

ALTAIR

ONLY FORWARD

Altair® PolEx™ 2023.1

UPE Tutorial

Updated: 11/21/2023

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Altair One Customer Portal

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When your Altair One account is set up, you can access the Altair support page via this link:

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Altair's in-person, online, and self-paced trainings provide hands-on introduction to our products, focusing on overall functionality. Trainings are conducted at our corporate and regional offices or at your facility.

For more information visit: <https://learn.altair.com/>

If you are interested in training at your facility, contact your account manager for more details. If you do not know who your account manager is, contact your local support office and they will connect you with your account manager.

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If you are unable to contact Altair support via the customer portal, you may reach out to technical support via phone or e-mail. Use the following table as a reference to locate the support office for your region.

Altair support portals are available 24x7 and our global support engineers are available during normal Altair business hours in your region.

When contacting Altair support, specify the product and version number you are using along with a detailed description of the problem. It is beneficial for the support engineer to know what type of workstation, operating system, RAM, and graphics board you have, so include that in your communication.

Location	Telephone	E-mail
Australia	+61 3 9866 5557	anzsupport@altair.com
Brazil	+55 113 884 0414	br_support@altair.com
Canada	+1 416 447 6463	support@altairengineering.ca
China	+86 400 619 6186	support@altair.com.cn
France	+33 141 33 0992	francesupport@altair.com
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Greece	+30 231 047 3311	eesupport@altair.com
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Create New Part Automatically

1

1. Click **UPE** in the PolEx Launcher.
The main window displays.
2. Create a new part.
 - a) From the menu bar, click **File > New**.
 - b) Enter `CL21B221KBANNND` for the Manufacturer part number (MPN).
 - c) Enter `0012-34567` for the Company part number (CPN) for the part.

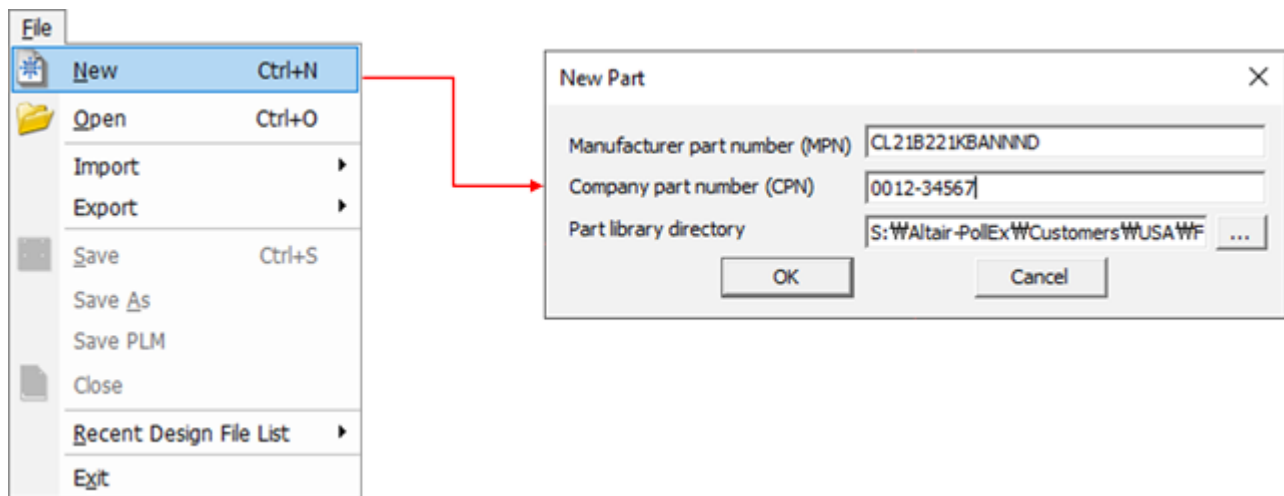


Figure 1:

3. In the General tab, enter the component information.
 - a) Set Function Type to **Capacitor**.
 - b) Set Product Family to **Capacitor/Ceramic**.
 - c) Set Package Type to **Chip Capacitor**.
 - d) Set Electrical Pin Count to 2.

Function type, Product Family, Package Type, and Electrical Pin Count are mandatory.

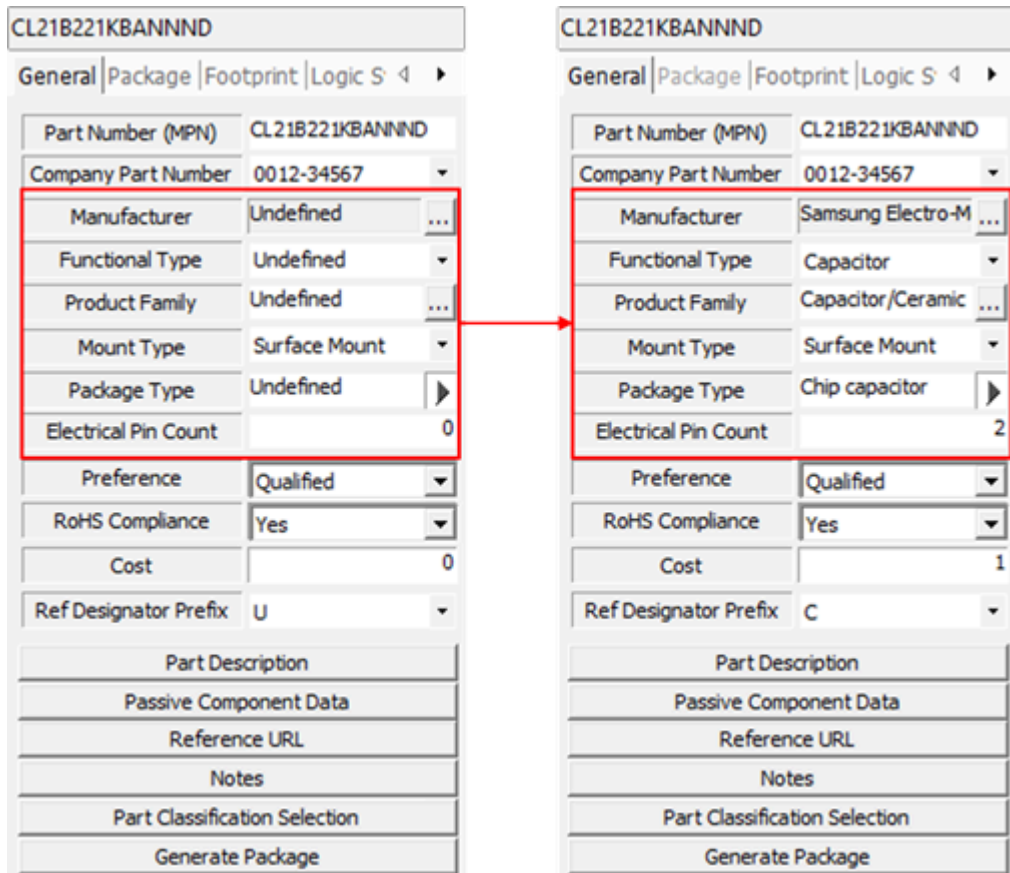


Figure 2:

4. Generate a package using the package generation wizard.
 - a) Click **Generate Package** to open the Package Generation Wizard and click **Next**.
 - b) Refer to the component datasheet and select the item that matched the size information of the component to be created.

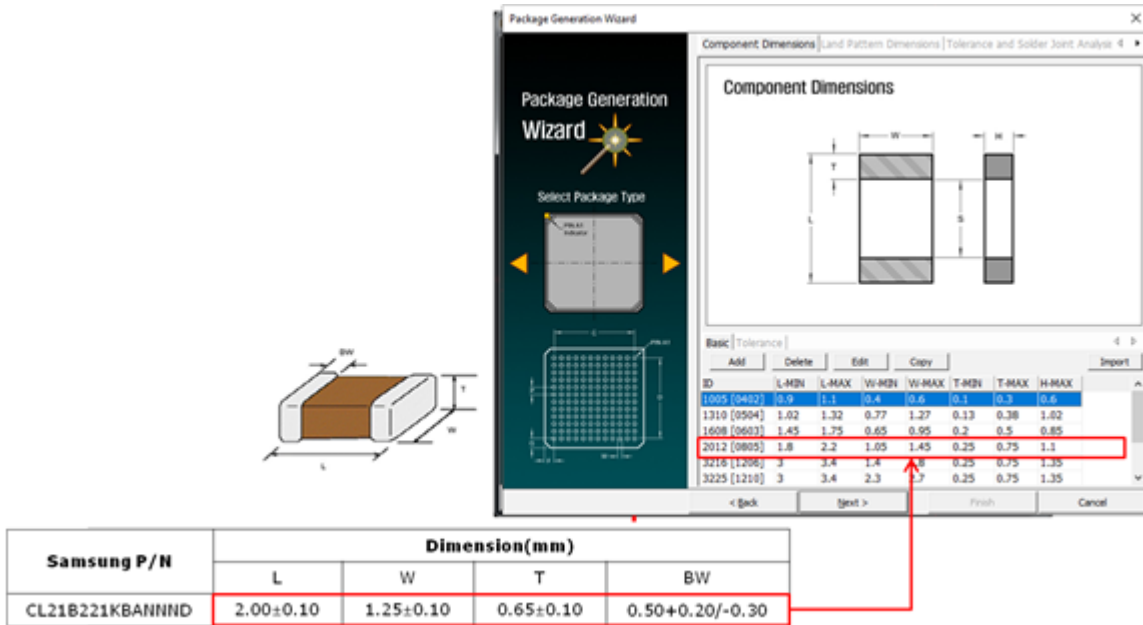


Figure 3:

If no package in the package generation wizard matches with the datasheet, create a new one by clicking **Add** and specify each dimension of the component.

