IMPORTANT FPX Guidelines

The Library Expert FPX files contain the component Package Dimensions, unique 3D STEP colors, Polarity Markings and Mfr. Recommended Pattern Dimensions. It also contains the Mfr. Name, Case Code, Part Number, Logical Description and Datasheet URL web-link.

There are hundreds of footprints that have the same identical name with different tolerances and thermal pad sizes. The BGA, SM and TH FPX files are intended to be used as a library source for users to quickly locate the correct component package data row and copy/paste that row from BGA, SM or TH FPX into your personal library. When doing so, it's up to you the user to rename the footprint to avoid duplicate footprint names with tolerance and thermal pad differences.

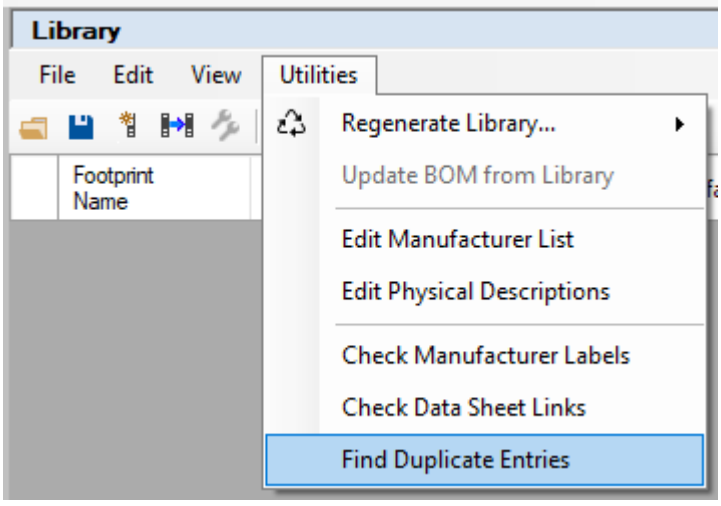
The BGA, SM and TH FPX files is to be used as "reference only". PCB Libraries, Inc. is not responsible for component dimensional typographical errors or changes that may occur over time. It's up to each user to verify every component dimension with the corresponding mfr. datasheet to ensure that all the dimensions match. If you find a dimension that is not correct, or you just find questionable, please report it..

PCB Libraries Footprint Naming Convention Recommendations

Download the IPC-7351 Land Pattern Naming Convention here - Library Expert Land Pattern Names

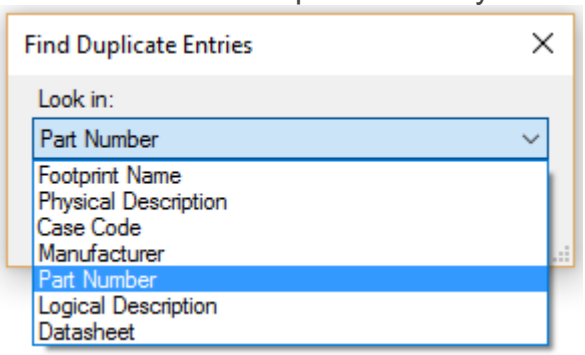
PCB Libraries Footprint Naming Convention Recommendations

It is perfectly normal to have duplicate Footprint Names in a FPX file as long as every component dimension and package tolerances are identical. However, the Mfr. Part Number is unique for every electronic device. You can use the "**Tools > Find Duplicates > Part Number**" feature in the Library Editor to quickly locate duplicate Part Numbers.



IMPORTANT FPX Guidelines

Then a window will open to allow you to select any Column Attribute in your FPX file.

