

Whitepaper

# Finding the Component Data Standard

**How to Successfully  
Research and Validate  
Component Data**



***Abstract:***

Component data comes in many different formats and styles, especially across multiple manufacturers. There are multiple ordering codes and orderable part numbers to describe one part, ever-changing part numbering systems, and prefixes added for certain manufactures. How do you navigate electronic component data and find what you are looking for?

The electronics industry is complex, and each vendor has their own style, standards, and naming conventions around the component. Manually comparing manufactures side by side isn't enough. Normalizing the data is required prior to comparison in order to analyze correctly. Large amounts of man-hours can be lost to meticulous data combing using manual efforts, versus a normalized component database. In addition, manual efforts incur the risk of sub-optimal part selection, due to at-risk parts not being consistently identified.

## ***Component Research and Comparison***

Third party component data providers reduce the time involved in searching for parts, no matter what format, description, manufacturer, or parametric value you require. Having data that is consistently normalized and analyzed, makes every component available to research and design into your end products, including components you have not considered. In the examples below, notice how a database that is specifically designed for electronic component research analyzes and validates data, allowing you to easily compare parts side by side and intelligently analyze your Bill of Materials (BOMs).

### ***Part Number Normalization***

In this ever-changing industry, the many different part number formats, descriptions, and parametric values that can be used to search for a component must be accounted for in order to search across all the possible and available components. Electronic component databases not only keep a record of the manufacturer preferred formats, but also have separate databases that contain and reference all possible data formats and alternate part numbers that could be searched -- allowing for more efficient electronic component research. In addition, these systems normalize all types and formats of data, enabling the user to easily compare different manufacturer's part numbers side-by-side. These actionable and comparable data sets give a competitive advantage to the user.

There are many different types of alternate part numbers and data formats that a third party database takes into account. Below are a few examples:

#### ***1. Multiple Ordering Formats***

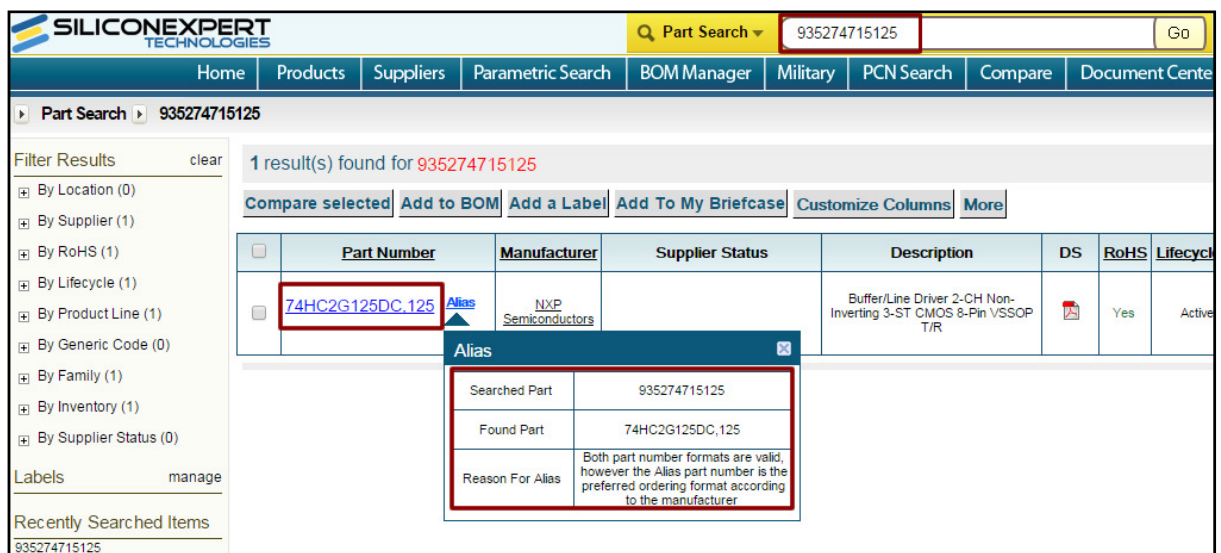
Manufacturers may introduce their products with multiple formats. The database hosts the preferred format of the manufacturer, as well as other related formats that may be searched by a user of the system. When a user researches a format that is not the preferred manufacturer format, the data is automatically mapped and converted —successfully normalizing and standardizing the result to be analyzed and compared in the desired format.

