](#)
- [Modifying a Component and Publishing it back to Shared Workspace](#)
- [Restoring Older Versions of Components in Shared Workspaces](#)

## Publishing Components to Shared Workspace

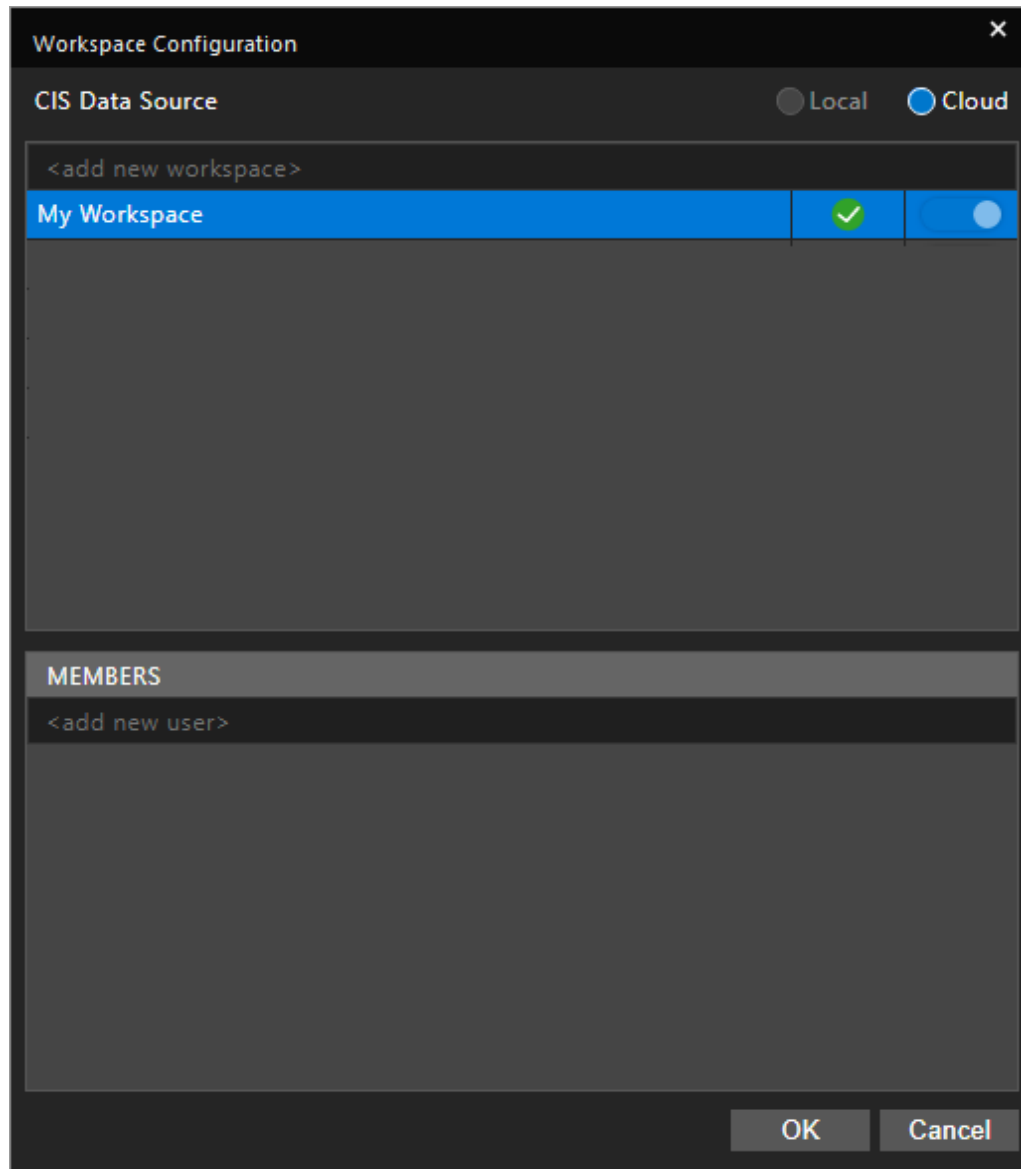
Before you can publish components, you need to create a shared workspace and add members to the shared workspace from the *Workspace Configuration* dialog box. To share the workspace, you need to provide team members access to the workspaces by assigning them roles with predefined access permissions to the workspaces. See [Sharing Workspaces](#) to learn about various roles and their associated privileges.

