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# PADS2007

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## Alphanumeric Pins Transition Guide

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# Concepts

This document will introduce you to important design concepts and functionality improvements that have been incorporated into the alphanumeric pins methodology used in the PADS Library, PADS Logic and PADS Layout. These improvements are of significant benefit to users of the DxDesigner to PADS Layout/Router flow in removing some of the legacy requirements imposed on DxDesigner for handling alphanumeric pin numbers within the design flow.

This document is intended as an introduction to basic alphanumeric pins concepts and applications, as well as a reference describing the impacts of the recent changes on the applications and user interface.

## NOTE:



For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

## Objectives

The principal objective of these changes and improvements was to simplify the process of managing large parts with alphanumeric pin numbers in the DxDesigner to PADS Layout/Router flow with minimal impact to other PADS flows.

A secondary objective was to add enhancements to PADS Logic and PADS Layout to simplify the part creation process for large parts with alphanumeric pin numbers.

## Updates

The PCB Decal structure has been updated to allow pin numbers to be numeric, alphanumeric, or non-numeric without the use of a pin mapping table in the Part Type.

## Old Capability

In previous releases, schematic symbols or PCB decals were only assigned numeric pin numbers. To use alphanumeric pin numbers, you provided an alphanumeric pins mapping table whose values overlaid alphanumeric values in place of the underlying numeric pin numbers. This data was stored in the part type.

## New Capability

Part Types can continue to use alphanumeric pin numbers with a pin mapping when the assigned decals have numeric pin numbers. But now they can also use alphanumeric pin numbers without requiring an alphanumeric to numeric pin mapping table. The PCB decal may also contain additional pin numbers for unused or non-electrical pins. This allows the assignment of alternate decals containing mounting pins or heat sink tabs.

# General Description

The PCB Decal structure in PADS Layout and in the PADS Libraries has been updated to allow the definition of any numeric, alphanumeric, or non-numeric pin “numbers” on pins in place of the existing numeric pin number.

This capability is most useful for the larger parts and decals that use a standard numbering scheme such as JEDEC pin numbers.

## Pin Number Assignments without Pin Mapping

Part Types can now use alphanumeric pin numbers without requiring an alphanumeric to numeric pins mapping table. When assigned to a Part Type, the PCB Decal must contain all pin numbers defined in the Part Type, but may contain additional pin numbers for unused or non-electrical pins. This allows the assignment of alternate decals with mounting pins or heat sink tabs.



Schematic symbol and pcb decal both have corresponding alphanumeric pin numbers

## Pin Number Assignment with Pin Mapping

Part Types can use alphanumeric pin numbers with a pin mapping as before when the decals to be assigned have numeric pin numbers.



Schematic symbol with alphanumeric pin numbers mapping to pcb decal with numeric pin numbers

### NOTE:



For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

There are still advantages for retaining an alphanumeric pin mapping list in the Part Type for smaller discrete devices like diodes and transistors. A single SOT23 or TO-39 decal can be used by different manufacturers for a variety of devices each with its own set of “logical” pin number/names such as E, B, C, or G, D, S or A, K. Hence we will retain the ability to store a “logical to physical” pin mapping in the Part Type that converts a logical pin number to a physical pin number on the PCB decal.

# DxDesigner Improvements

DxDesigner differs in the methodology that it uses for mapping alphanumeric pin numbers on schematic symbols to pin numbers on PADS PCB decals.

DxDesigner references the PADS Layout PCB decals through the DEVICE and PKG\_TYPE attribute assignments. The DEVICE attribute is a reference to the PADS Part Type and the PKG\_TYPE is a reference to the PADS PCB decal.

Improvements have been incorporated into the flow that now allow a direct relationship to exist between the schematic symbols and the PCB decals, thereby simplifying the entire process.

## NOTE:



For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

## DxDesigner Alphanumeric Pin Numbering Methodology

When the netlist is passed to PADS Layout, the system tries to locate the part types needed by the design for packaging. Upon locating the part type, the system then looks for the referenced decal. If all of the items are found, the system then matches the pin numbers in the DxDesigner symbols to the pin numbers in the PADS PCB decals to properly package the design.

If the DxDesigner symbol uses alphanumeric pin numbering and the decal uses numeric pin numbering, there will be a mismatch preventing design packaging. Because PADS previously stored the alphanumeric pin mapping table at the part type level, the netlist importer looks for information in the part type to cross reference the alphanumeric pin numbers in the incoming symbols to the numeric pin numbers on the PCB decals.

If an alphanumeric pins mapping table does not exist in the PADS part type definition, the system requires the you to supply this information in the form of a PKGORDER attribute or a .PPN file. The PKGORDER attribute contains the mapping information of the alphanumeric pin numbers to the numeric pin numbers on the decal. If there are large numbers of pins, the .PPN file is created to define this mapping (data in this file is position dependent). On very complex components, this method is time consuming and complex to manage.

## Improvements to DxDesigner Alphanumeric Pin Mapping

With PADS support of direct assignment of alphanumeric pin numbers in the pcb decal, DxDesigner symbols using alphanumeric (JEDEC) pin numbering schemes can now be directly correlated to PADS Layout PCB decals without requiring a .PPN file.

In the new scheme, the alphanumeric (JEDEC) pin numbers can be assigned in the PADS Decal Editor directly to the PCB decal, and no alphanumeric pin mapping table is required. When the DxDesigner design netlist is imported, the PCB decal alphanumeric numbering will now match the symbol pin numbering and the design will package correctly.

You will still find cases where the symbol and the decal will not be numbered with the same scheme. We have preserved the present methods so that you can still continue using your current workflows.