### SiliconExpert Component Database Examples:

I. NXP Semiconductors has two formats for their orderable parts, ordering code (12NC) and orderable part number. SiliconExpert adds the orderable part number to the main database (as this is the preferred format based on the manufacturer). The ordering code is added to the alias database, which allows the system to recognize related formats when used or referenced.

Below is an example for the NXP case  
[http://www.nxp.com/products/logic/buffers\\_inverters\\_drivers/series/74HC\\_T\\_2G125.html#ordering](http://www.nxp.com/products/logic/buffers_inverters_drivers/series/74HC_T_2G125.html#ordering)

Type number	Ordering code (12NC)	Orderable part number	Region	Distributor	In stock	Order quantity	Inventory date	Buy online	Samples
74HC2G125DC	9352 747 15125	74HC2G125DC,125							Not available
74HC2G125DP	9352 700 85125	74HC2G125DP,125	Global	Rochester Electronics	9,000	1	10/28/2015	<a href="#">Buy</a>	<a href="#">Order samples</a>
			NA	DigiKey	3,043	1	10/28/2015	<a href="#">Buy</a>	
			NA	Mouser Electronics	1,209		10/27/2015	<a href="#">Buy</a>	
74HC2G125GD	9352 873 32125	74HC2G125GD,125						<a href="#">Order samples</a>	
74HCT2G125DC	9352 747 07125	74HCT2G125DC,125	NA	DigiKey	11,621	1	10/28/2015	<a href="#">Buy</a>	<a href="#">Order samples</a>
			Global	Rochester	3,000	1	10/28/2015	<a href="#">Buy</a>	



The screenshot shows the SiliconExpert Part Search interface. The search bar contains the part number 935274715125. The search results show 1 result(s) found for 935274715125. The result is a Buffer/Line Driver 2-CH Non-Inverting 3-ST CMOS 8-Pin VSSOP T/R. The Part Number field is highlighted with a red box, and an alias popup is displayed. The alias popup shows the Searched Part (935274715125) and the Found Part (74HC2G125DC,125). The Reason For Alias is: Both part number formats are valid, however the Alias part number is the preferred ordering format according to the manufacturer.

- II. KOA Corporation is adopting a new global part numbering system. KOA Corporation currently has three different part numbering systems globally:
- o One system in Japan/Asia - KOA Japan
  - o 2nd in Europe - KOA Europe
  - o 3rd in North & South America - KOA Speer Electronics

Please refer to this link,  
<http://www.koaspeer.com/global-parts/>

Below is an example of the three different part numbering systems along with the new global part numbering system. This is the same part; the only difference is the geographical part number.