### Create a Shared Workspace

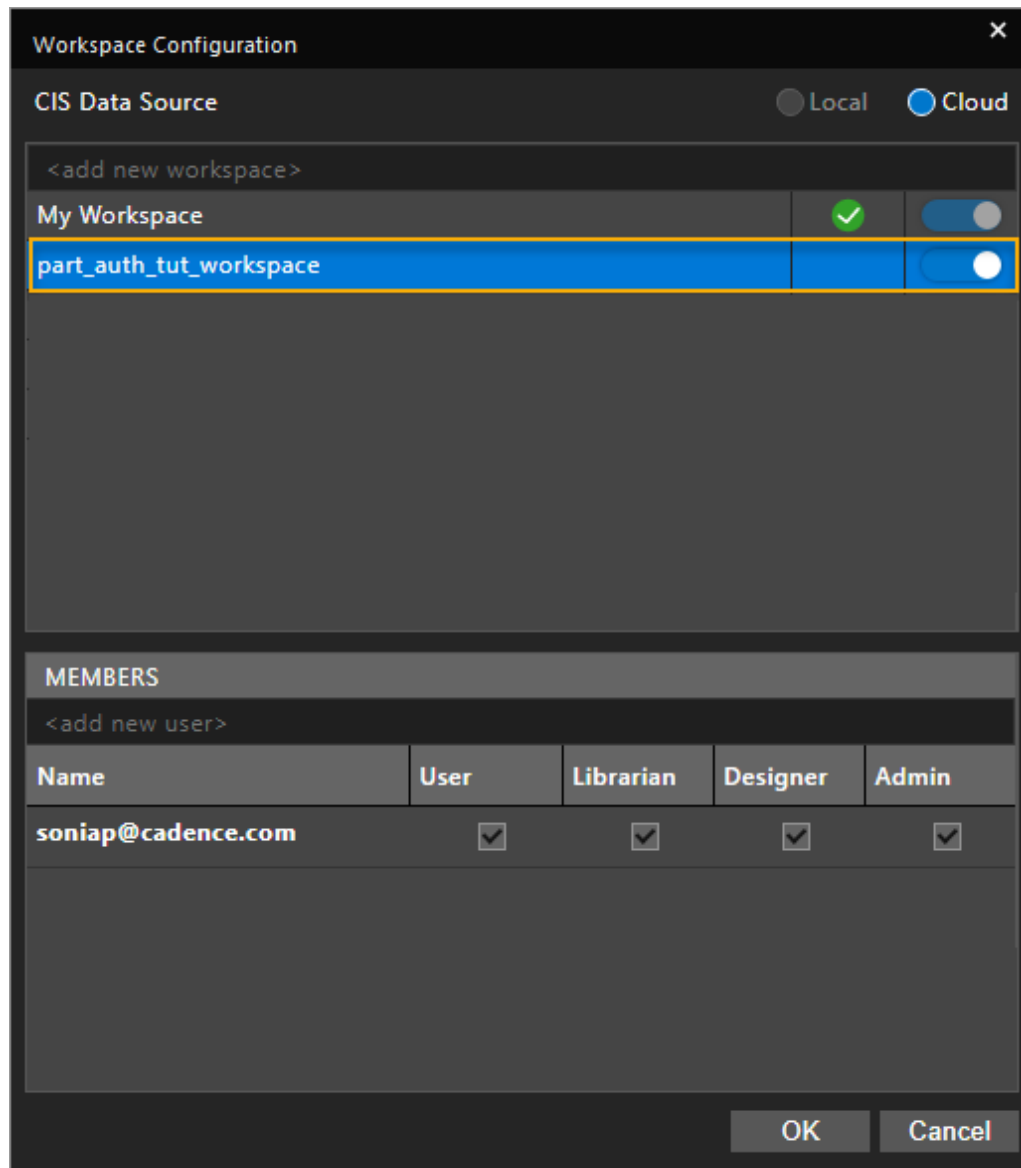
To create a shared workspace, do the following:

1. Choose *View – Workspace – Configuration* from the Capture main menu.

The *Workspace Configuration* dialog box is displayed.



2. Now click the input field with the *<add new workspace>* string, specify the workspace name as *part\_auth\_tut\_workspace*, and press `Enter`.



The user who created the shared workspace is the default owner of the workspace with *Admin* rights. The username appears in bold in the MEMBERS section. You can grant access rights to your team members on this workspace from the MEMBERS section.

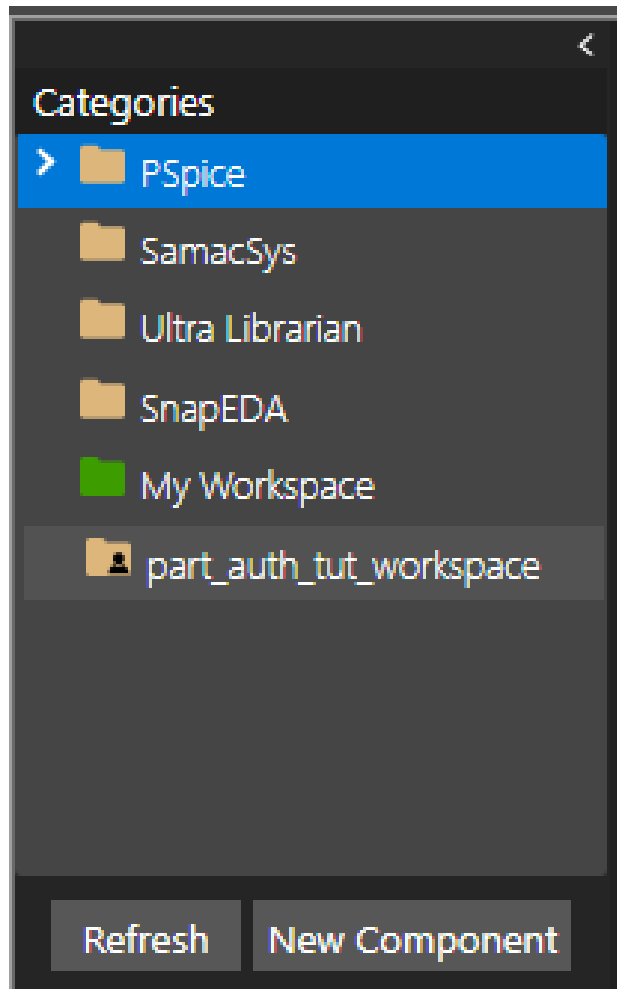
See [Sharing Workspaces](#) to learn more.