# Methodology

If the pin numbering on the part type and the PCB decal are the same, no pin mapping is required. If the pin numbers on the part type do not use the same numbering scheme as the PCB decal, you can use the Pin Mapping tab to provide the necessary information.

Here we examine the most common methodologies for accomplishing this task and illustrate when to apply pin mapping in the part creation process.

## NOTE:



For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

## Using Pin Mapping Data With PADS Logic

To assign a schematic symbol with alphanumeric pin numbers to a PCB decal with numeric pin numbers:

- 1) Use alphanumeric pin numbers for the schematic symbols in PADS Logic.
- 2) In the Part Type, on the General Tab, select the **Define mapping of Part Type pin numbers to PCB Decal** check box.
- 3) On the PCB Decals Tab, select a decal with numeric pin numbers.
- 4) On the Pins Tab, use alphanumeric pin numbers.
- 5) On the Pin Mapping Tab, enter the mapping.

## Using Pin Mapping Data With DxDesigner

To assign a schematic symbol with alphanumeric pin numbers to a PCB decal with numeric pin numbers:

- 1) Use alphanumeric pin numbers for the schematic symbols in DxDesigner. This includes the use of an attribute mapping or pin mapping file. (If you import the .p file of the part, you can ignore the following steps since it imports all information and sets up your part type.)
- 2) In the Part Type, on the General Tab, select the **Define mapping of Part Type pin numbers to PCB Decal** check box.
- 3) On the PCB Decals Tab, select a decal with numeric pin numbers.
- 4) On the Pins Tab, use alphanumeric pin numbers.
- 5) On the Pin Mapping Tab, enter the mapping.

## Determining Which Method to Use

Example	Part Type Pin Numbering	PCB Decal Pin Numbering	Use Pin Mapping Table
1	Numeric	Numeric	No
2	Alphanumeric	Alphanumeric	No
3	Alphanumeric	Numeric	Yes

# Examples

The methods used to associate the pin numbers on a schematic symbols with those on a PCB decal differ depending upon the pin numbering schemes and whether or not the parts use numeric or alphanumeric numbering schemes. These examples provide details showing how to apply the different methodologies.

## TIP

*Creating your Part Types and PCB Decals with matching pin numbering schemes will allow a direct correlation between your schematic symbols and the PCB decals, thus eliminating the requirement for a pin mapping table. Using this methodology increases productivity while reducing the possibility of errors.*

## NOTE:



For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

### Example 1: Numeric Pins to Numeric Pins

**Scenario:** A schematic symbol for a component has numeric pin numbers. The Part Type assigns the symbol to a PCB decal with the same numeric pin numbers. No pin mapping table is required.

**Example:** A 74HCT series logic device is associated with an SOIC PCB decal with numeric pin numbers.



### Example 2: Alphanumeric Pins to Alphanumeric Pins

**Scenario:** A schematic symbol for a component has alphanumeric (JEDEC) pin numbers. The Part Type assigns the symbol to a PCB decal with the same alphanumeric (JEDEC) pin numbers. Because the symbol and PCB decal numbering schemes match, no pin mapping table is required.

**Example:** An FPGA with JEDEC Pin numbers mapping to a JEDEC pinned BGA package.





# Examples

The methods used to associate the pin numbers on a schematic symbols with those on a PCB decal differ depending upon the pin numbering schemes and whether or not the parts use numeric or alphanumeric numbering schemes. These examples provide details showing how to apply the different methodologies.

## TIP

*Creating your Part Types and PCB Decals with matching pin numbering schemes will allow a direct correlation between your schematic symbols and the PCB decals, thus eliminating the requirement for a pin mapping table. Using this methodology increases productivity while reducing the possibility of errors.*

## NOTE:

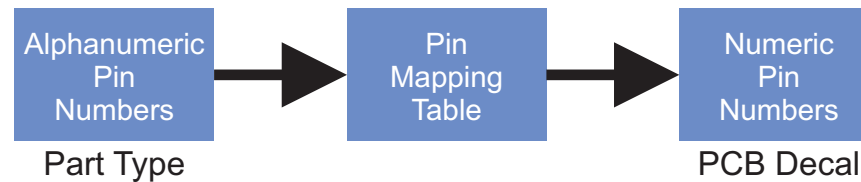


For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

### Example 3: Alphanumeric Pins to Numeric Pins

**Scenario:** A schematic symbol for a component has alphanumeric pin numbers. The Part Type assigns the symbol to a PCB decal with numeric pin numbers. This would require the use of a pin mapping table in the Part Type.

**Example:** An EBC transistor to an SOT-23 with numeric pin numbering.



# Part Type Editor: General Tab

The General Tab has been modified to include a check box for enabling Pin Mapping, a Check Part button and updated Pin Count field. All other interface elements are unchanged.

## TIP

The **General Tab** displays *Part Statistics*, allows the specification of the *Logic Family* and allows you to choose from a selection of *Options* (including the enabling of the pin mapping functionality with the **Define mapping of Part Type pin numbers to PCB Decal** check box).