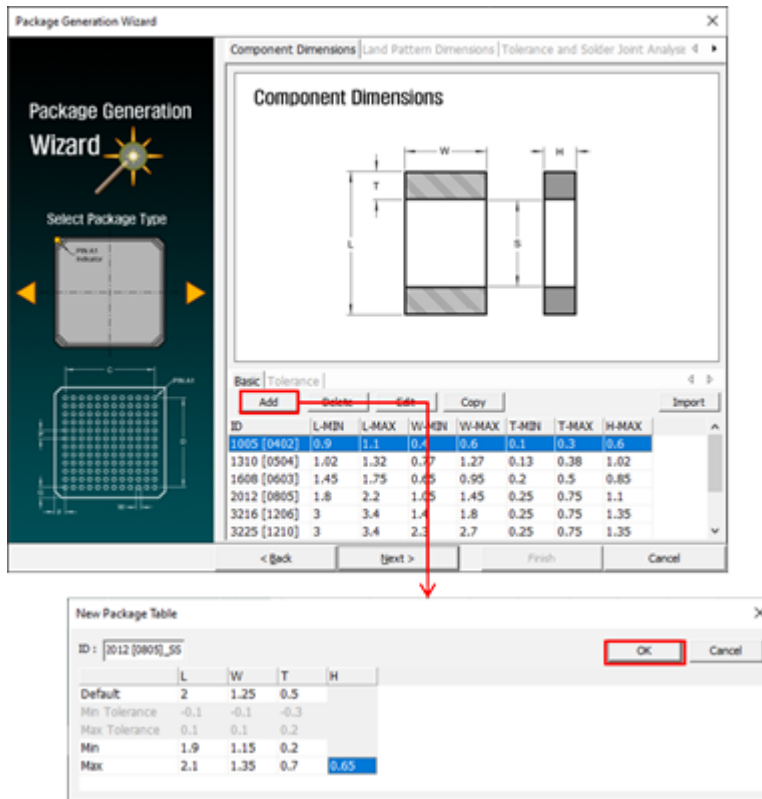


Figure 4:

c) Select the item which dimension matches with the datasheet and click **Next**.

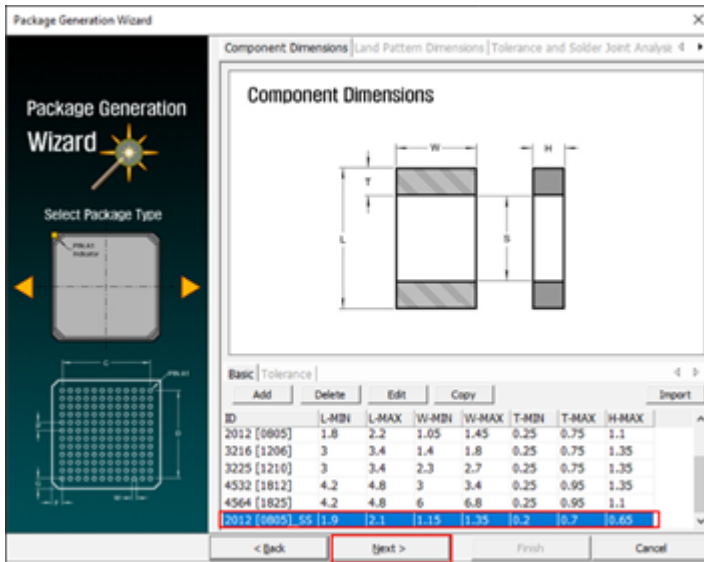


Figure 5:

d) Select **Middle** to specify all dimensions as middle (typical) value and click **Next**. The 3D package shape is created.

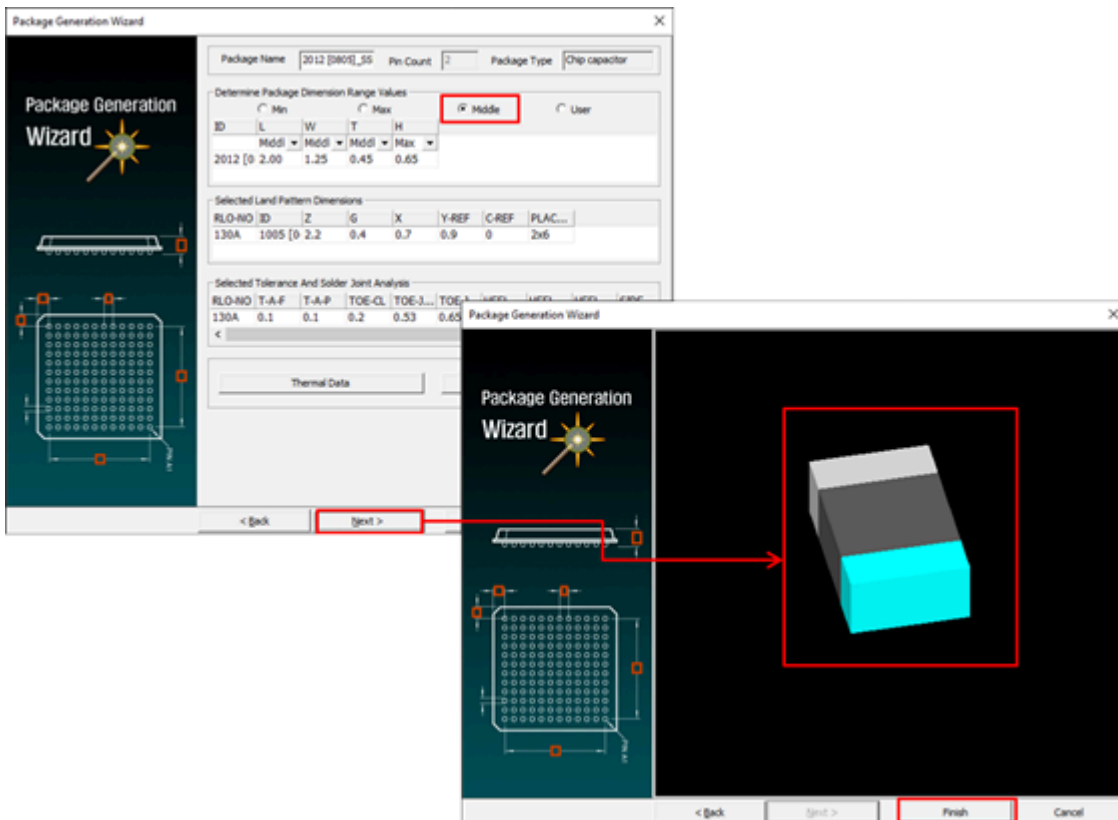


Figure 6:

5. Generate a footprint automatically.
 - a) Click the **Footprint** tab.
 - b) Click **Generate Footprint Automatically**.

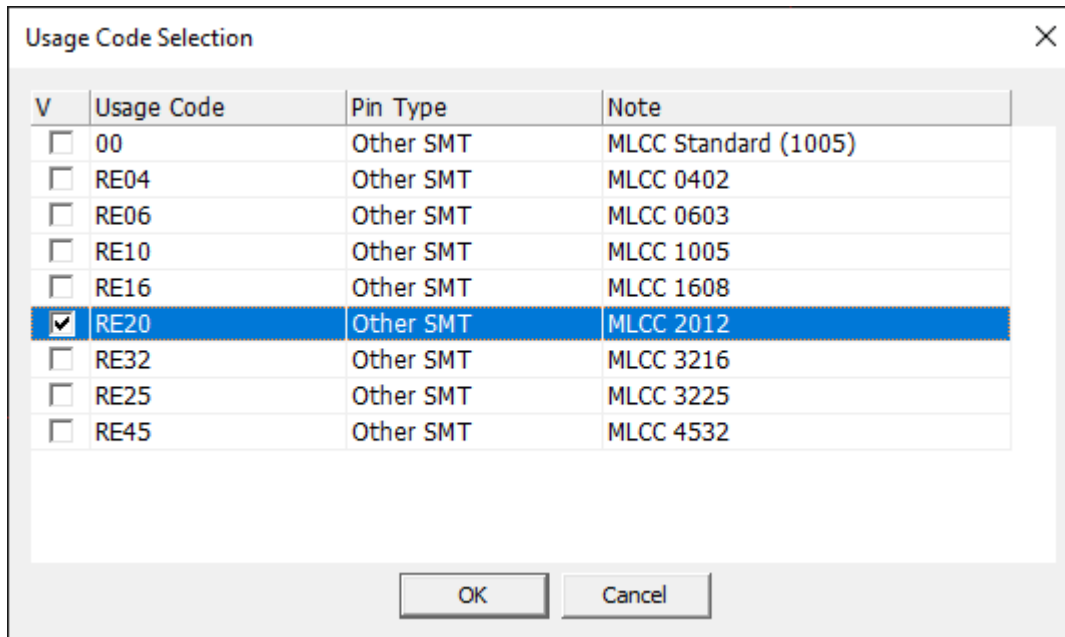


Figure 7:

Then a footprint is generated based on the 3D component geometry. The footprint is generated referring the footprint configuration table editor.