3. Click *OK* to create the new shared workspace.

The shared workspace is created.



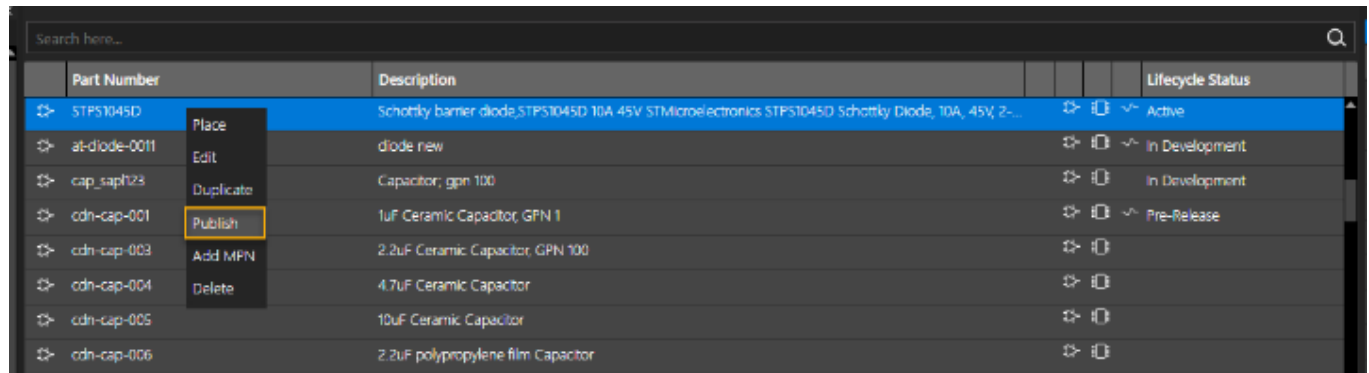
4. Choose *Place – Component* to launch the *Component Explorer* UI and view the newly added shared workspace in the *Categories* tree.



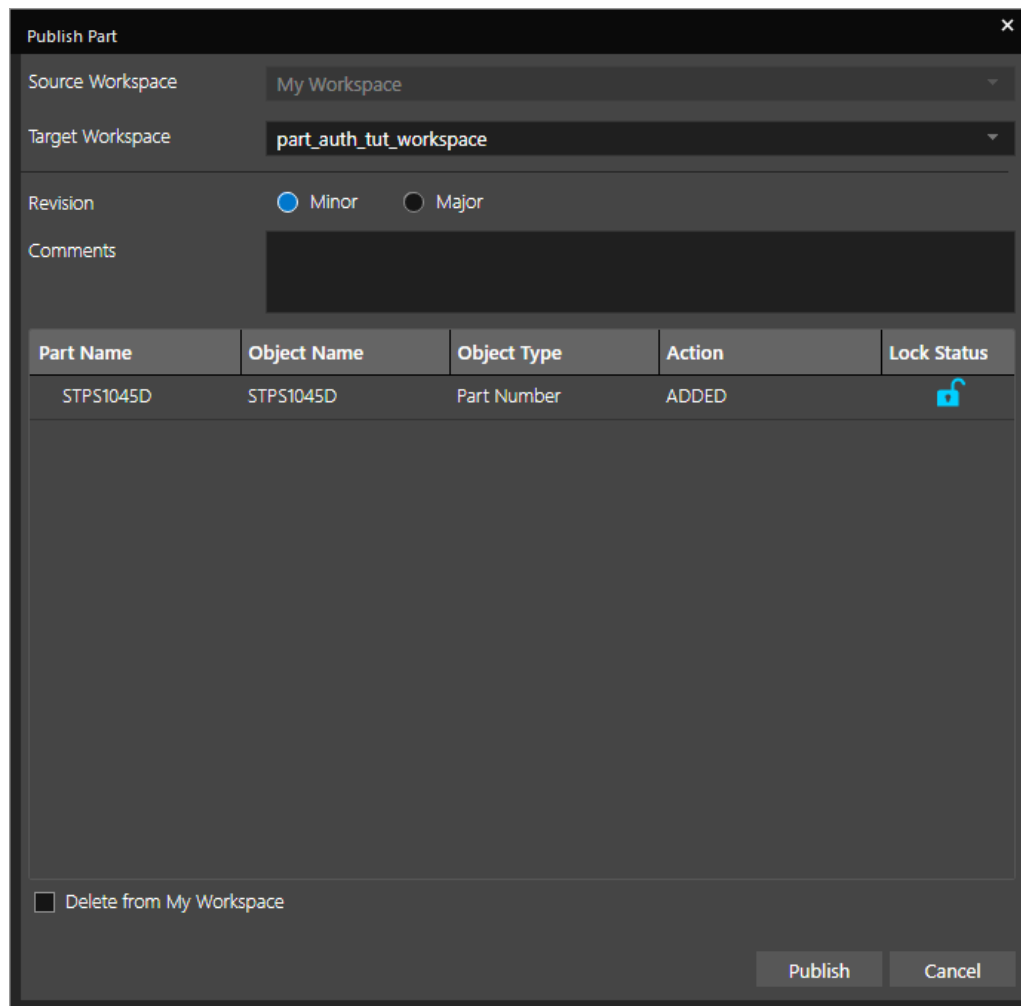
## Publishing a Component

To publish a component , do the following:

1. Select *My Workspace* in Component Explorer.  
The *Workspace Configuration* dialog box is displayed.
2. Select part row *STPS1045D*.
3. Right-click and choose *Publish*.