## NOTE:

For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

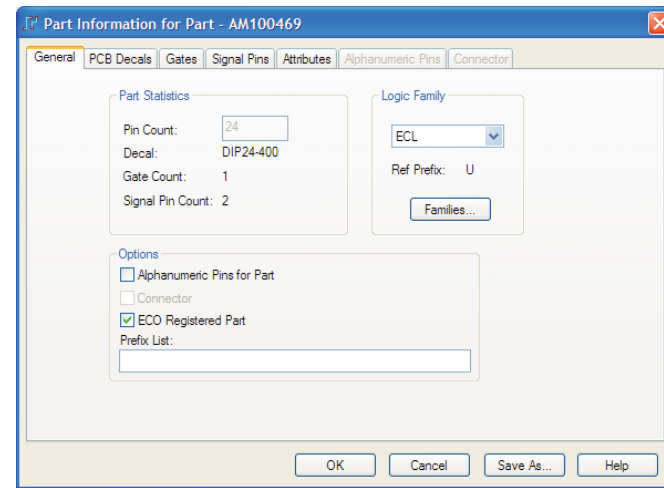
## Changes to the General Tab:

- 1 The **Pin Count** is now a non-editable text field that shows the total number of pins. This total includes gate pins, signal pins and unused pins.
- 2 The check box for enabling Alphanumeric Pins has been replaced by a check box that enables the **Pin Mapping** tab..

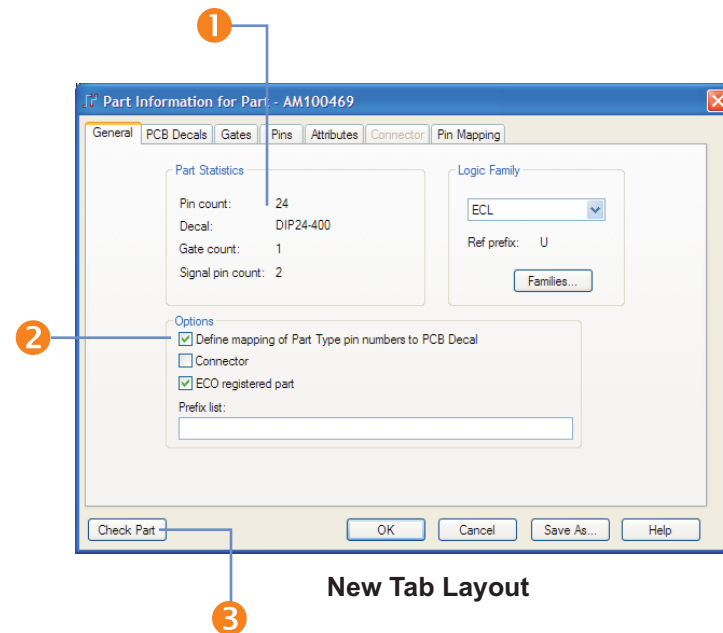
This option allows part types with different alphanumeric “logical” pin numbers to be assigned to PCB decals with numeric “physical” pin numbers.

If the part type and PCB decal pin numbers are the same (alphanumeric to alphanumeric or numeric to numeric), this option is unnecessary.

- 3 To allow checking the part for missing or inconsistent information during editing, a new **Check Part** button has been added.



Previous Tab Layout



New Tab Layout

# Part Type Editor: PCB Decals Tab

The PCB Decals Tab has been modified to include an expanded Preview, a checkbox to enable the display of PCB decals with matching pin numbers, an active Pin Count control and a Check Part button. All other interface elements are unchanged.

## TIP

The *PCB Decals Tab* allows for the selection of the library path, searching and filtering of decal libraries, and assignment of PCB Decals to the Part Type. Interface controls and options allow you to quickly locate and identify candidate decals.

## NOTE:

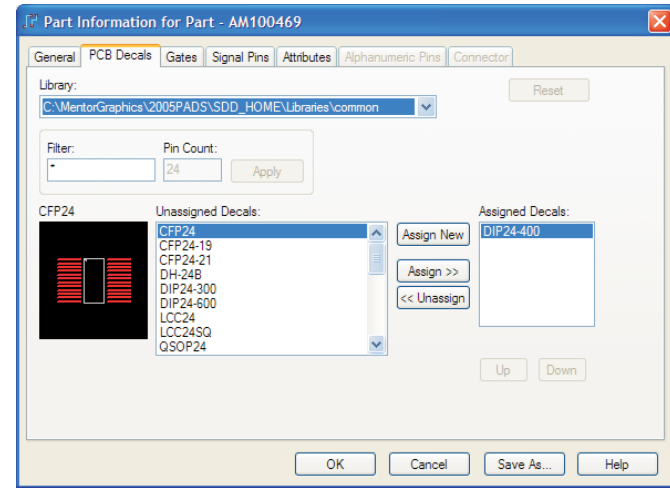
For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

## Changes to the PCB Decals Tab:

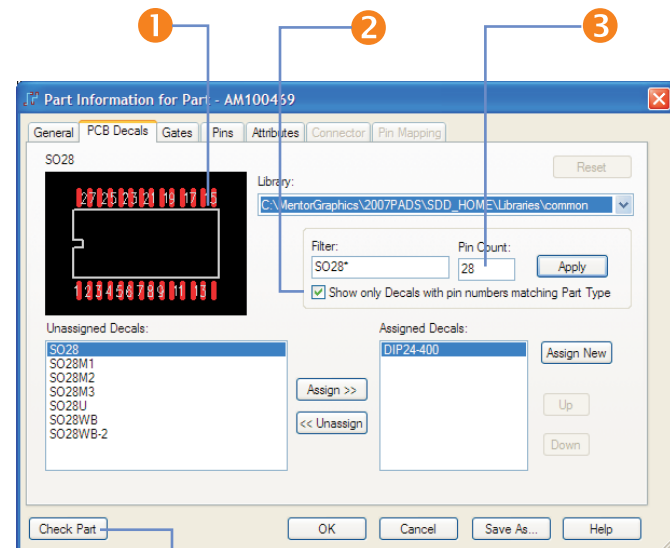
- 1 Expanded **Preview** now displays numeric and/or alphanumeric pin numbers.
- 2 The check box **Show only Decals with pin numbers matching Part Type** controls the Unassigned Decals list.