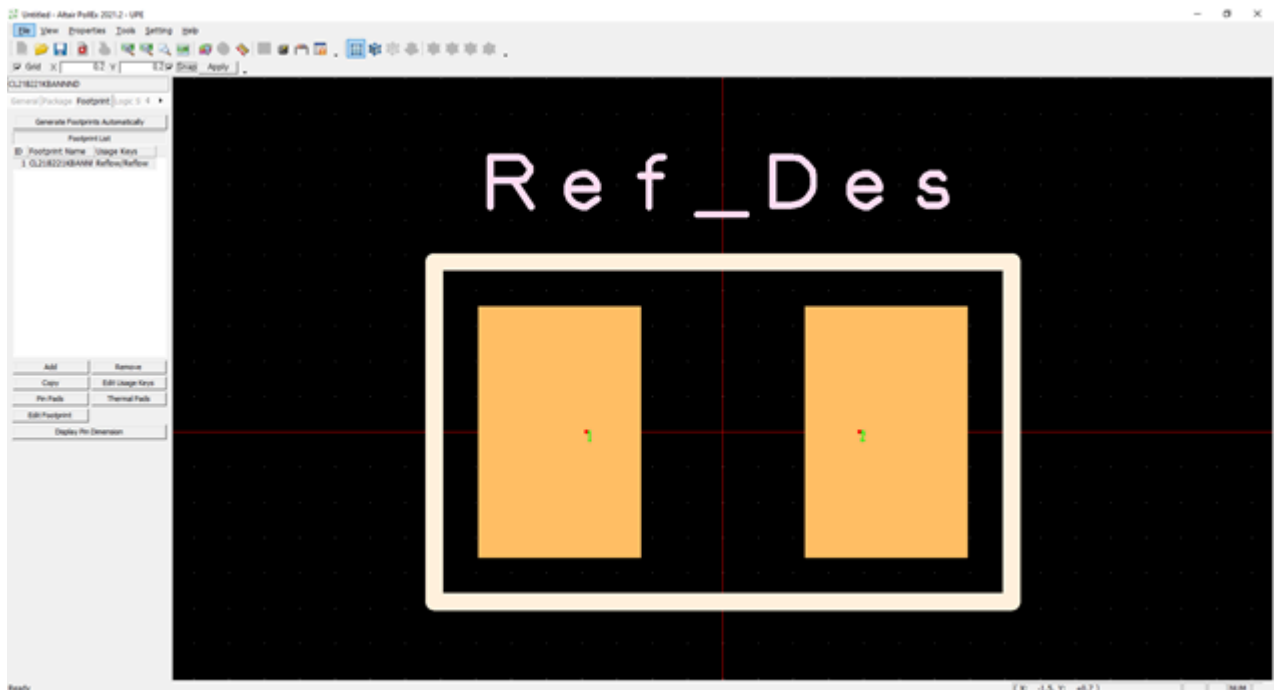


Figure 8:

6. Generate a footprint using footprint generation wizard.

This is useful when there is no configuration for the package in the footprint configuration table, you cannot generate a footprint automatically.

- a) Click **Add**.
- b) Enter a name for the footprint generation and click **Generate Footprint**.
- c) In the Footprint Generation Wizard window, enter the Pin pad, Solder resist, and Metal mask information.
- d) Click **Next**.

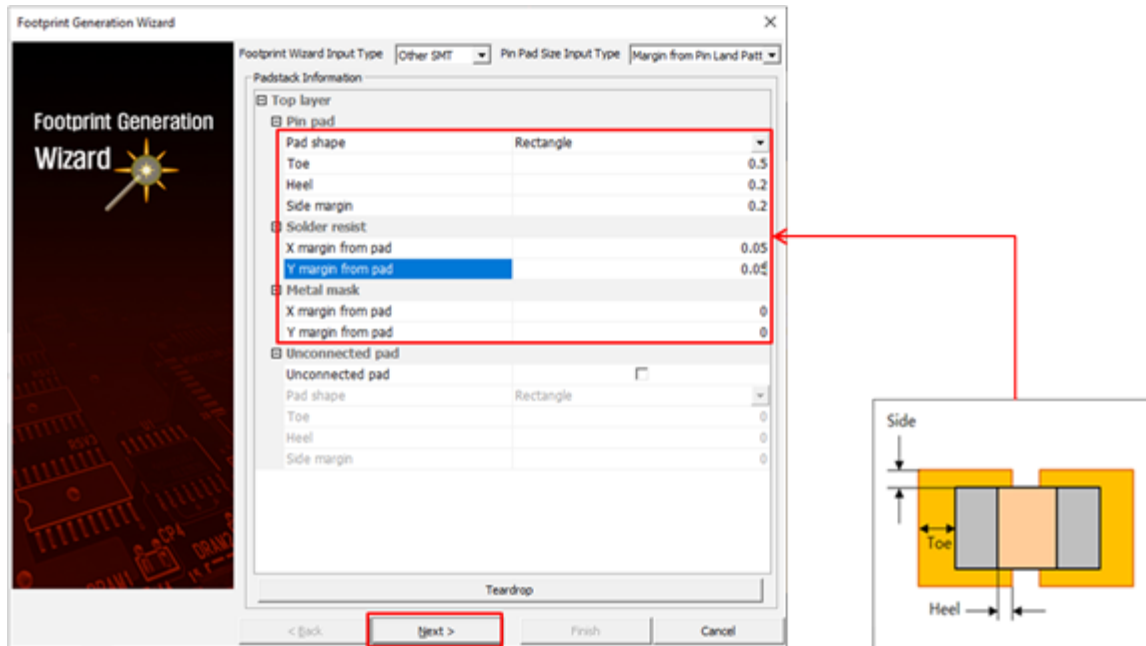


Figure 9:

- e) In the CAM Layer Information section, enter the Place boundary, Silkscreen, Reference designator test, and Part name text information and click **Next**.
The generated Footprint geometry can then be checked.

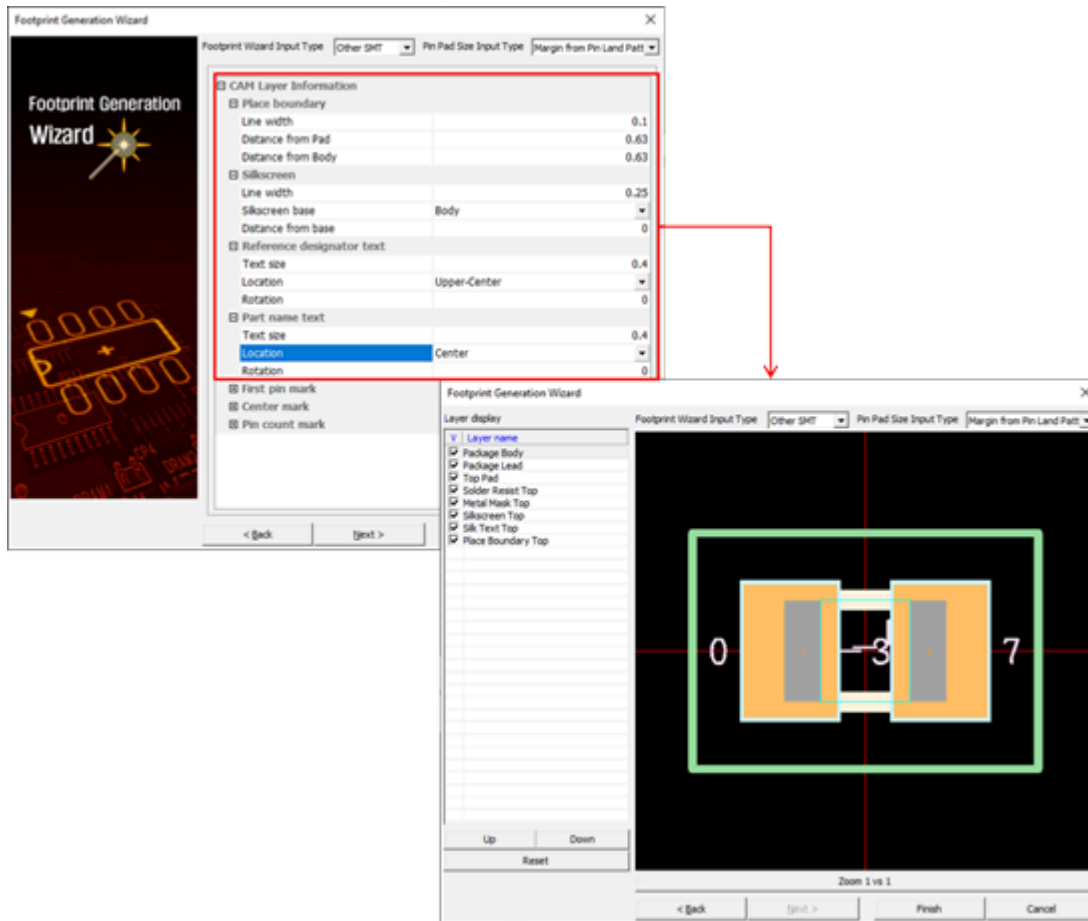


Figure 10:

7. Generate a logic symbol automatically.
 - a) Click the **Logic Symbol** tab.
 - b) Click **Generate Logic Symbol Automatically**.
The Logic Symbol is generated.
 - c) Save the created part.
8. Click the **General** tab to check the general information of the created part.
9. Check the package shape.
 - a) Click the **Package** tab.
 - b) Click **Edit Package Body** to check the shape of the part.

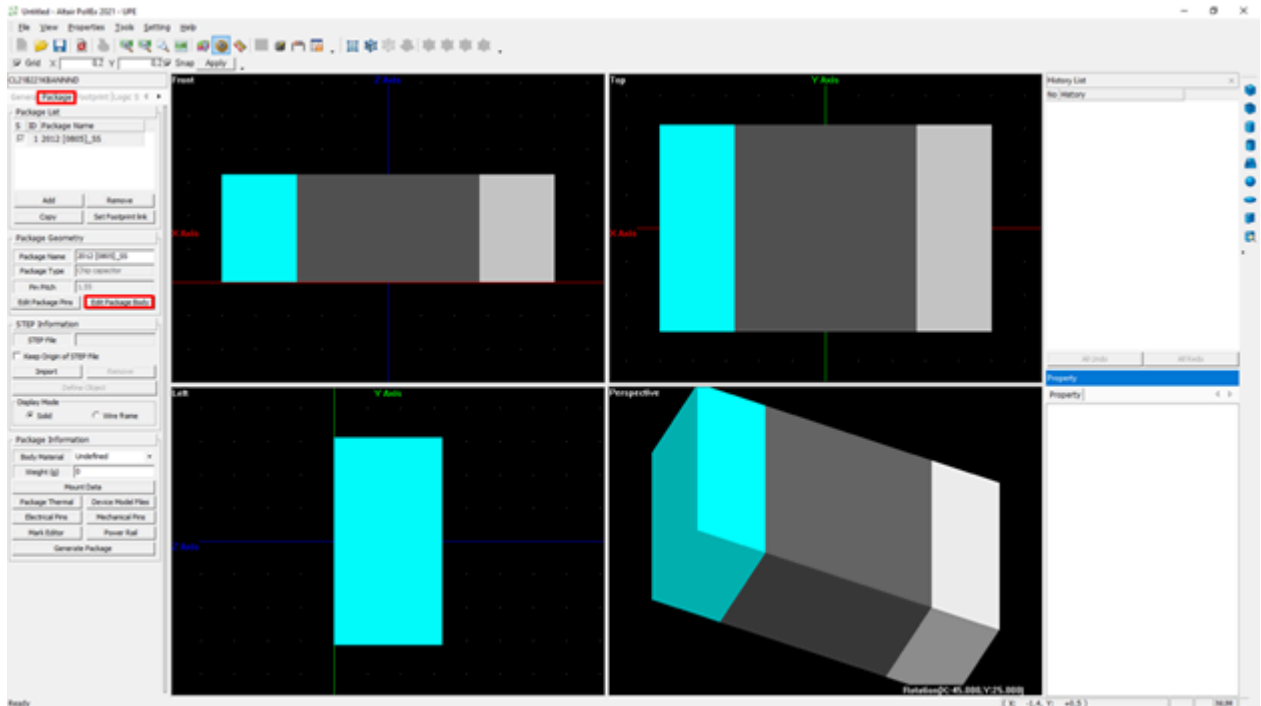


Figure 11:

10. Click the **Footprint** tab to check the footprint shape of the part.
11. Click the **Logic Symbol** tab to check the logic symbol shape of the part.