The *Publish* dialog box is displayed.



4. Specify the following entries for revision and comments:

**Revision:** *Major*

**Comments:** *New part request for tutorial*

As this component is being published for the first time, the *Action* column shows the value as *Added*.

5. Click *Publish*.
6. Similarly, publish the component, *cdn-nmos-001* that you created in the previous module.

**Publish Part**

Source Workspace: My Workspace

Target Workspace: part\_auth\_tut\_workspace

Revision: ☐ Minor ☒ Major

Comments: New part request for NMOS

Part Name	Object Name	Object Type	Action	Lock Status
cdn-nmos-001	cdn-nmos-001	Part Number	ADDED	
cdn-nmos-001	CSD15571Q2, Texas Instr...	mpn	ADDED	

☐ Delete from My Workspace

**Publish** **Cancel**

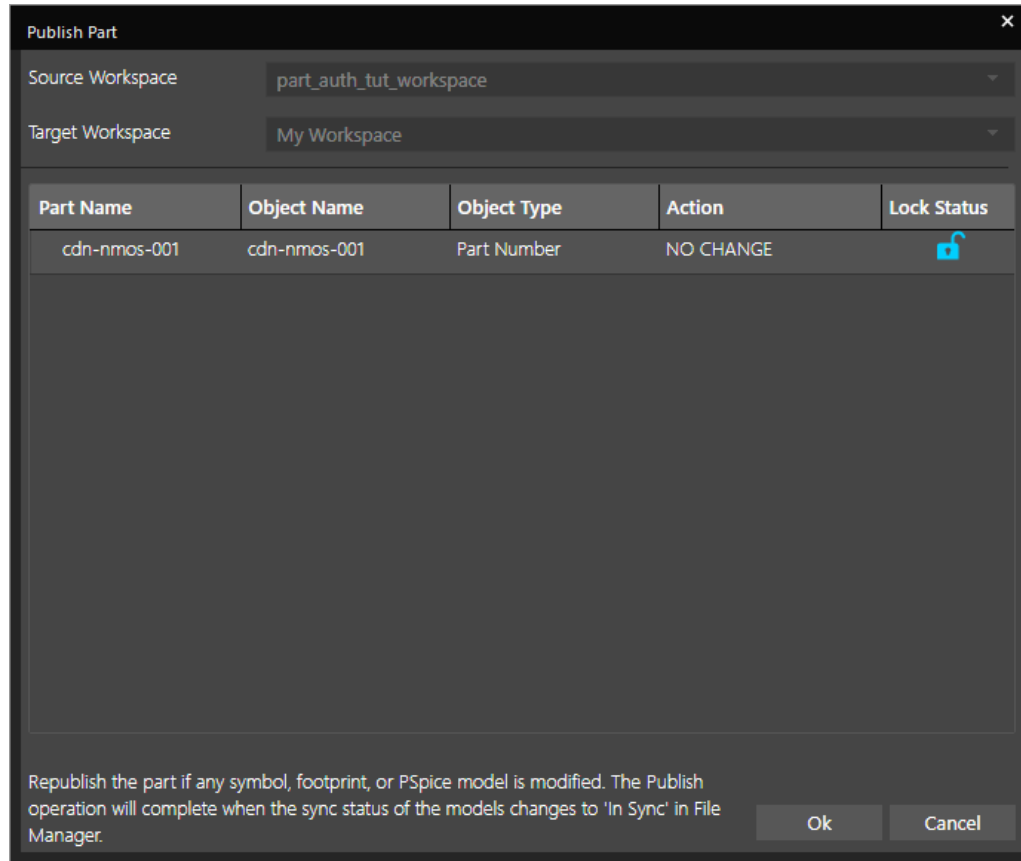
The published components can be accessed in the shared workspace by all the users with whom the workspace is shared.



To edit a component on a shared workspace, do the following:






- | Part Number  | Description                                    | Revision | Lock Status | Lock owner | Comments               | Last modified          |
|--------------|--|----------|-------------|------------|------------------------|------------------------|
| STPS1045D    | Schottky barrier diode,STPS1045D 10A 45V ST... | 1.0      |             |            | New part request fo... | Mon Aug 21 15:41:07... |
| cdn-nmos-001 | 20-V, N channel single MOSFET, 19.2 mOhm       | 1.0      |             |            | New part request fo... | Sun Aug 20 08:24:3...  |
- Place  
Publish  
Copy To Workspace  
Lock  
Unlock  
Edit  
Delete