If checked, it filters out any decals that do not have pin numbers gate and signal pins or the physical pin numbers in the pin mapping tab. Clearing the check box shows all PCB decals with a pin count equal to that set in the Pin Count control.

- 3 The **Pin Count** control is always enabled allowing decals of differing pin counts to be assigned.
- 4 A new **Check Part** button has been added.



Previous Tab Layout



New Tab Layout

# Part Type Editor: Gates Tab

The Gates Tab has been slightly modified. Controls for defining the gate pins have been removed (now located on the Pins Tab), a new Pins column has been added to show the number of pins on each gate, and a new Check Part button has been added. All other interface elements are unchanged.

## TIP

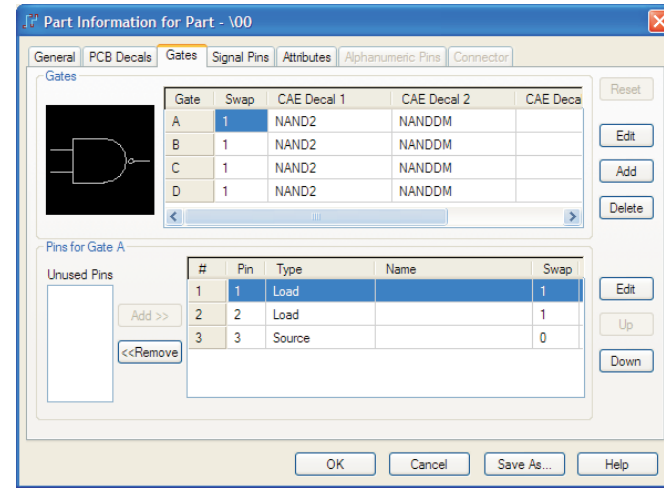
The **Gates Tab** displays the currently selected gate assignments for the Part Type. You can add, delete or edit the assignments and view the pin count for each gate. More advanced editing of the pin information is now performed on the **Pins Tab**.

## NOTE:

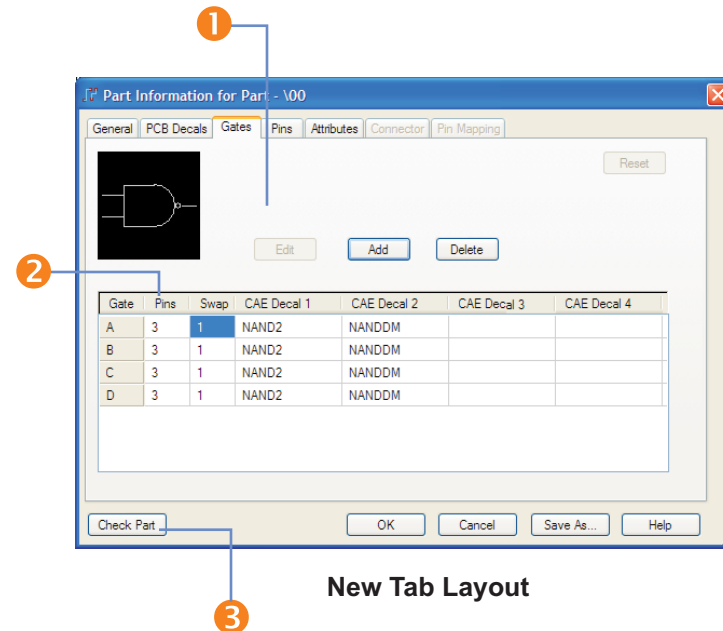
For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

### Changes to the Gates Tab:

- 1 Controls for defining the gate pins have been removed (the function is now accessible on the Pins Tab). Other controls have been rearranged.
- 2 A new non-editable Pins column has been added to show the number of pins defined on each gate.
- 3 A new **Check Part** button has been added.



Previous Tab Layout



New Tab Layout

# Part Type Editor: Pins Tab

The new Pins Tab contains the pin definition functionality for gates, signal pins and unused pins. It allows direct entry of pin numbers of all available numbering schemes. It features a full complement of editing controls and a new Check Part button has been added. All other interface elements are unchanged.

## TIP

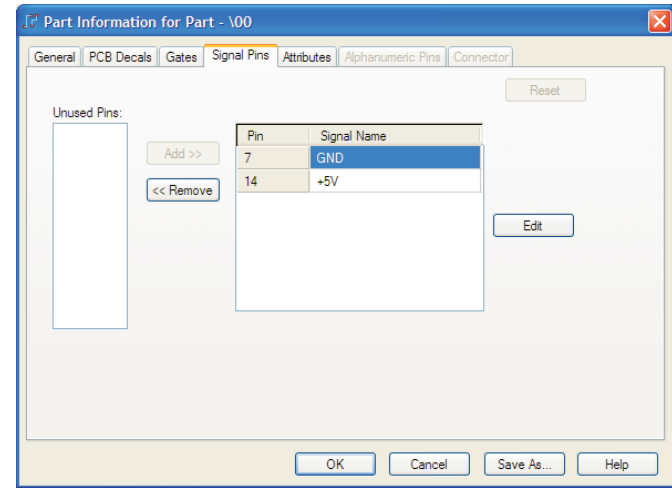
The **Pins Tab** provides comprehensive information related to all of the pins currently assigned in the **Part Type**. Advanced editing controls allow flexible and rapid editing of the data. Use the **Copy**, **Paste** and **Import CSV** features to quickly move information back and forth between spreadsheets, manufacturer's data sheets and the **Pins Tab**.