Create New Part Manually

1. Create a new part.
 - a) From the menu bar, click **File > New**.
 - b) Enter H5TQ4G63AFR for the Manufacturer part number (MPN).
 - c) Enter 0123-45678 for the Company part number (CPN).
2. In the General tab, enter the component information.
 - a) For Package Type, select **BGA**.
 - b) For Electrical Pin Count, enter 96.

Package Type and Electrical Pin Count are mandatory.

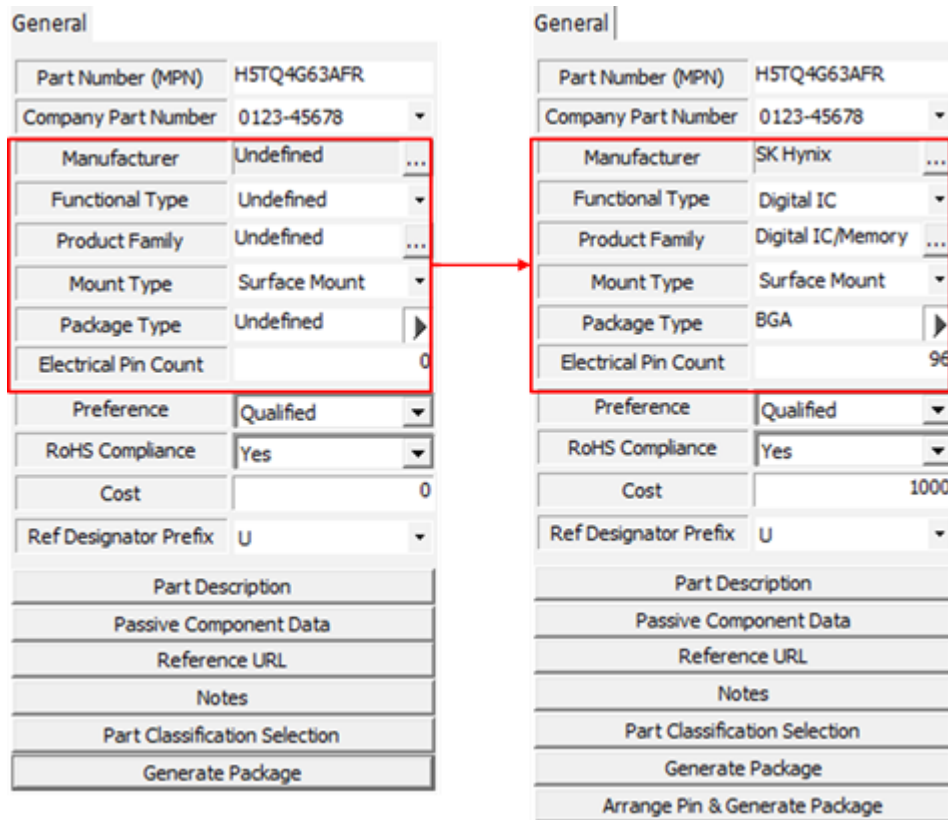


Figure 12:

3. Arrange pins and generate package.
 - a) Click **Arrange Pin & Generate Package** to open the Package Generation Wizard.
 - b) Click **Next**.
 - c) Set the pin arrangement as shown below and click **Apply**.

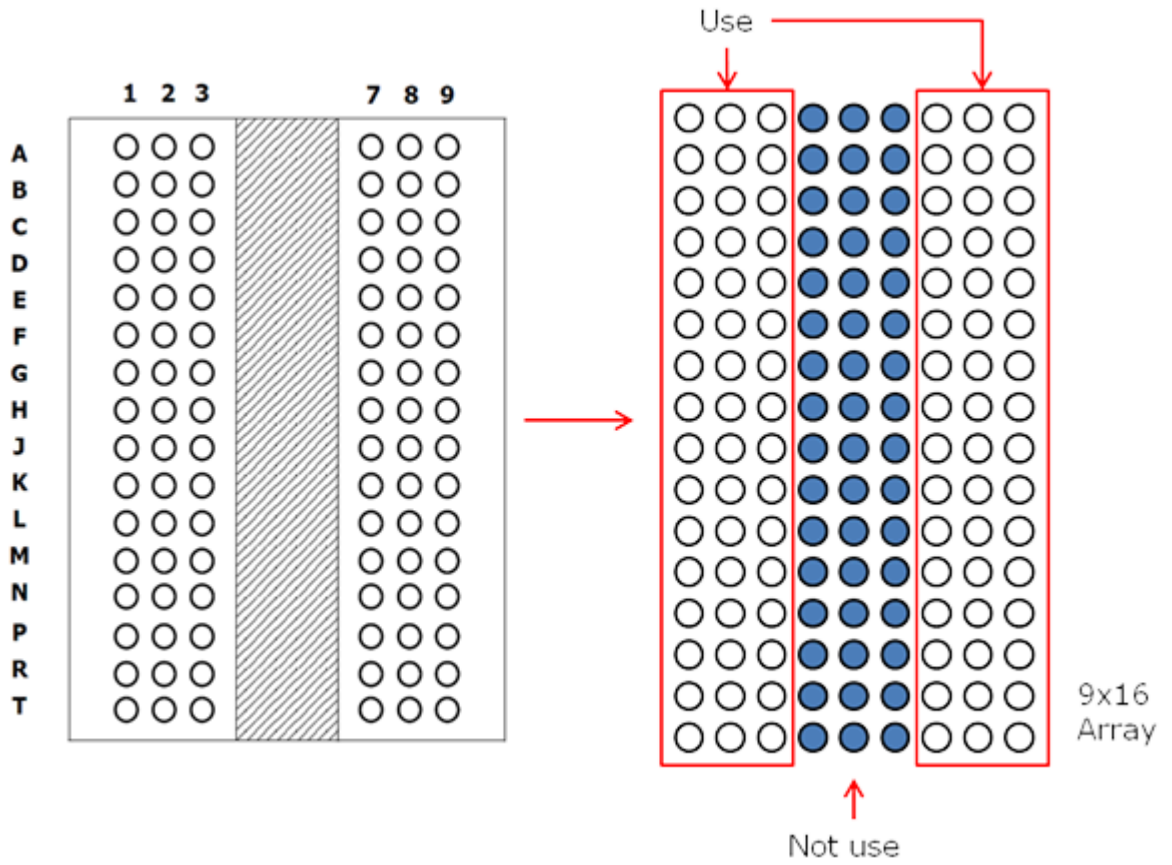


Figure 13:

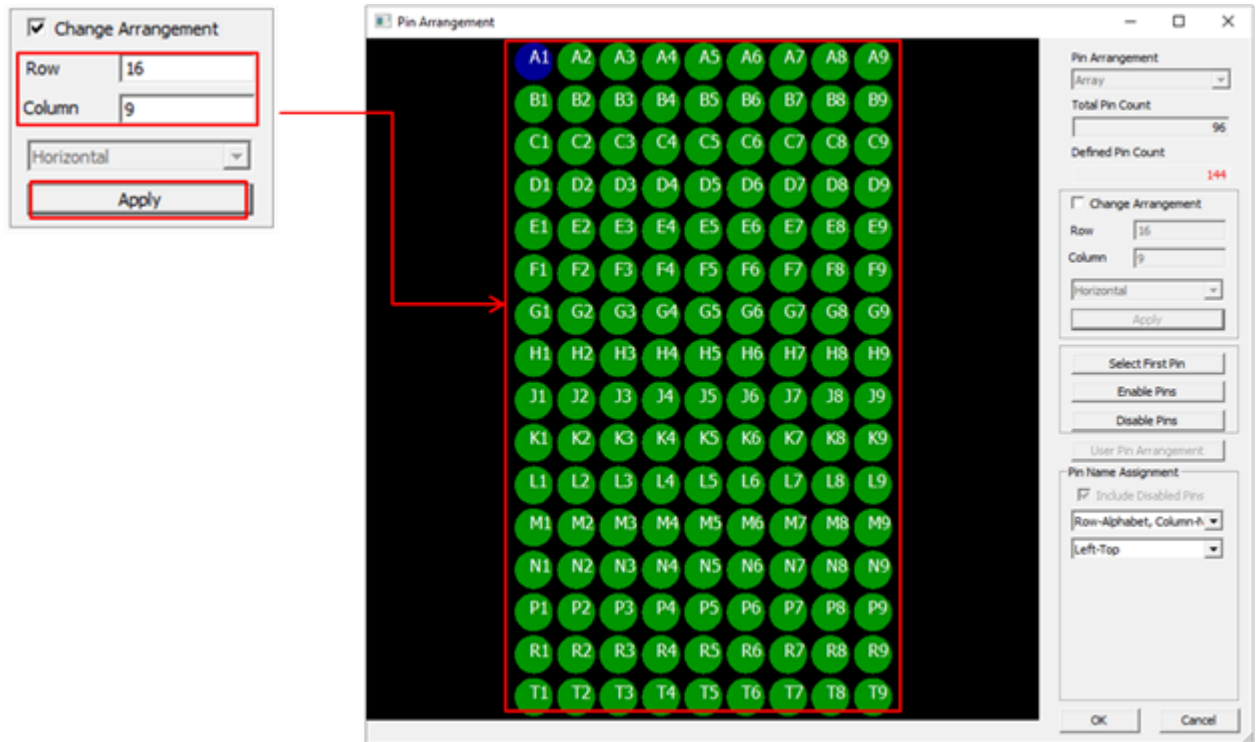


Figure 14:

- d) Click **Disable Pins** and select the pins that are not used.
- e) Click **OK**.