September 2023



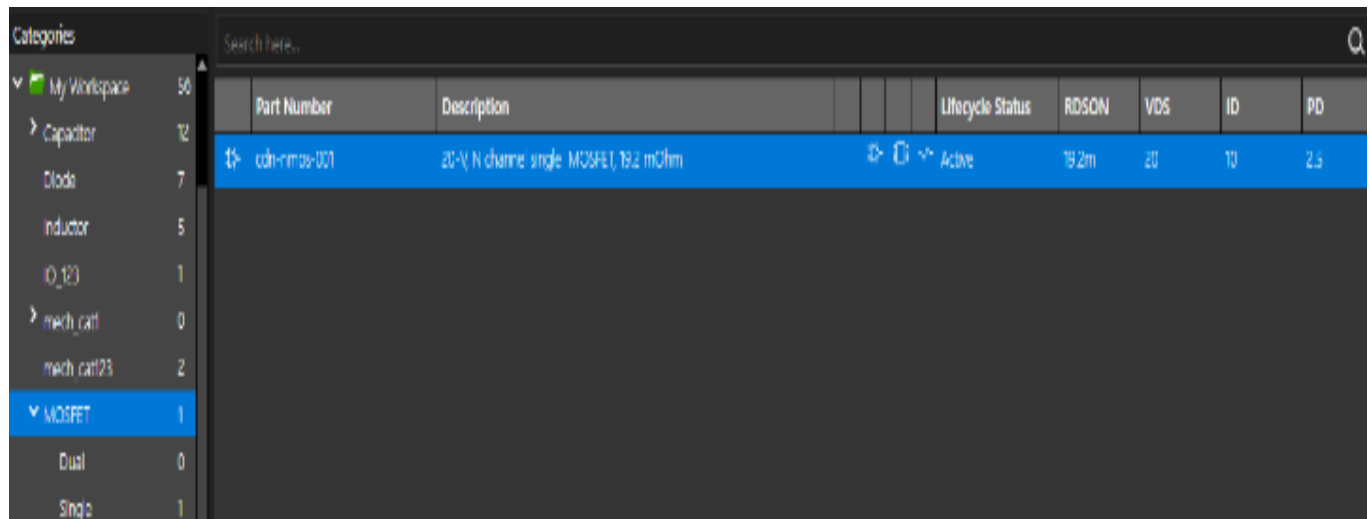
3. Click *Ok*.

This component is locked in the shared workspace. The lock status is visible to all the team members of this workspace.

Search here.. 								
	Part Number	Description	Revision	Lock Status	Lock owner		Comments	Last modified
	STPS1045D	Schottky barrier diode,STPS1045D 10A 45V ST...	1.0				New part request fo...	Mon Aug 21 15:41:07...
	cdn-nmos-001	20-V, N channel single MOSFET, 19.2 mOhm	1.0	1	dsullivan@cssotest.c...		New part request fo...	Sun Aug 20 08:24:3...

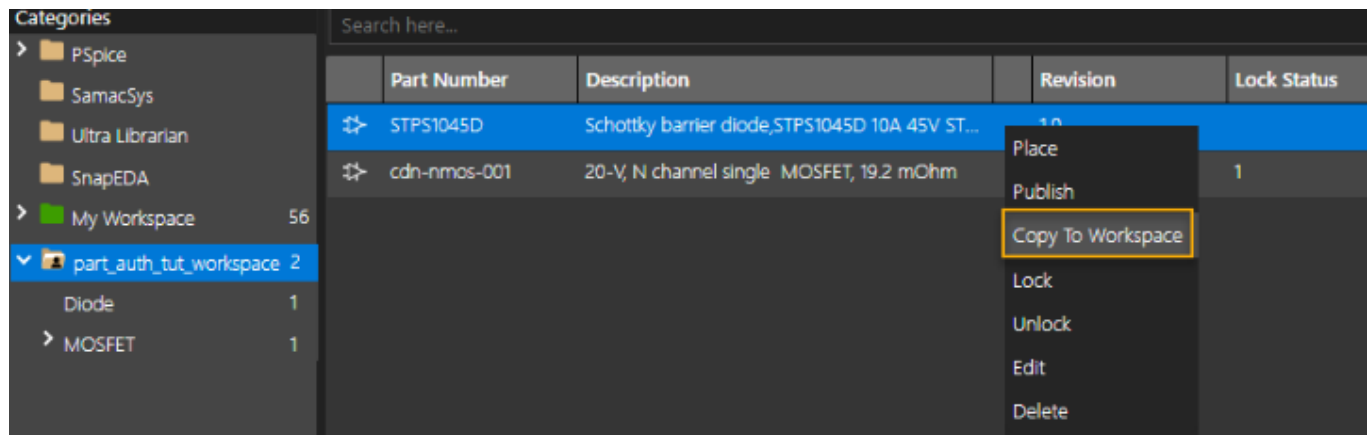
The component is now seen in *My workspace* of the current user. Also, the associated

category (MOSFET) and subcategories (Dual, Single) are also copied.



Similarly, you need to copy the component, *STPS1045D* from the shared workspace to *My Workspace*.