**Part Description:** 1206,thick film,chip resistor, 1%, 100ppm/C, 10KΩ, 7" paper tape and reel

**KOA Japan/Asia:** RK73H2BTD 10KΩ F

**KOA Europe:** RK73H2BFTD 10K

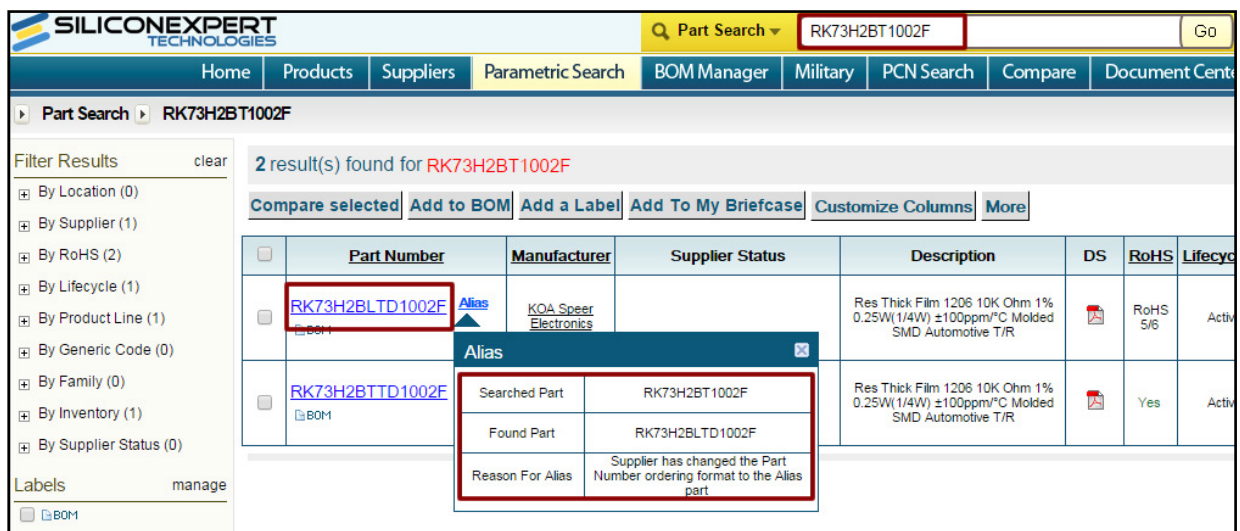
**KOA Speer:** RK73H2BT1002F

**New Global Part Number:** RK73H2BLTD1002F

Breakdown of the New Global Part Number: RK73H2BLTD1002F

RK73H 2B L TD 1002 E

SiliconExpert added the “New Global Part Number” format to the main database and add the other part numbering formats to the Alias database.



The screenshot shows the SiliconExpert search interface. The search bar contains 'RK73H2BT1002F'. The results show 2 results found. The first result is 'RK73H2BLTD1002F' with an 'Alias' label. A pop-up window titled 'Alias' shows the mapping: Searched Part: RK73H2BT1002F, Found Part: RK73H2BLTD1002F, Reason For Alias: Supplier has changed the Part Number ordering format to the Alias part.

Part Number	Manufacturer	Supplier Status	Description	DS	RoHS	Lifecycle
RK73H2BLTD1002F <small>(BOM)</small>	KOA Speer Electronics		Res Thick Film 1206 10K Ohm 1% 0.25W(1/4W) ±100ppm/°C Molded SMD Automotive T/R		RoHS 5/6	Active
RK73H2BTTD1002F <small>(BOM)</small>			Res Thick Film 1206 10K Ohm 1% 0.25W(1/4W) ±100ppm/°C Molded SMD Automotive T/R		Yes	Active

## 2. Changes/Updates in the Part Number Format

Sometimes the manufacturer changes or updates the part number ordering format. This may be due to an acquisition, where the ordering information will update according to the buyer's standards rather than keeping the acquired manufacturer's formatting.

Third party databases keep both data sets, adding the new format to the electronics component database and the historical formatting, so that all data is standardized.