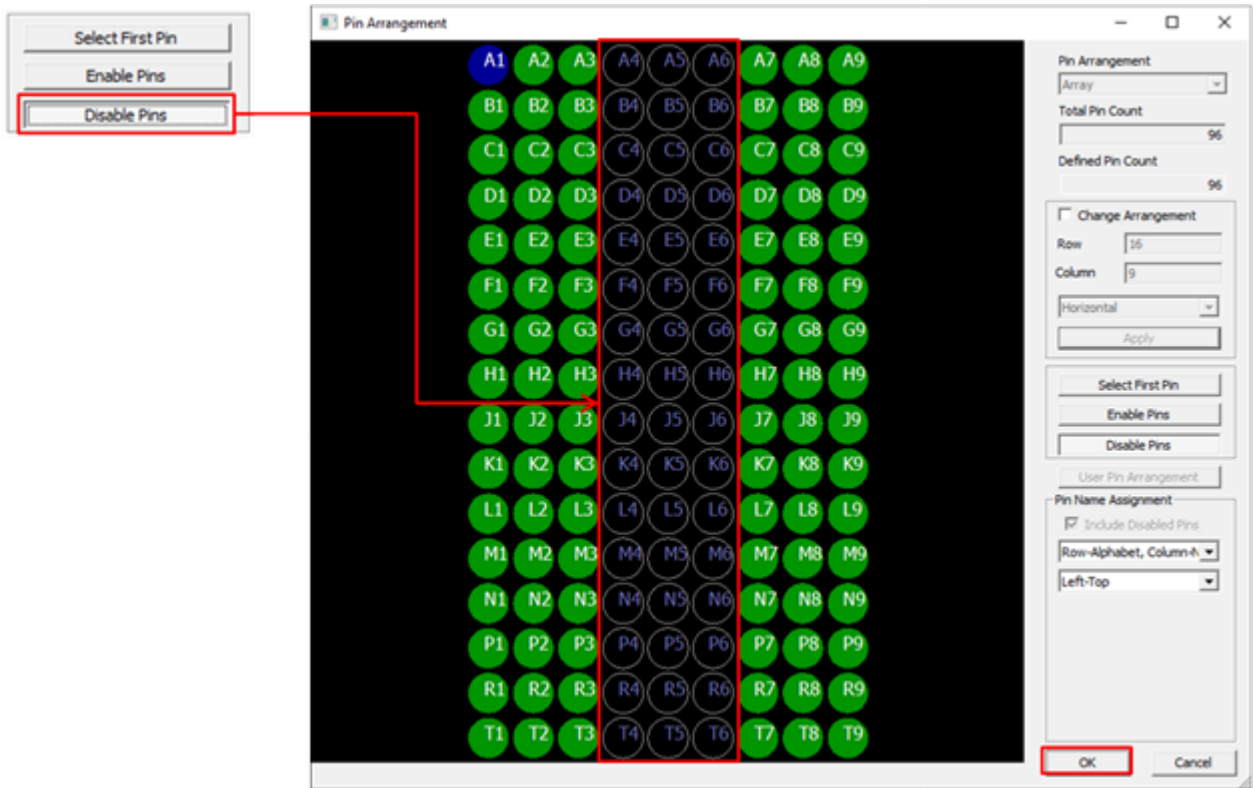


Figure 15:

- f) Define the package name and pin pitches.
- g) Click **Edit Lead Properties** to define the lead pin properties.

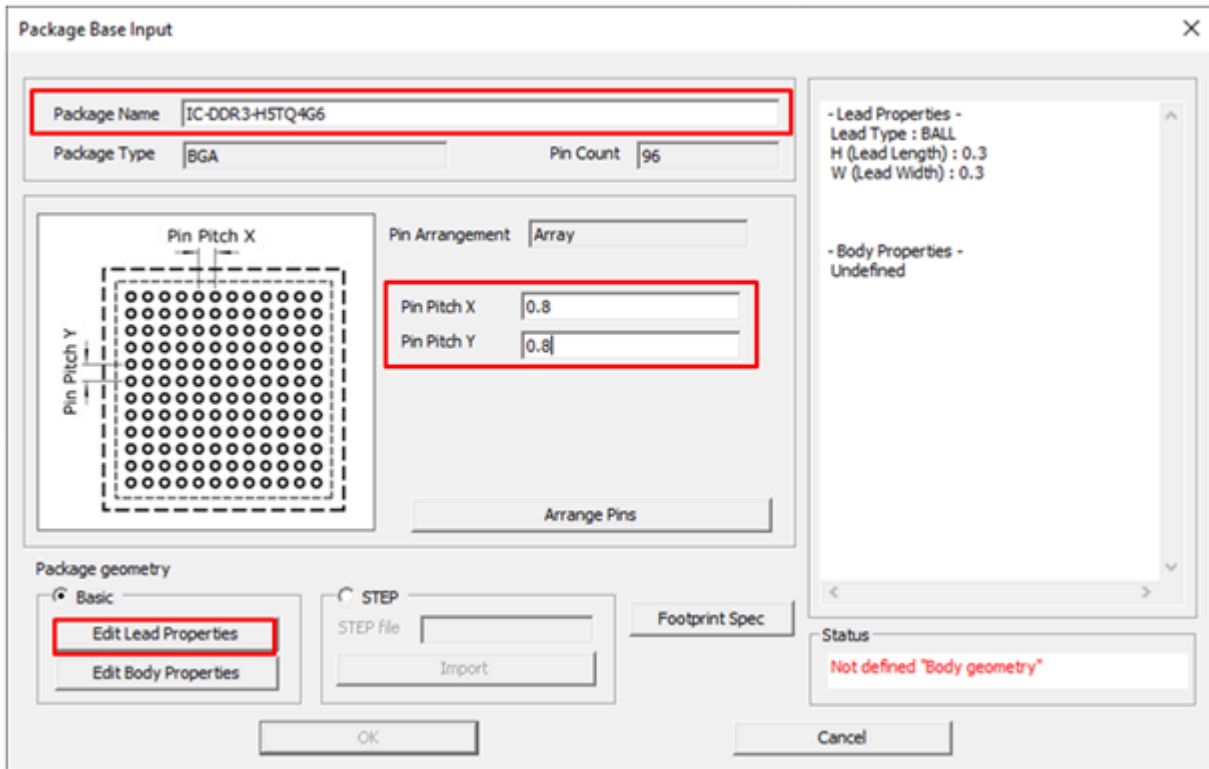


Figure 16:

- h) In the Package Lead Editor, define the lead type as BALL, specify the size, and click **OK**.
- i) Click **Edit Body Properties**.
- j) In the **Basic Body Editor** dialog, select the body shape and input the body size by referring to the datasheet.
- k) Click **OK**.

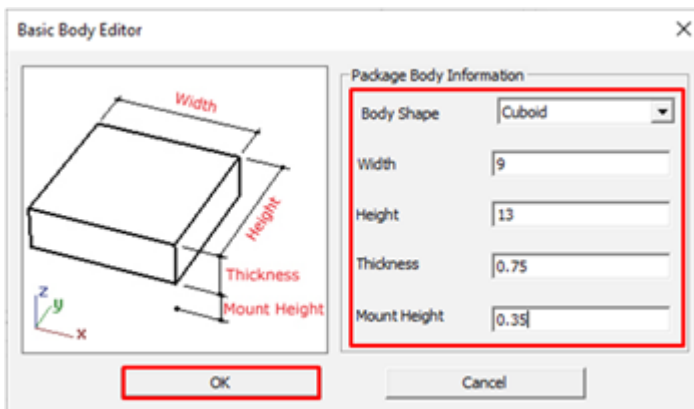


Figure 17:

- l) Click **Footprint Spec** to define the footprint specifications.

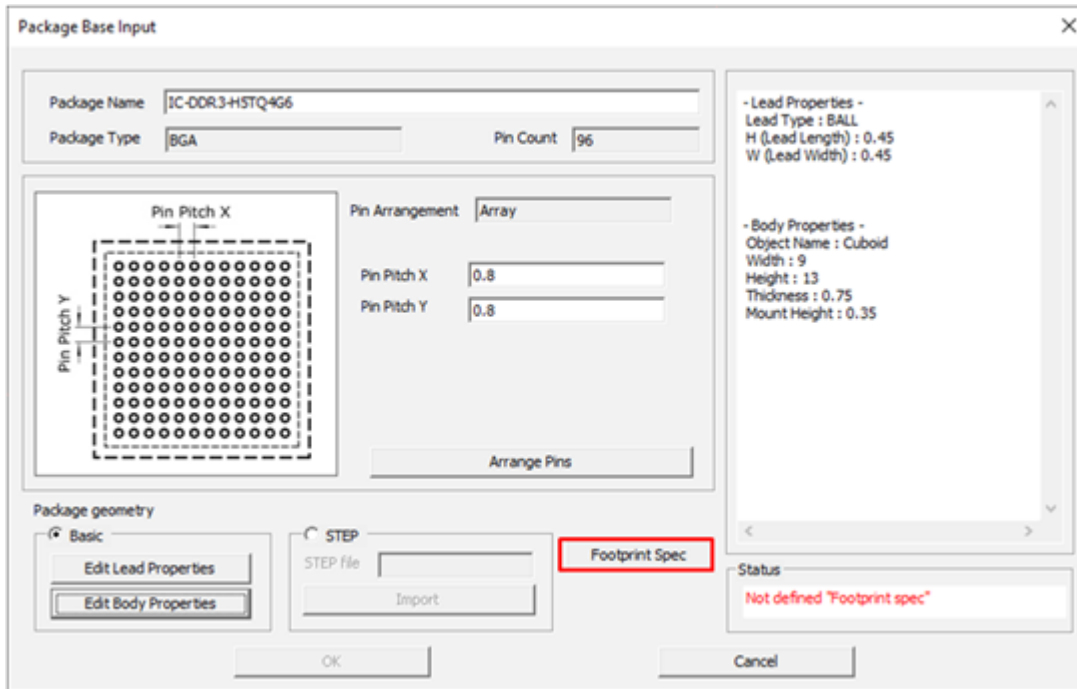


Figure 18:

m) Enter the toe, heel, and side size of the pin pad and mount height of the body and click **OK**.