4. In the shared workspace, *part\_auth\_tut\_workspace*, right-click *STPS1045D* and choose *Copy To Workspace*.



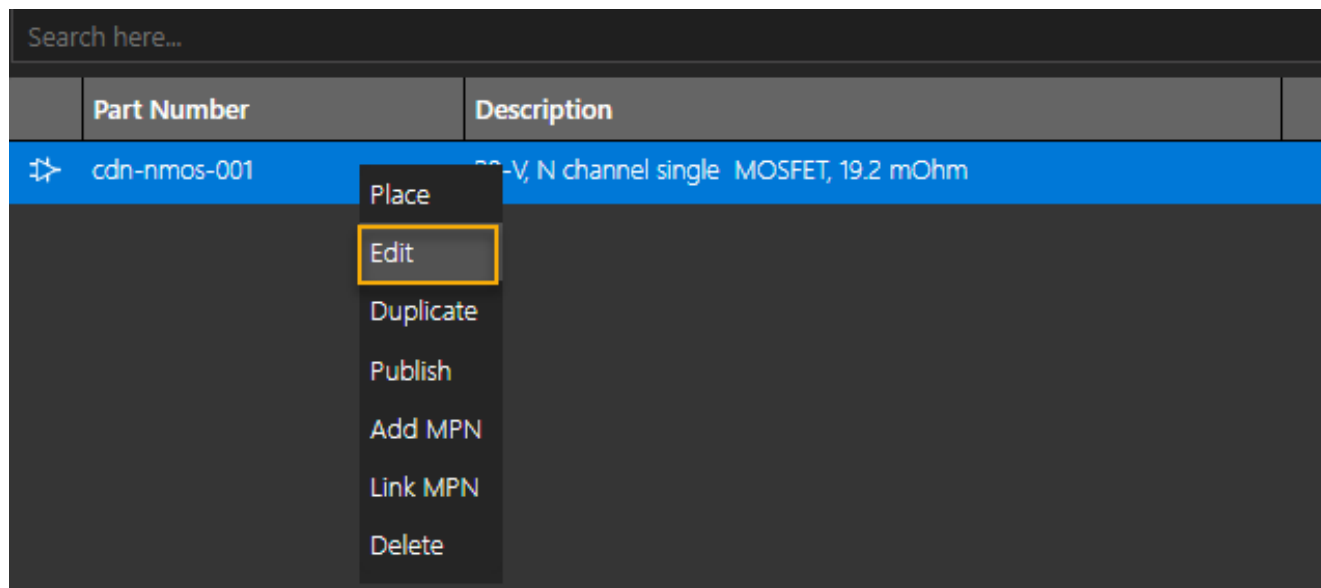
The component is copied to *My Workspace*, but it is not locked in the shared workspace.

# Modifying a Component and Publishing it back to Shared Workspace

Let's now modify the component, *cdn-nmos-001* in the local workspace of the current user who has locked the component.

To modify a component, do the following:

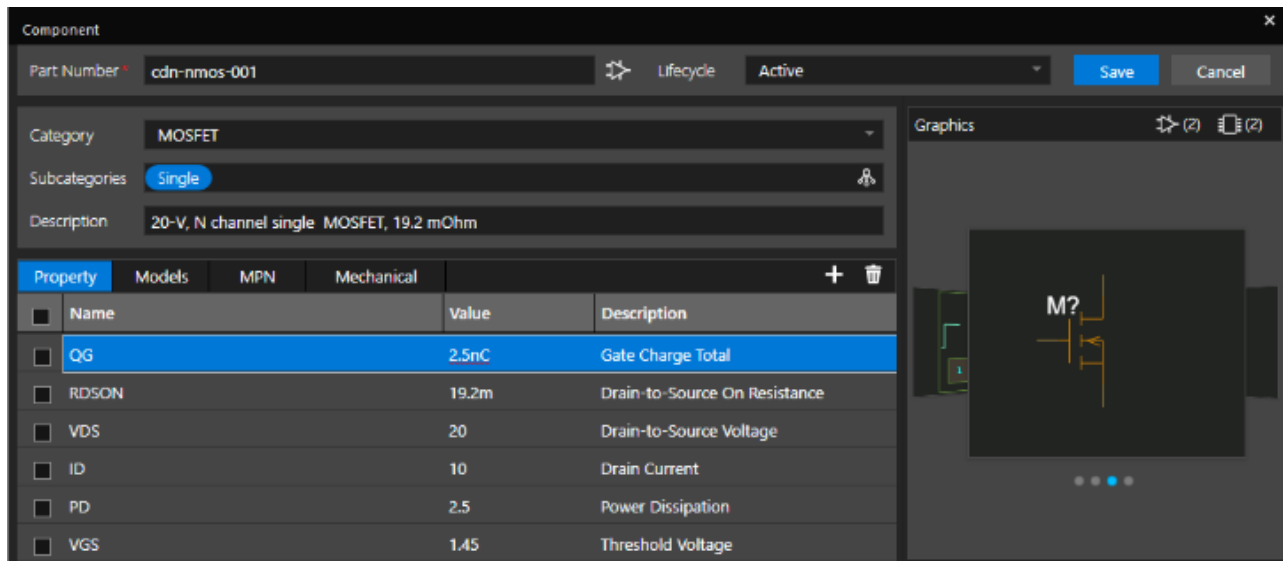
1. In Component Explorer, select the shared workspace, *part\_auth\_tut\_workspace*.
2. In the part browser, right-click the component row for *cdn-nmos-001* and choose *Edit*.