## NOTE:

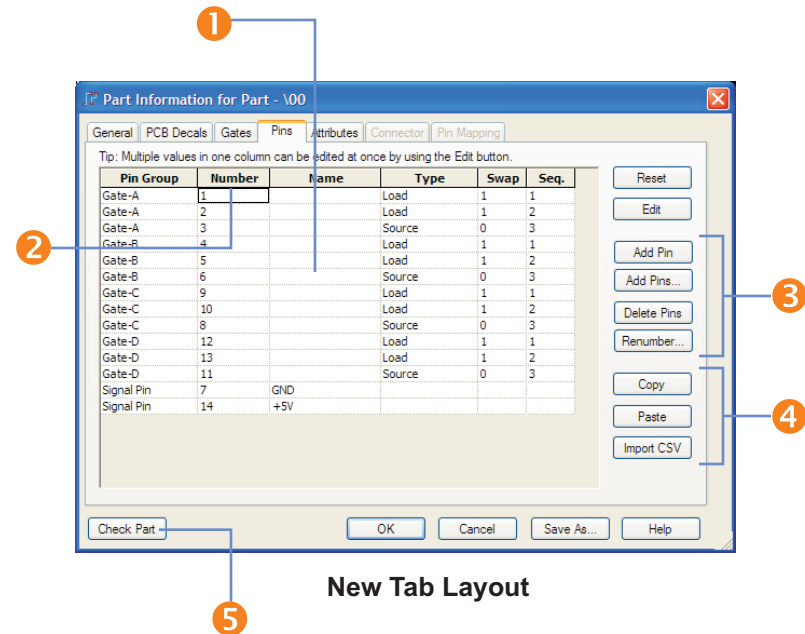
For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

### Changes to the Pins Tab:

- 1 A new spreadsheet control allows for easy display and entry of pin information. All columns are sortable.
- 2 The **Pins Column** allows direct entry of any combination of numeric, alphanumeric and/or non-numeric pin numbers.
- 3 A full complement of controls is provided for adding, deleting and renumbering pins. Group editing operations are also supported.
- 4 **Copy and Paste** operations are supported as well as import of **CSV** files from spreadsheets or datasheet files.
- 5 A new **Check Part** button has been added.



Previous Tab Layout



New Tab Layout

# Part Type Editor: Attributes Tab

The Attributes Tab has received only minor changes. New Copy and Paste controls have been added. A new Check Part button has also been added. Some of the controls have been rearranged. All other interface elements are unchanged.

## TIP

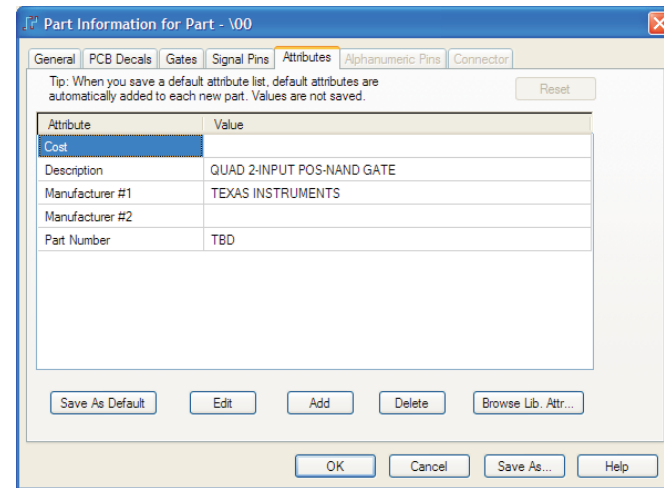
*The **Attributes Tab** allows you to quickly enter all required descriptive information for a **Part Type**. Manufacturer's part numbers, component names, values, costs and numerous other types of information can be assigned. Use the **Copy** and **Paste** commands to rapidly enter data from external sources such as parts lists or manufacturer's data sheets and catalogs.*

## NOTE:

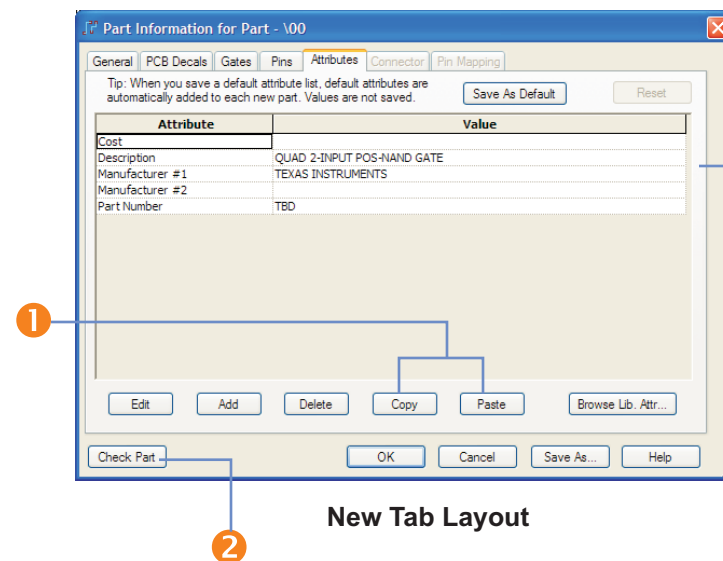
For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

### Changes to the Attributes Tab:

- 1 New Copy and Paste controls have been added to simplify the task of data entry into the attribute fields.
- 2 A new **Check Part** button has been added.



Previous Tab Layout



New Tab Layout

# Part Type Editor: Connector Tab

The Connector Tab has received only minor changes. A new Check Part button has been added. All other interface elements are unchanged.