Figure 19:

Now all items in the package base are defined.

n) Click **OK**.

The created package displays in the package tab window.

o) From the menu bar, click **Package > Thermal** in the Package tab to add package thermal characteristic properties.

p) In the **Package Thermal** dialog, enter the thermal characteristics of the package.

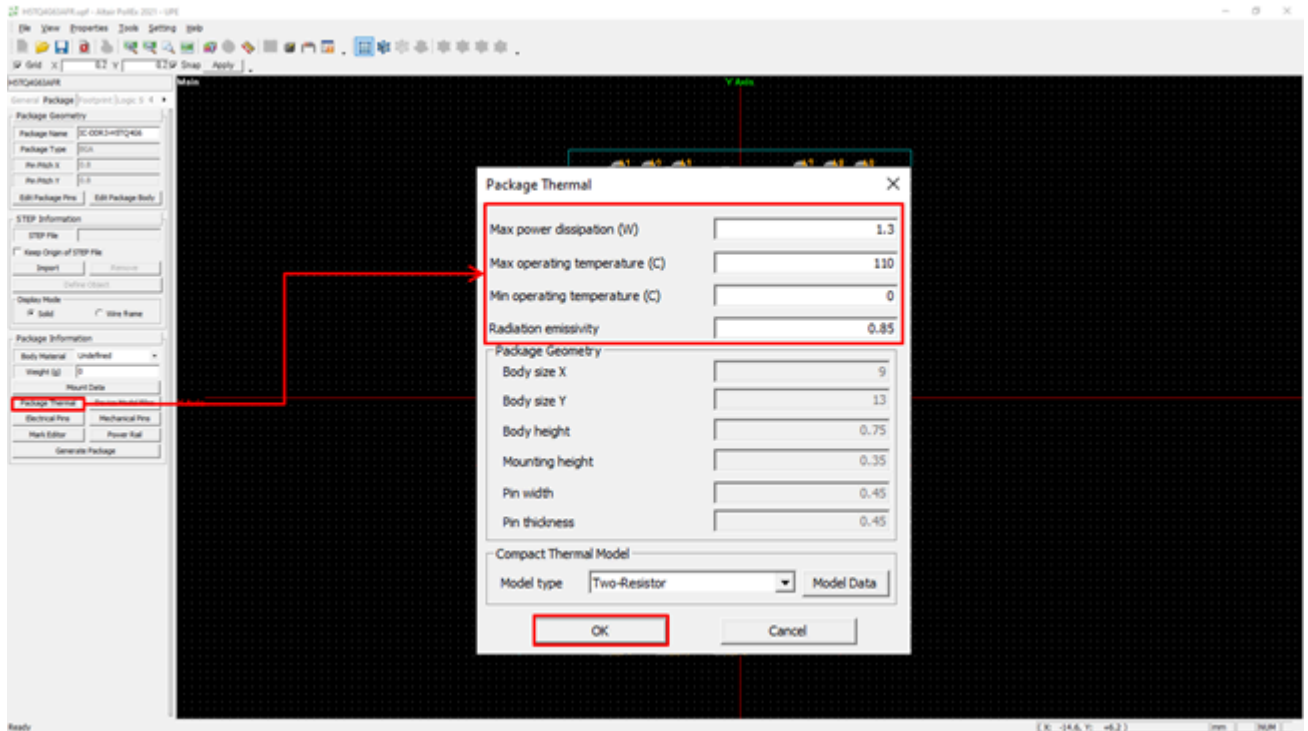


Figure 20:

- q) Click **OK** to save the part data.
- r) Click **Add** to add a simulation library for signal integrity analysis.
- s) In the device model files dialog, click **Add** and select the model library type and file: c:\ProgramData\altair\PollEx\

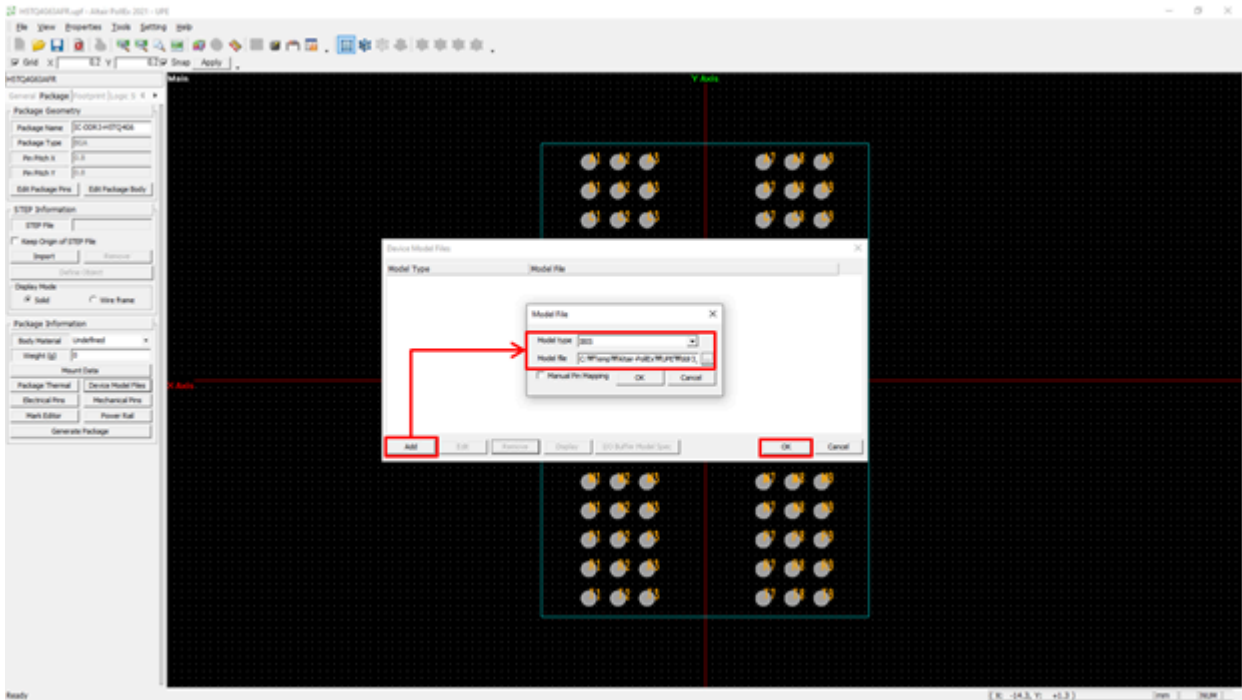


Figure 21:

- t) Click **OK** to add the device model file.
- u) Select the device model file and click **Display**.

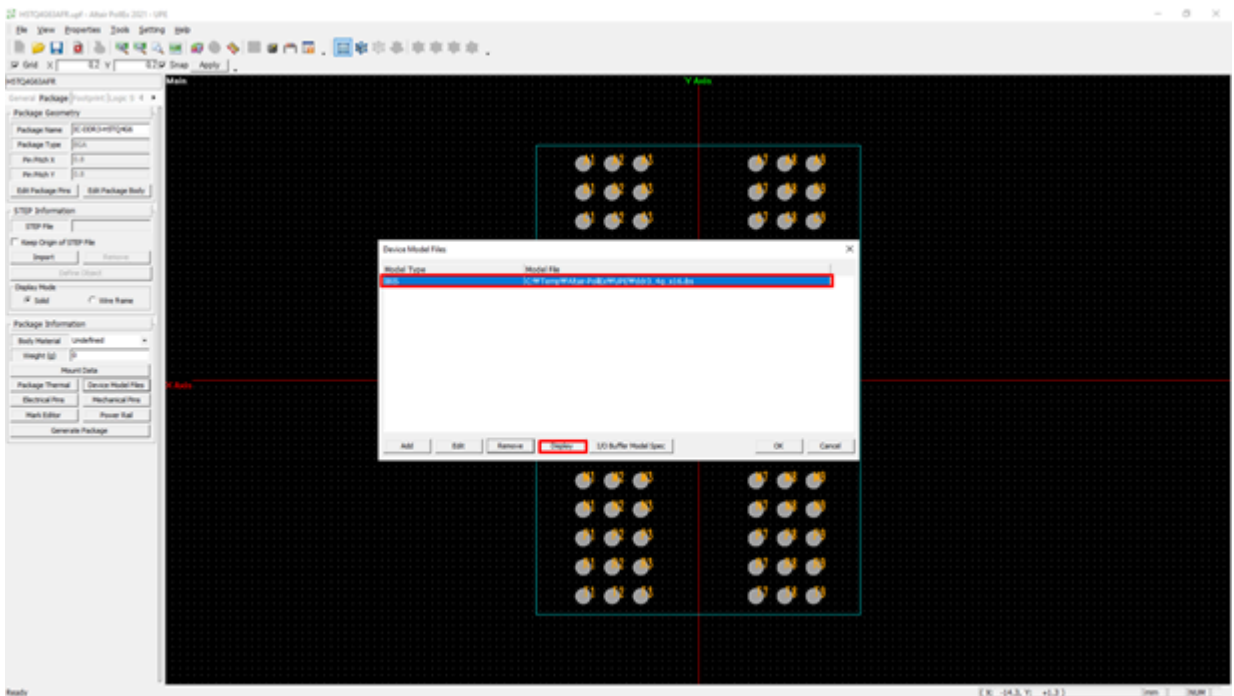


Figure 22:

You can see the detailed information of the device model file.