### SiliconExpert Component Database Examples:

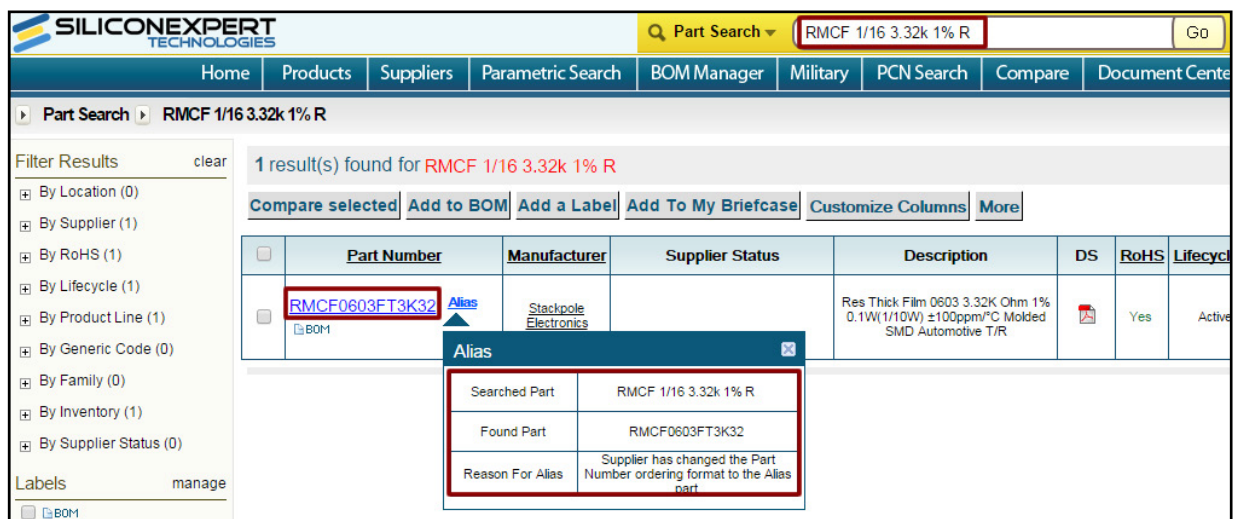
I. Stackpole announced a new part numbering system on 2011 as mentioned on the below link:

[https://seielect.com/news/20100730\\_PartNumberChange.htm](https://seielect.com/news/20100730_PartNumberChange.htm)

The following is an example of a thick film chip resistor along with our current part number and the new global part number:

- **Description** – Chip Resistor, 0603, 3.32Kohm, 1%, 1/10W, Tape and Reel
- **Current Stackpole Part** – RMCF 1/16 3.32K 1% R
- **New Stackpole Part** – RMCF0603FT3K32

RMCF	0603	F	T	3K32
SEI Series	Size	Tolerance	Packaging	Value



The screenshot shows the SiliconExpert search interface. The search bar contains "RMCF 1/16 3.32k 1% R". The results show one result for "RMCF 1/16 3.32k 1% R". An alias for "RMCF0603FT3K32" is shown, with a tooltip explaining the change.

Part Number	Manufacturer	Supplier Status	Description	DS	RoHS	Lifecycle
RMCF0603FT3K32	Stackpole Electronics		Res Thick Film 0603 3.32K Ohm 1% 0.1W(1/10W) ±100ppm/°C Molded SMD Automotive T/R		Yes	Active

Alias	
Searched Part	RMCF 1/16 3.32k 1% R
Found Part	RMCF0603FT3K32
Reason For Alias	Supplier has changed the Part Number ordering format to the Alias part

**II.** Giantec Semiconductor changed the part number prefix of ISSI EEPROM products after separating this business unit from ISSI as mentioned in the below link:

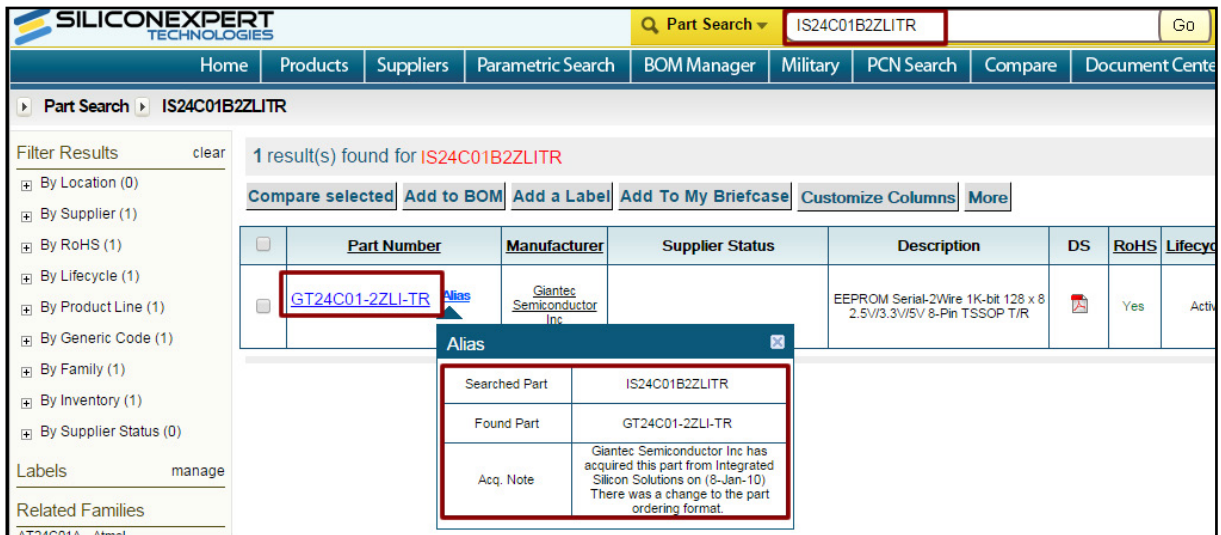
[http://download.siliconexpert.com/pdfs/2010/9/16/3/51/1/847/gians\\_/manual/pmn\\_issi\\_ee\\_migration.pdf](http://download.siliconexpert.com/pdfs/2010/9/16/3/51/1/847/gians_/manual/pmn_issi_ee_migration.pdf)



## Appendix 1

P/Ns are updated

ISSI P/Ns	Giantec P/Ns	ISSI P/Ns	Giantec P/Ns
IS24C01B-2GLI-TR	<a href="#">GT24C01-2GLI-TR</a>	IS25C01-2GLI-TR	<a href="#">GT25C01-2GLI-TR</a>
IS24C01B-2ZLI-TR	<a href="#">GT24C01-2ZLI-TR</a>	IS25C01-2ZLI-TR	<a href="#">GT25C01-2ZLI-TR</a>
IS24C02A-2SLI-TR	<a href="#">GT24C02-2SLI-TR</a>	IS25C02-2GLI-TR	<a href="#">GT25C02-2GLI-TR</a>
IS24C02E-2SLI-TR	<a href="#">GT24C02-2SLI-TR</a>	IS25C02-2ZLI-TR	<a href="#">GT25C02-2ZLI-TR</a>



**SILICONEXPERT TECHNOLOGIES** Part Search  Go

Home Products Suppliers Parametric Search BOM Manager Military PCN Search Compare Document Center

Part Search

Filter Results

1 result(s) found for **IS24C01B2ZLI-TR**

[Compare selected](#) [Add to BOM](#) [Add a Label](#) [Add To My Briefcase](#) [Customize Columns](#) [More](#)

Part Number	Manufacturer	Supplier Status	Description	DS	RoHS	Lifecycle
<a href="#">GT24C01-2ZLI-TR</a> <small>Alias</small>	Giantec Semiconductor Inc		EEPROM Serial-2Wire 1K-bit 128 x 8 2.5V/3.3V/5V 8-Pin TSSOP T/R		Yes	Active

**Alias**

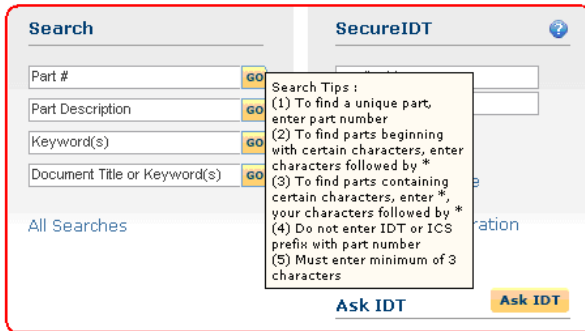
Searched Part	IS24C01B2ZLI-TR
Found Part	GT24C01-2ZLI-TR
Acq. Note	Giantec Semiconductor Inc has acquired this part from Integrated Silicon Solutions on (8-Jan-10) There was a change to the part ordering format.