## TIP

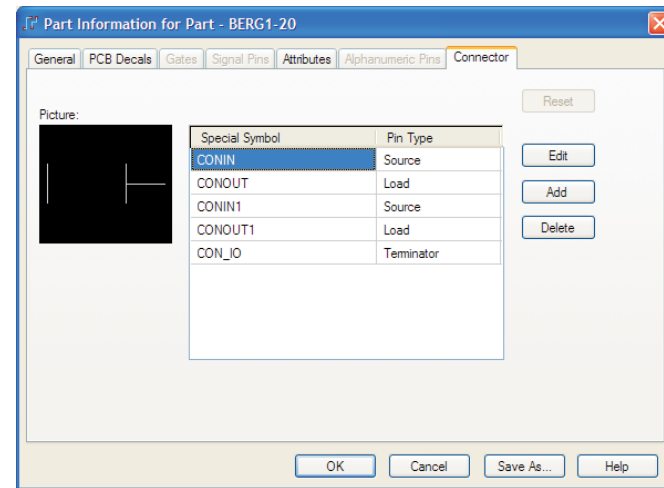
The **Connector Tab** is primarily used to assign special connector symbols to the **Part Type** for use in the schematic. You can also associate a particular pin type with each individual connector symbol for identification and design analysis later in the design process.

## NOTE:

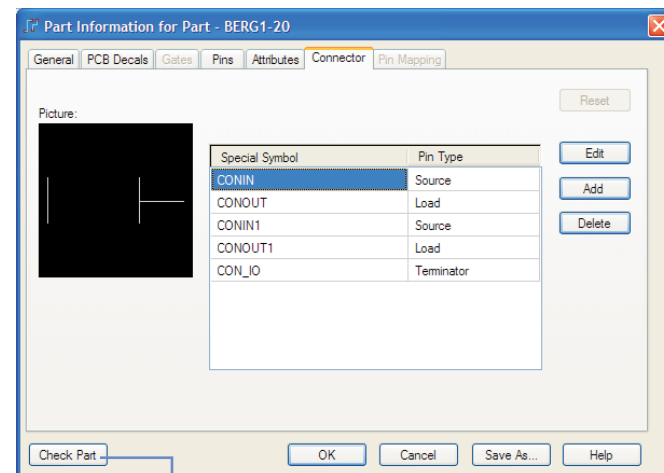
For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

## Changes to the Connector Tab:

- 1 A new **Check Part** button has been added.



Previous Tab Layout



New Tab Layout

# Part Type Editor: Pin Mapping Tab

The new Pin Mapping Tab features a full complement of editing controls for entering pin mapping data. A large Preview is provided and a new Check Part button has been added. All other interface elements are unchanged.

## TIP

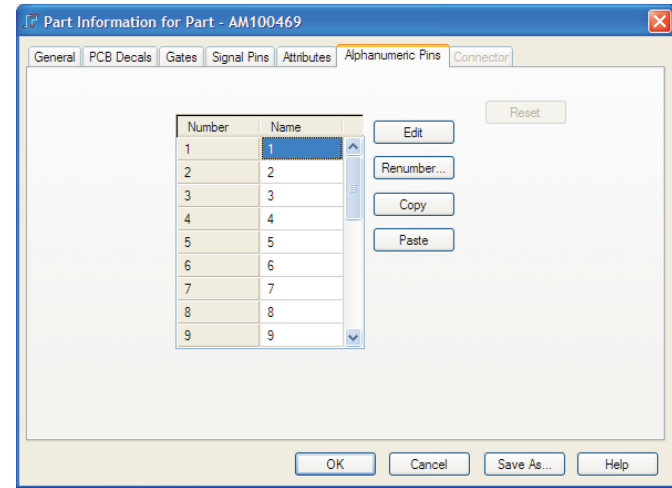
The *Pin Mapping Tab* allows the user to assign **Part Type** pins to PCB Decals that use dissimilar pin numbering systems. **Part Types** using numeric pin numbers can be assigned to PCB Decals using alphanumeric pin numbering. Likewise, **Part Types** with alphanumeric pin numbering can be assigned to PCB Decals using a numeric pin numbering scheme.

## NOTE:

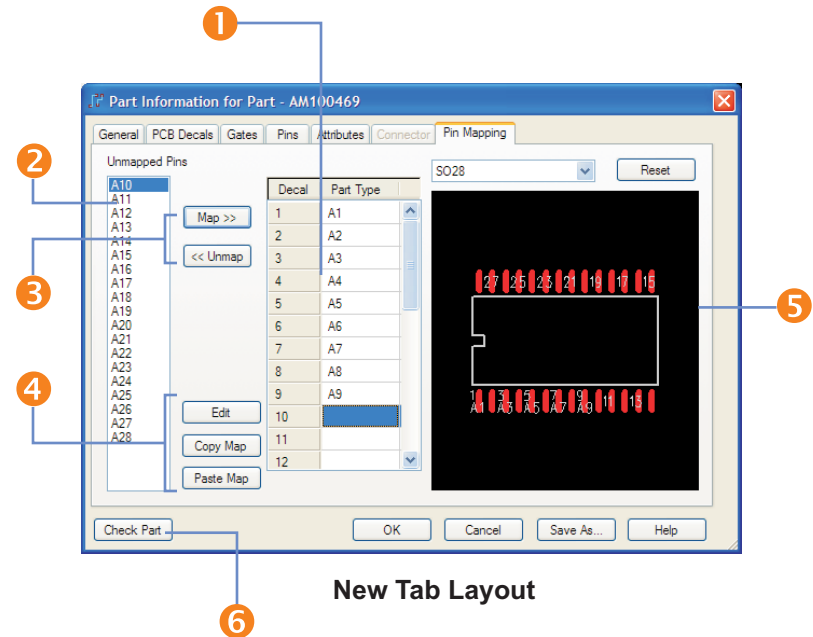
For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