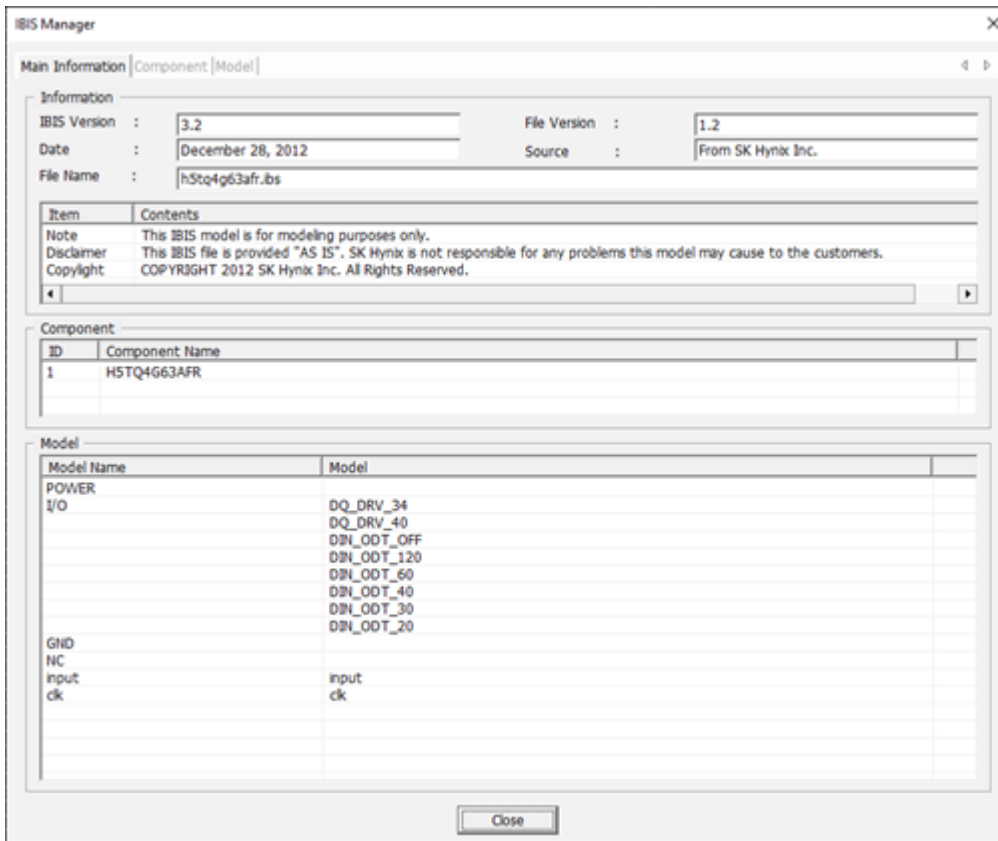


Figure 23:

v) Click **Close** to close the device model information and click **OK** to close the device model file setting.

4. Generate a footprint.

a) Click the **Footprint** tab and click **Add**.

b) Enter a name for the footprint generation and click **Generate Footprint**.

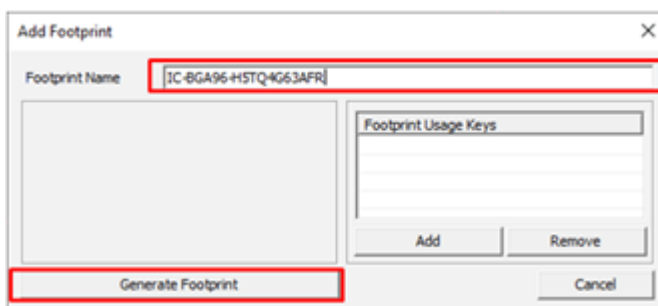


Figure 24:

c) In the Footprint Generation Wizard, enter the Pin pad, Solder resist, and Metal mask information and click **Next**.

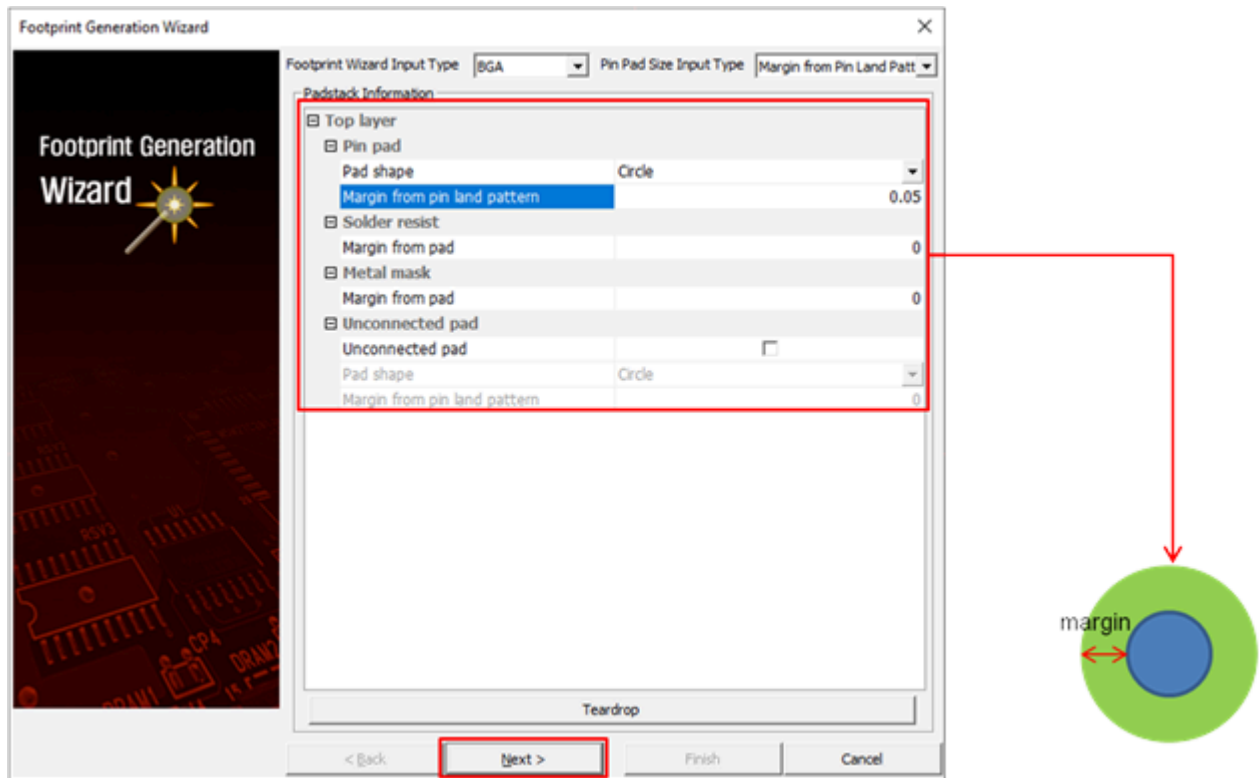


Figure 25:

d) In the CAM Layer Information section, enter Place boundary, Silkscreen, Reference designator test, and Part name text information.

e) Click **Next**.

The generated Footprint geometry can be checked.

f) Click **Finish**.

5. Generate a logic symbol.

a) Click the **Logic Symbol** tab and click **Add** to add a logic symbol.

b) Enter a name for logic symbol, select all pins in the unassigned pins area, and click **Add Pins**.

c) In the **Add Partition** dialog, enter a partition name and click **OK**.
The selected pins are moved to the partitions area.

d) Click **Generate Logic Symbol** to generate a logic symbol.

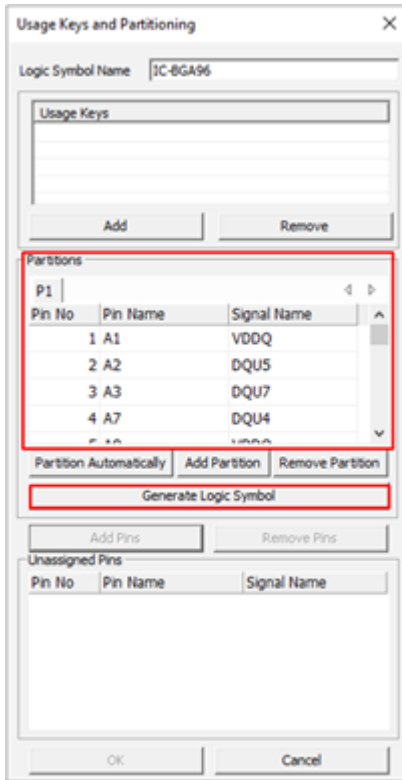


Figure 26:

- e) In the logic symbol generation wizard, enter the dimension size of pins and body and define the locations where part properties are placed.

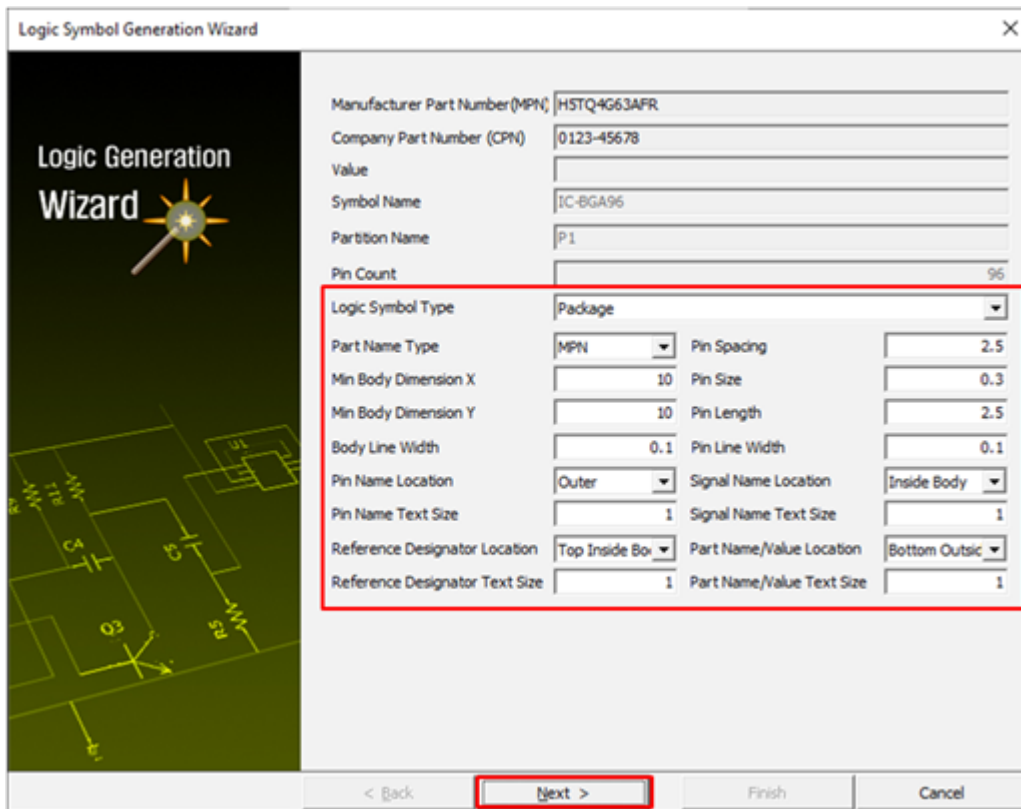


Figure 27:

- f) Click **Next**.
- g) Place pins to all directions of the body.
Twenty-four pins will be placed to each side. One to 24 at left side, 25 to 48 at bottom side, 49 to 72 at right side and 73 to 96 at top side.