### 3. Parts with/without a Manufacturer Prefix

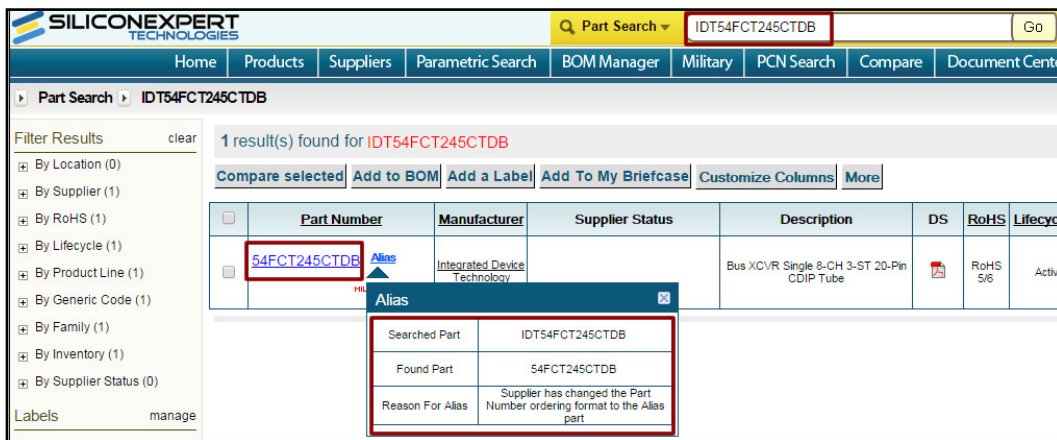
As a final scenario, some manufacturers remove the prefix from their part numbers, however the users may still use the parts with a prefix and vice versa.

**SiliconExpert Component Database Examples:**

I. Integrated Device Technology removed the prefix “IDT or ICS” from beginning of their part numbers.



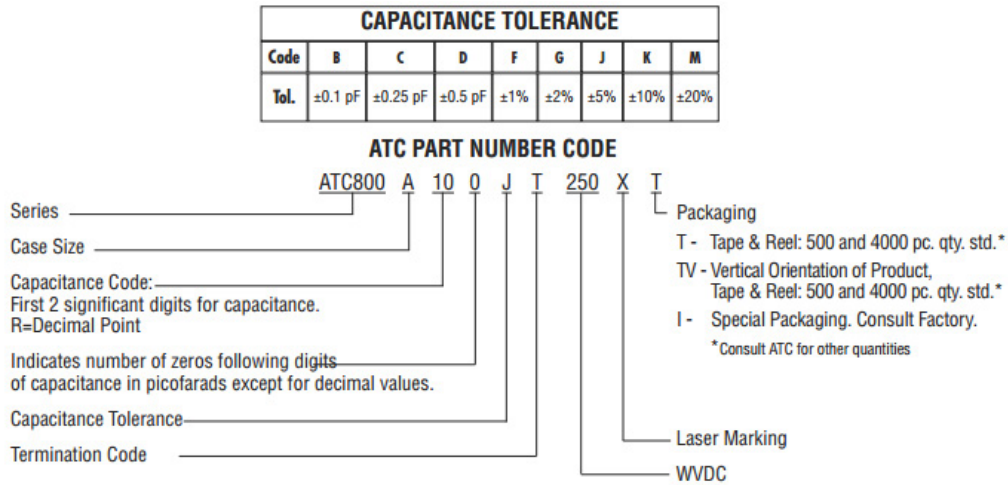
SiliconExpert adds the parts without the “IDT” & “ICS” prefix to the main database and keep another version of the parts with the prefix in the Alias database for reference so either part number can be searched to return the correct value.