## Alphanumeric Pins Tab replaced by the Pin Mapping Tab:

- 1 The two-column list box allows entry of pin number assignments. Full alphanumeric data entry is supported.
- 2 The list box displays any part type pins that have not been mapped.
- 3 Map and Unmap controls allow quick transfer of already assigned pins into the mapping list box.
- 4 The **Copy Map** and **Paste Map** controls allow easy copying of mapping data to external applications such as Excel for editing of large parts. Data can then be brought back into the mapping table using the paste operation.
- 5 An enhanced Preview allows display of the assigned numeric and alphanumeric pin numbers.
- 6 A new **Check Part** button has been added.



Previous Tab Layout



New Tab Layout



# Change Summary: Parts Library

In addition to the changes discussed in the foregoing documentation, many additional features and functionality changes have been incorporated into the applications in support of enhanced alphanumeric pins methods.

This list represents a summary of the specific changes and enhancements made to the PADS Parts Library.

## NOTE:



For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

## Summary of Changes to the PADS Parts Library

- The structures of the Part Type and PCB Decal items have been changed.
- The PCB decal allows any style of pin number to be attached to each pin if the number is unique for each pin.
- The table of alphanumeric pin numbers currently in the Part Type remains but it is interpreted as a mapping of logical to physical pin numbers. This pin mapping can be removed if the PCB Decal uses the same alphanumeric pin numbers as the Part Type. The pin mapping must define pin numbers for all the decal pins, even the unused pins that are not defined as gate or signal pins in the Part Type.
- The structural changes have been significant, therefore, a conversion program is provided and the library extensions have been modified to .pt07, .pd07, .ld07, .ln07 respectively.
- Conversion of libraries to the new structures preserves any existing alphanumeric pin mappings as “logical” to “physical” pin mappings. The conversion does NOT try to anticipate the your intent and does not attempt to move existing alphanumeric pin numbers to the decals.
- The ASCII format of the Library has changed, but the changes are fairly minimal. Import of older ASCII formats continues to be supported.
- Users of versions of PADS Layout and PADS Logic earlier than PADS2007 will not be able to access the converted libraries and there is no backwards conversion of library data from PADS2007 to earlier formats. However, backwards conversion of PADS Logic and PADS Layout 2007 design data is supported.
- The maximum length of an alphanumeric pin number remains at 7 characters for all products.

## Change Summary: Layout/Router

In addition to the changes discussed in the foregoing documentation, many additional features and functionality changes have been incorporated into the applications in support of enhanced alphanumeric pins methods.

This list represents a summary of the specific changes and enhancements made to PADS Layout/Router.

### NOTE:



For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

### Summary of Changes to PADS Layout/Router

- The design database objects for Part Type and PCB Decal have been changed in a similar way to the corresponding Library objects i.e. pin number fields in the Part Type gate and signal pin structures have been converted to hold strings instead of numeric values, the PCB decal object allows any style of pin number to be attached to each pin.
- Conversion of older binary PCB files to the new structures converts or interprets existing alphanumeric pin lists as “logical” to “physical” pin mappings and assigns default sequential numeric pin numbers to each decal.
- The PADS Layout ASCII format has changed and export back to PADS2005 format is supported. This will work even if you add new parts and decals which store alphanumeric in the decal because there is a “database” order for the decal pins that is used to derive an alphanumeric pin list.
- If part types have a logical to physical pin mapping, the pin numbers for the parts are displayed as the logical pin numbers in the GUI or design. Also, ASCII import/export and ECO import/export accept logical pin numbers, since DxDesigner and PADS Logic use logical pin numbers in their netlists and the applications will generate ECO files from comparison of these netlist files.
- The restriction to have the same pin count on all alternate PCB decals of a Part Type has been removed. Each decal must include all pin numbers defined as gate or signal pins, but each may have a different number of “unused” pins. This allows alternate decals for parts that may or may not include mounting holes. There are new consistency checks on the local editing of decals or on changing alternates, to ensure that a changed decal does not disconnect a connected pin.
- In the Part Editor dialog, the previous Alphanumerics Tab has been replaced with a similar style Pin Mapping Tab.
- The Part Editor dialog now checks alternate decals for pin number consistency between all the decals and the Part Type.
- The Library Manager has an additional command to allow you to transfer alphanumeric pin numbers from a Part Type to its assigned decals and hence remove the pin mapping.

## Change Summary: Layout/Router

In addition to the changes discussed in the foregoing documentation, many additional features and functionality changes have been incorporated into the applications in support of enhanced alphanumeric pins methods.

This list represents a continuation of the summary of the specific changes and enhancements made to PADS Layout/Router.

### Summary of Changes to PADS Layout/Router (Continued)

- The Pad Stack editor dialog already uses physical pin numbers, but they can now be non-numeric.
- The Edit Decal command checks consistency of edited decals with the Part Types in the design that use the decal by ensuring that the decal contains a superset of all the alphanumeric pin numbers used in the Part Types, and that it has pin number consistency with the connected pins in the design. You can change the order of pin numbers in a decal because alternates can have different pin ordering so long as they use the same set of “used” pin numbers.
- The Alternate Decal command for parts, can now swap connections to different decal terminal locations if the pin number order on the selected alternate decal is different. However the new alternate may have different pin numbers for the pins not used in the part type. If any of these “unused” part type pin numbers were connected but don't exist in the new alternate, then the swap to the new alternate cannot be permitted.
- DXF import/export has been updated since it contains the entire PCB database content and is an alternative to ASCII import/export.