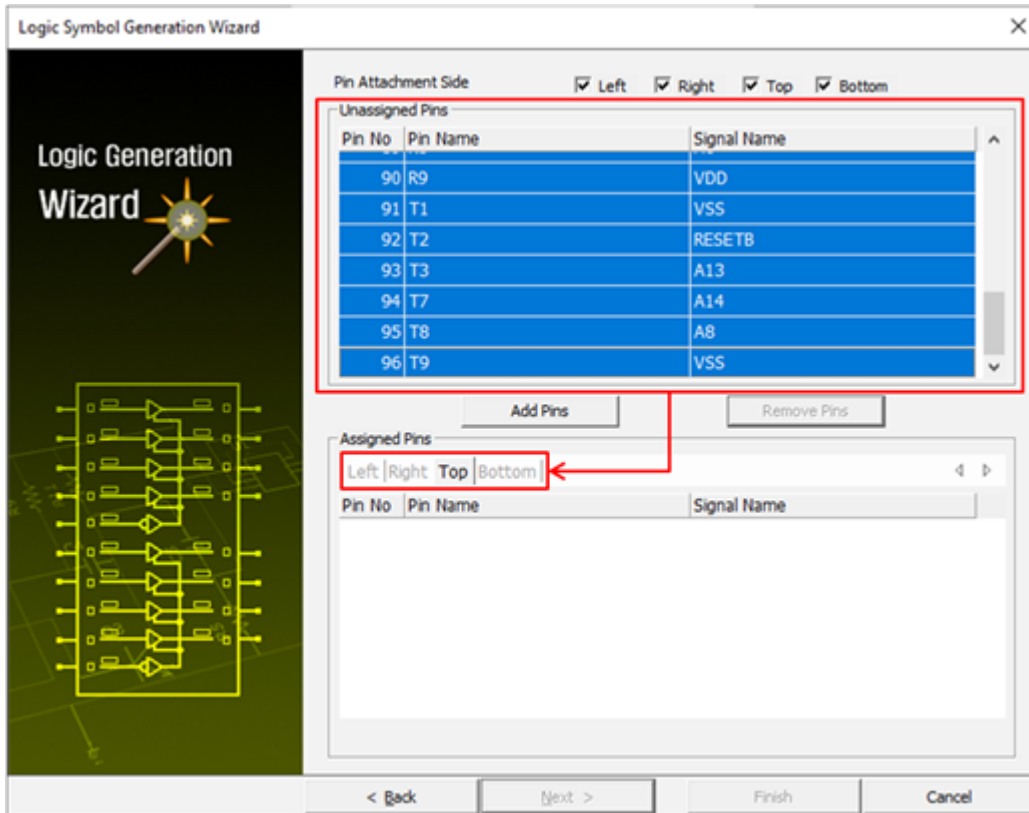


Figure 28:

- h) Click **Next** to confirm the logic symbol.
- i) Confirm the created logic symbol and click **Finish** to close the logic symbol generation wizard.

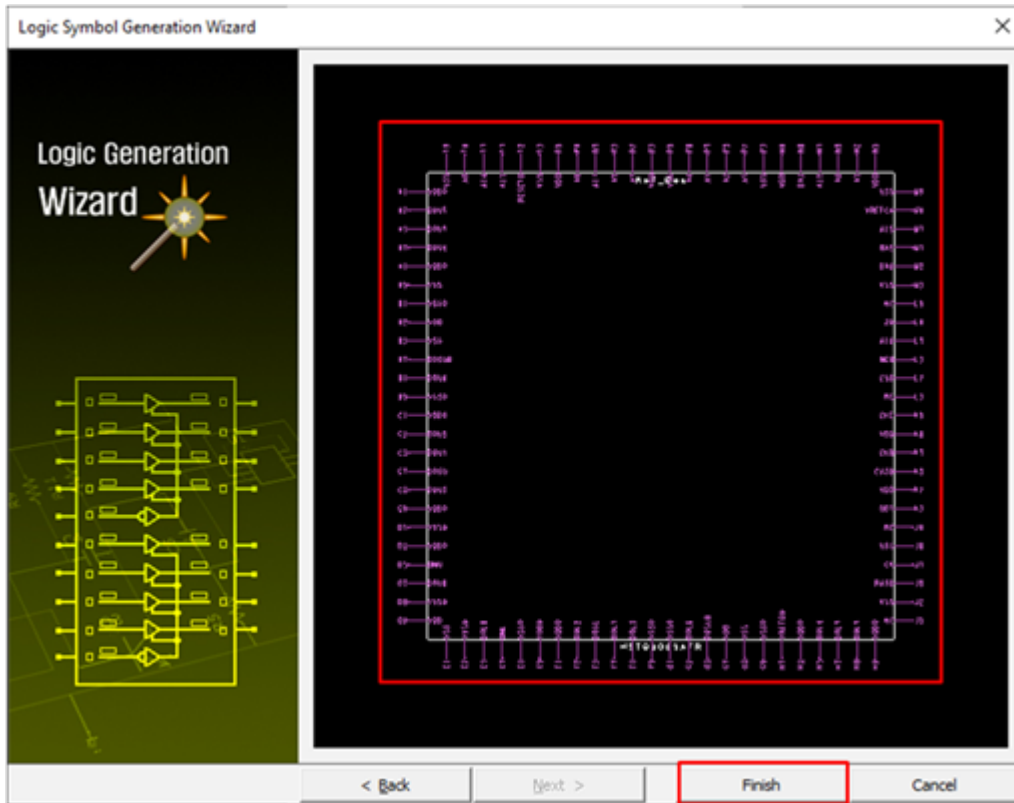


Figure 29:

6. Click the **General** tab to check the general information of the part.
7. Click the **Package** tab and click **Edit Package Body** to check the package shape of the part.

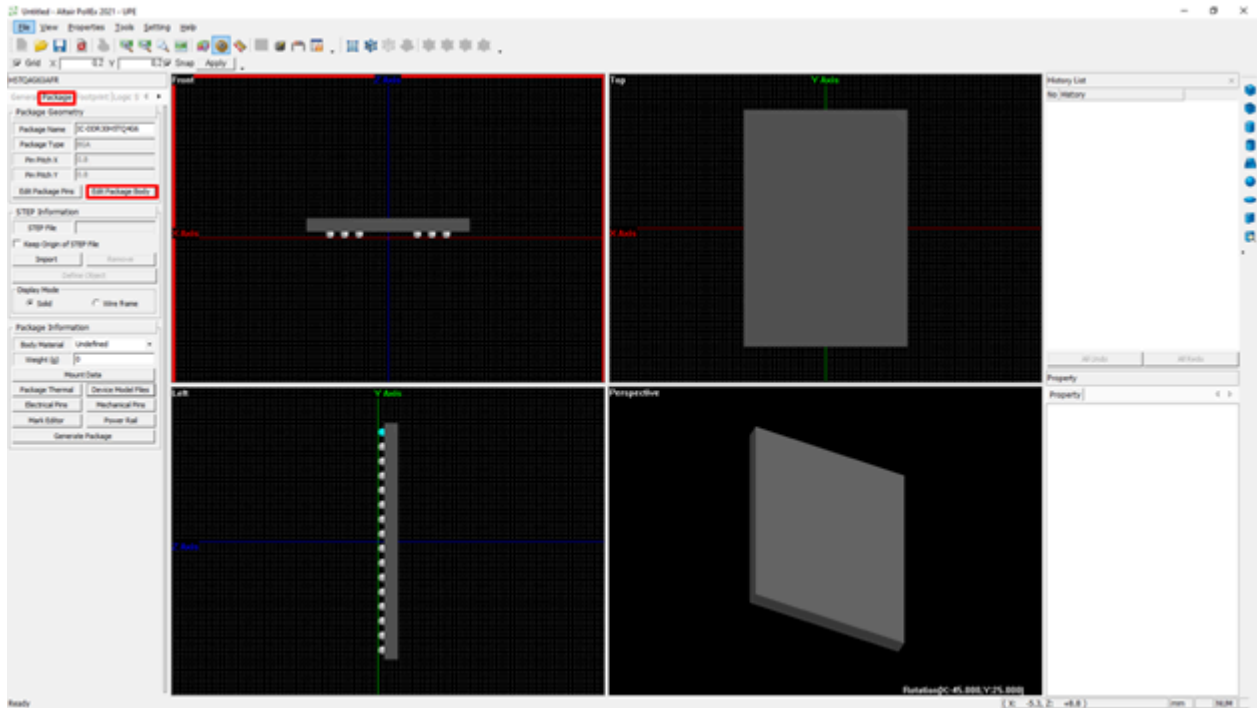


Figure 30:

8. Click the **Footprint** tab to check the footprint shape of the part.
9. Click the **Logic Symbol** tab to check the logic symbol shape of the part.