II. American Technical Ceramics accepts orders for their parts using designations with or without the “ATC” prefix. Both methods of defining the part number are equivalent, i.e., part numbers referenced with the “ATC” prefix are interchangeable to parts referenced without the “ATC” prefix.



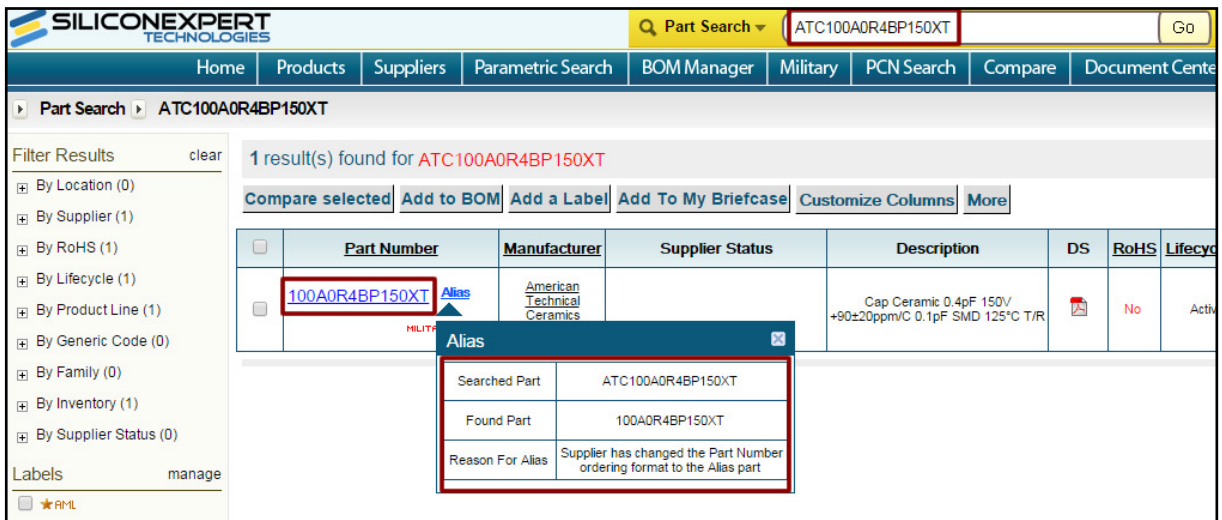
In this case, both formats (with/without prefix) are acceptable from the manufacturer. SiliconExpert adds the part number without the prefix to the main database and add the other with the prefix to the alias database.



The above part number refers to a 800 A Series (case size A) 10 pF capacitor, J tolerance (±5%), 150 WVDC, with T termination (Tin Plated over Nickel Barrier, RoHS Compliant), laser marking and tape and reel packaging.

ATC accepts orders for our parts using designations **with or without** the "ATC" prefix. Both methods of defining the part number are equivalent, i.e., part numbers referenced with the "ATC" prefix are interchangeable to parts referenced without the "ATC" prefix. Customers are free to use either in specifying or procuring parts from American Technical Ceramics.

For additional information and catalogs contact your ATC representative or call direct at (+1-631) 622-4700.  
Consult factory for additional performance data.