#### NOTE:



For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

## Change Summary: PCB Decal Editor

In addition to the changes discussed in the foregoing documentation, many additional features and functionality changes have been incorporated into the applications in support of enhanced alphanumeric pins methods.

This list represents a summary of the specific changes and enhancements made to the PADS Decal Editor.

### NOTE:



For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

### Summary of Changes to the PADS PCB Decal Editor

- The Import and Save Alphanumerics commands have been removed and it is not possible to view logical Part Type pin numbers in the PCB Decal Editor, but the Pin Mapping feature in the Part Type Editor has been enhanced to show the decal in a preview window with both logical and physical pin numbers.
- The Decal Open, Save and SaveAs commands detect which Part Types are using the decal being edited. When the decal is saved, any edits to pin numbers are checked for consistency with the Part Types that use the decal.
- The features in the Part Type Editor for Alphanumeric pin number assignment and renumbering, have been added as a separate dialog command in the PCB Decal Editor, along with Copy/Paste capabilities.
- By default, alphanumeric pin numbers are created as numerics starting from pin “1” as terminals are added. The Add Terminal command has been modified to allow you to set a starting pin number which can be alphanumeric.
- The Step and Repeat command has been modified to allow a starting prefix and suffix for the new terminals, and also an increment value.
- The existing command Assign JEDEC Pinning... is still valid. If alphanumerics are already defined, it replaces them with the new JEDEC pin numbers based on terminal placement.
- The BGA/PGA decal wizards can now make direct JEDEC pin number assignments without having to force the creation of a Part Type when the decal is saved.
- When a decal is saved and it is not currently assigned to a Part Type, you have the option to create a new part type (as before) or assign the decal to an existing Part Type without losing all the information already existing in the Part Type.

# Change Summary: PADS Logic

In addition to the changes discussed in the foregoing documentation, many additional features and functionality changes have been incorporated into the applications in support of enhanced alphanumeric pins methods.

This list represents a summary of the specific changes and enhancements made to PADS Logic.

## Summary of Changes to PADS Logic

- The design database objects for Part Type have been changed in a similar way to the corresponding Library objects i.e. pin number fields in the Part Type gate and signal pin structures have been converted to hold strings instead of numeric values, the list of alphanumeric pin numbers if it exists, will be converted into a logical to physical pin mapping.
- Conversion of older binary Logic files to the new structures is supported.
- Since PCB decals can have any style of pin number, as an added precaution, PCB decal assignments are checked for consistency when generating the PCB netlist.
- PADS Logic ASCII format has changed, and export back to PADS2005 format is supported.
- In the Part Editor dialog, the Alphanumerics Tab has been replaced by a Pin Mapping Tab.
- The Part Editor dialog checks alternate decals for pin number consistency between all assigned PCB decals and the Part Type.
- The Assign PCB Decal command checks for pin number consistency between the assigned PCB decal and the part type.
- The Gate Editor allows any alphanumeric pin number to be defined rather than limiting the choice to the pre-defined list. Also the Set Pin Number command has been upgraded to be compatible with new pin number incrementing options in Layout's PCB Decal Editor.

### NOTE:



For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

# Change Summary: DxDesigner

In addition to the changes discussed in the foregoing documentation, many additional features and functionality changes have been incorporated into the applications in support of enhanced alphanumeric pins methods.

This list represents a summary of the specific changes and enhancements made to DxDesigner.

## NOTE:



For more detailed information and descriptions of the functionality, please refer to the Help systems and product documentation (InfoHub).

## Summary of Changes to DxDesigner

- No changes were required to the schematic or symbol editors, but additional utilities have been added to check pin number consistency on PCB decal assignments done with the PKG\_TYPE attribute on components and symbols. Refer to the DxDesigner product documentation and Help system for additional details.
- The Decal Previewer has been updated to show the physical pin numbers and you are able to browse the PADS library with a dialog similar to the Decal Assignment dialog in the PADS Part Type Editor, to find a decal for assignment to a symbol or part.
- If you have updated your PCB decals to contain alphanumeric pin numbers, you will not need to set a PKGORDER attribute to order the alphanumeric pin numbers since the mapping between pin number and PCB decal terminal is done within the PADS Layout Decal editor. Also, the “PPN File” is no longer necessary. This is a file that serves the same purpose as the PKGORDER attribute when there are too many pins to list in the attribute value. However, the PKGORDER attribute will be retained if the user wants to share the same PCB decal for use with different symbols using different sets of logical pin numbers.
- PCBFWD retains the functionality for interpreting the PKGORDER attribute or PPN file if they already exist but there is no need to control this with a Configuration file option.
- PCBFWD and PCBCK have been updated to support the new PADS2007 ASCII and ECO formats and will create or recognize the logical to physical pin mappings which correspond to the parts that have a .PPN file or PKGORDER attribute.
- Documentation for PKGORDER attributes and .PPN files has been retained but updated to show that the .PPN file can be avoided by defining the alphanumeric pins in the PCB decal.
- Support for this Alphanumeric update is determined by the PADS Layout netlist version defined in the PCB interface configuration file. The PADS configuration file pads2007.cfg will have the appropriate version already defined. If you want to update your own configuration file, you should change the following items:

**Change “LayoutId” value to “PADS2007”.**

**Change “NetFileHeader” value to “!PADS-POWERPCB-V2007.0”**