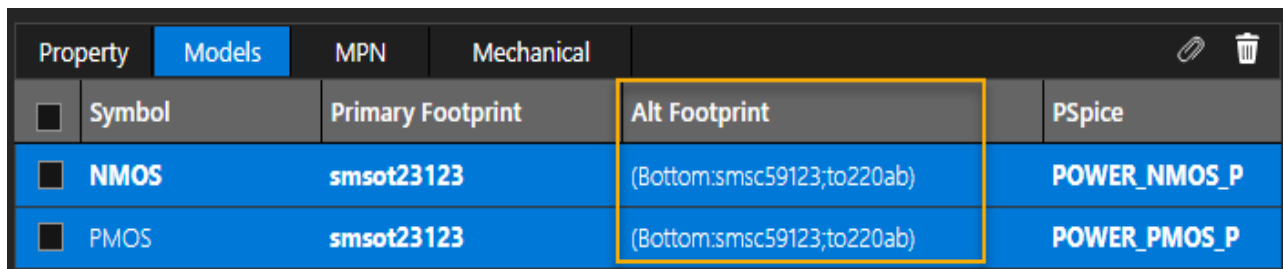
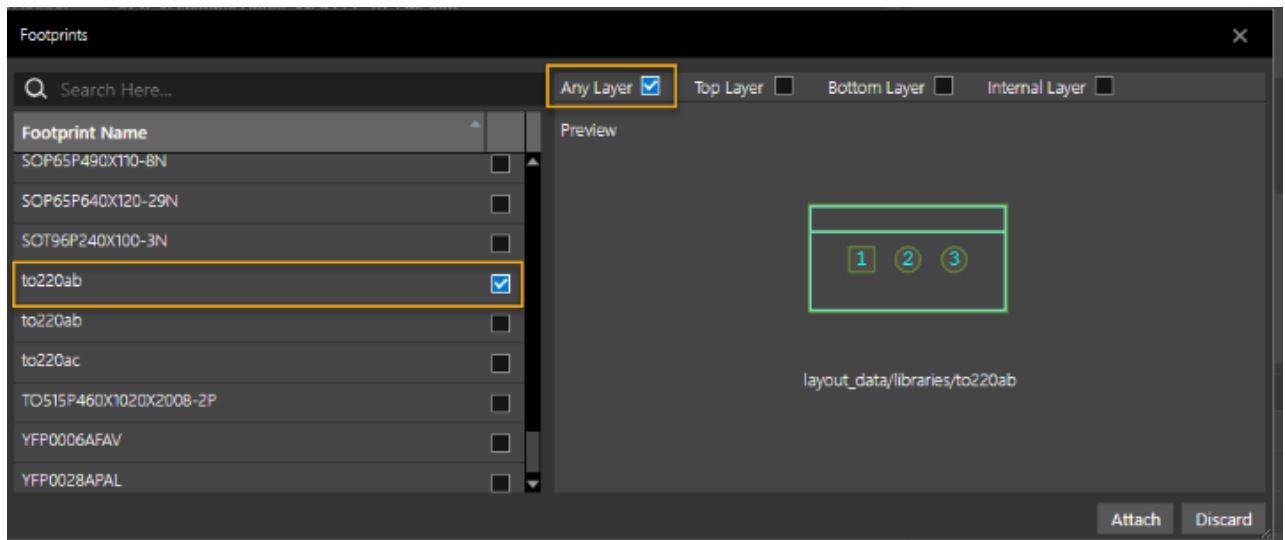
3. In the *Component* dialog box, make the following changes:
  - a. Select the Add (+) icon to add a new property row with the following details:
    - Name: *QG*
    - Value: *2.5nC*
    - Description: *Gate Charge Total*

## OrCAD X Capture Part Authoring Tutorial

### Module 5: Sharing Components with Team Members--Modifying a Component and Publishing it back to Shared Workspace



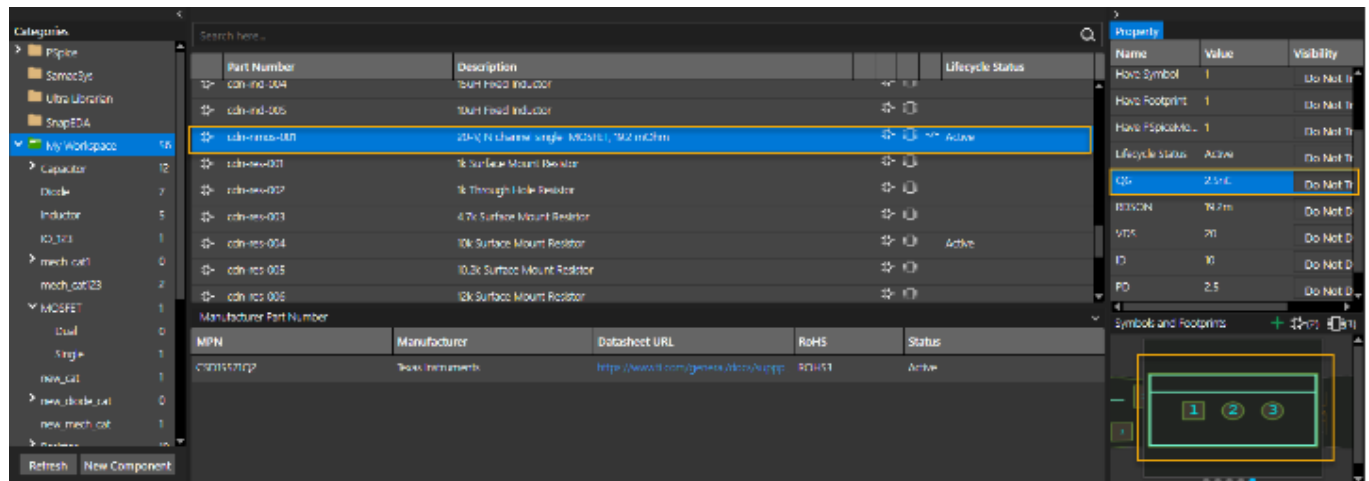
- b. Switch to the *Models* tab and add an alternative footprint, *to220ab*, to *Any Layer*.



4. Click *Save*.



The component appears with the updated metadata and alternative footprint.