**SILICONEXPERT TECHNOLOGIES** Part Search ATC100A0R4BP150XT

Home Products Suppliers Parametric Search BOM Manager Military PCN Search Compare Document Center

Part Search ATC100A0R4BP150XT

Filter Results clear

- By Location (0)
- By Supplier (1)
- By RoHS (1)
- By Lifecycle (1)
- By Product Line (1)
- By Generic Code (0)
- By Family (0)
- By Inventory (1)
- By Supplier Status (0)

Labels manage

1 result(s) found for ATC100A0R4BP150XT

Compare selected Add to BOM Add a Label Add To My Briefcase Customize Columns More

Part Number	Manufacturer	Supplier Status	Description	DS	RoHS	Lifecycle
100A0R4BP150XT	American Technical Ceramics		Cap Ceramic 0.4pF 150V +90±20ppm/C 0.1pF SMD 125°C T/R		No	Acti

**Alias**

Searched Part	ATC100A0R4BP150XT
Found Part	100A0R4BP150XT
Reason For Alias	Supplier has changed the Part Number ordering format to the Alias part

## ***Scrubbing Bill of Materials***

In order to scrub a bill of materials and align data with either an internal database or an external third party electronic component database, there must be a component validation process. This includes matching all manufacturer part numbers and associated data points with your internal company part number and existing data. For many companies, this is a meticulous process that is done line item by line item, using outside resources like google and manufacturer websites to attempt to gather the most up-to-date information. With a third party database, it is simply a matter of mapping your data to the already up-to-date electronic component database.

### ***Manufacturer Name Normalization***

In this industry, searching the internet for component research presents a number of problems. It limits the search results to what that particular engineer knows, how up-to-date they are with acquisitions, and what data formats they prefer when searching. Internal records are prone to manufacturer name errors, which can lead to sourcing, inventory, and supply chain roadblocks.

Electronic component databases not only keep a database of the current manufacturer preferred names, but also have separate databases that contain and reference all the possible manufacturer names that should map to the standard manufacturer name—making electronic component research efficient and part mapping seamless. This process catches for manufacturer acquisitions and potential misspellings as well.

The full list of types of formats that are caught and corrected using a third party database include:

- o Incomplete manufacturer names
- o Incorrect manufacturer names
- o Manufacturer abbreviations
- o Manufacturer cage codes
- o Old conventional manufacturer names

*SiliconExpert component database example:*

Manufacturer Name (Customer)	Normalized SiliconExpert Manufacturer Name	Type
STMICROELEC	STMicroelectronics	Incomplete manufacturer name
ADI	Analog Devices	Manufacturer abbreviation
TI	Texas Instruments	Manufacturer abbreviation
M0LEXX	Molex	Incorrect manufacturer name
TYCO ELECTRONICS	TE Connectivity Ltd	Old conventional manufacturer name
Hynix Semiconductor	SK Hynix Inc.	Old conventional manufacturer name
73803	Texas Instruments	Manufacturer cage codes
BURR-BROW	Texas Instruments	Manufacturer acquisition

*SiliconExpert's manufacturer Alias database contains normalization names for around **36K** manufacturers, with around **150K** records. More importantly, it allows SiliconExpert to successfully validate YOUR parts in any given BOM.*

**Successfully Research & Validate Component Data**

When it comes to component research and validating components in your bill of materials, it is not always as simple as finding the most up-to-date data. Data comes in many different formats and styles that are constantly changing as the electronics industry changes. In this industry, there are multiple ordering codes and multiple orderable part numbers to describe one part, ever-changing part numbering systems, and prefixes added for certain manufactures. Navigating electronic component data manually can cost your company large amounts of man-hours spent meticulous data-combing limited data.

SiliconExpert provides you with the relevant data and insight needed to remove risk from the supply chain. Over 400 electrical, software and data engineers handcraft our component database to deliver the most comprehensive and current tools in the industry. SiliconExpert manages the ever-changing component data formats so you can focus on making better component decisions, faster.

### *About SiliconExpert*

SiliconExpert Technologies' provides the relevant data and insight needed to remove risk from the supply chain. Over 400 electrical, software and data engineers handcraft our component database to deliver the most comprehensive and current tools in the industry. Our customers use our solutions to manage risk, avoid redesigns, and mitigate obsolescence. SiliconExpert's customers include: leading commercial and government OEMs, top-tier authorized distributors, contract manufacturers and component suppliers. Learn more about SiliconExpert's solutions at <http://www.siliconexpert.com>.