Now let us publish this updated component to the shared workspace,

5. Right-click *cdn-nmos-001* and choose *Publish*.


Publish Part

Source WorkspaceMy Workspace

Target Workspacepart\_auth\_tut\_workspace

Revision☒ Minor ☐ Major

CommentsMetadata and Alt footprint updated

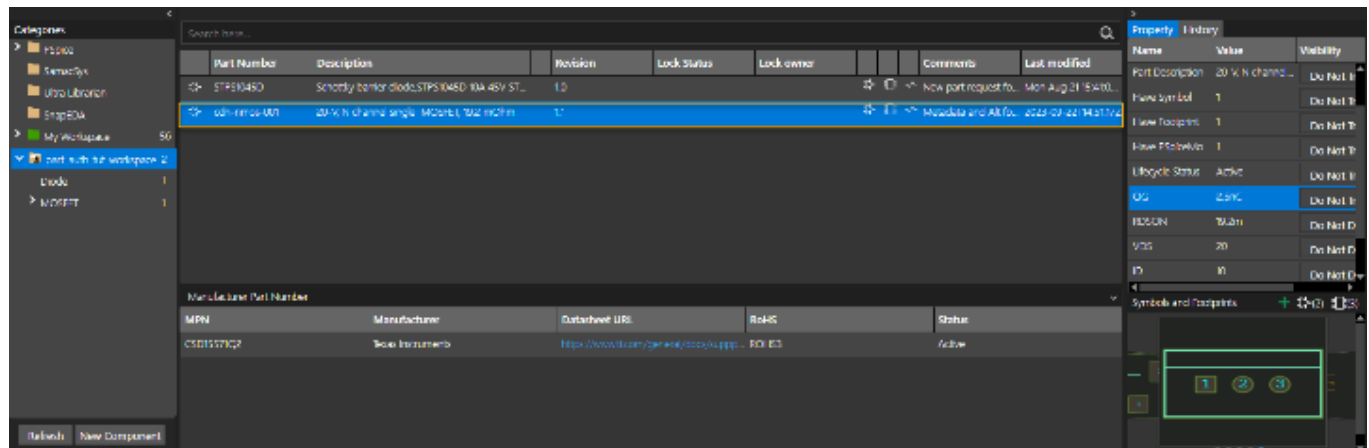
Part Name	Object Name	Object Type	Action	Lock Status
cdn-nmos-001	layout_data/libraries/to...	Alt Footprint	ADDED	
cdn-nmos-001	cdn-nmos-001	Part Number	UPDATED	

☐ Delete from My Workspace

PublishCancel

6. Click *Publish* to publish the component to the shared workspace.

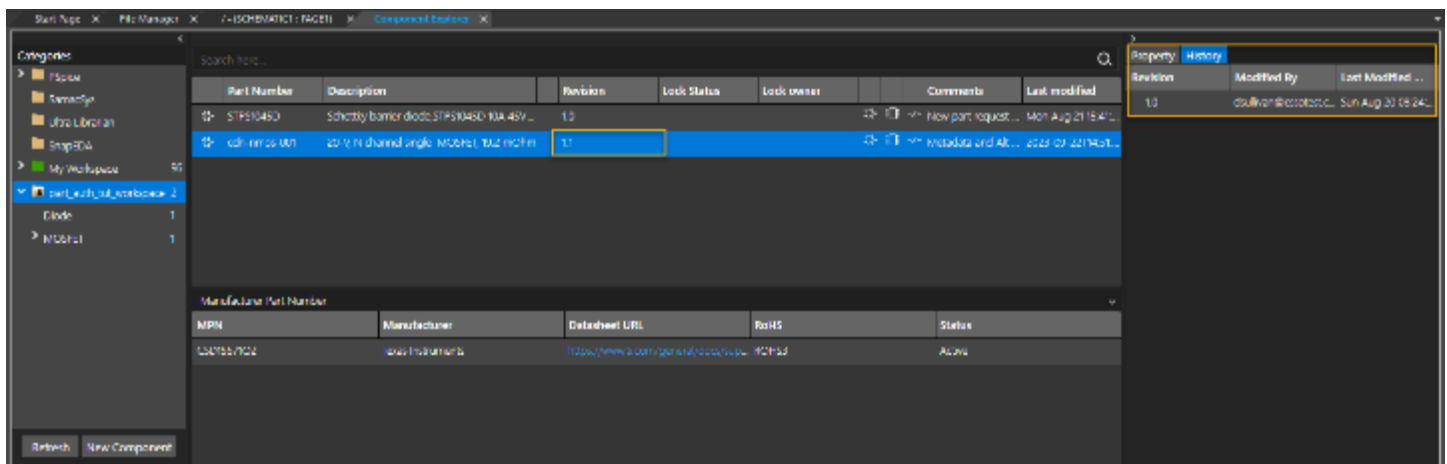
The updated component with updated revision (1.1) is seen in the shared workspace. Also, notice that the lock is released.



## Restoring Older Versions of Components in Shared Workspaces

From the shared workspace, you can view and restore the older revisions of shared components with multiple revisions in the *History* section.

To restore an older version of a component, select the *History* tab from the right-pane of Component Explorer.



The History section shows the following details.

- Revision
- Modified By (user/team members ID)
- Last Modified Date.

You can restore or roll back to a previous version of the component using the *Edit* command from the shortcut menu.