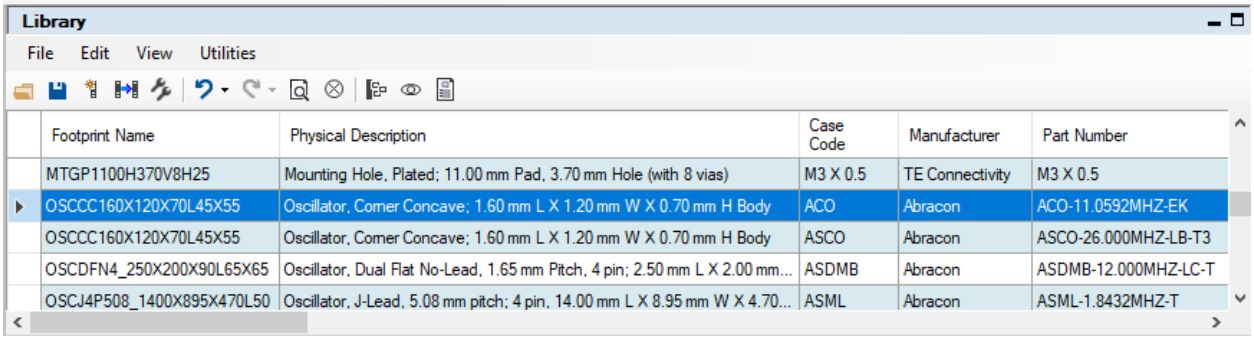


Duplicate Footprint Names and these are perfectly acceptable in an FPX file as long as the physical component dimensions are identical. A good example of duplicate Footprint Names is when multiple component manufacturers create the same identical physical package and you want to keep track of all the different sources for any particular component. When using the "Batch Create" feature in the "Librarian" will only create 1 of each Footprint Name.Â And this is exactly what you want if you have identical package dimensions.

Component Manufacturer Footprint Recommendations

There are many instances where PCB Libraries promotes the use of component manufacturer recommended footprint patterns. A good example of this is in the Corner Concave or Side Concave "Oscillator" component families. The Footprint Expert automates the creation and storage of mfr. recommended patterns.

Here is a line item in the FPX file - Selecting the gray box on the left of the footprint name will highlight row



Footprint Name	Physical Description	Case Code	Manufacturer	Part Number
MTGP1100H370V8H25	Mounting Hole, Plated; 11.00 mm Pad, 3.70 mm Hole (with 8 vias)	M3 X 0.5	TE Connectivity	M3 X 0.5
OSCCC160X120X70L45X55	Oscillator, Corner Concave; 1.60 mm L X 1.20 mm W X 0.70 mm H Body	ACO	Abracon	ACO-11.0592MHZ-EK
OSCCC160X120X70L45X55	Oscillator, Corner Concave; 1.60 mm L X 1.20 mm W X 0.70 mm H Body	ASCO	Abracon	ASCO-26.000MHZ-LB-T3
OSCDFN4_250X200X90L65X65	Oscillator, Dual Flat No-Lead, 1.65 mm Pitch, 4 pin; 2.50 mm L X 2.00 mm...	ASDMB	Abracon	ASDMB-12.000MHZ-LC-T
OSCJ4P508_1400X895X470L50	Oscillator, J-Lead, 5.08 mm pitch; 4 pin, 14.00 mm L X 8.95 mm W X 4.70...	ASML	Abracon	ASML-1.8432MHZ-T

IMPORTANT FPX Guidelines

Here are the component dimensions for the OSCCC320X250X100L80X100 package -

Component Type: Oscillator, Corner Concave

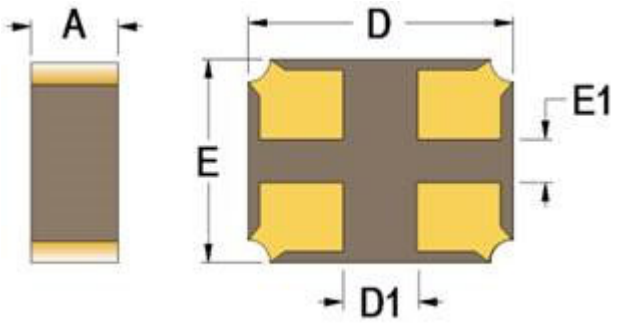
Component | Terminal | Rules | Drafting | Footprint

Dimensions | Settings | 3D Colors

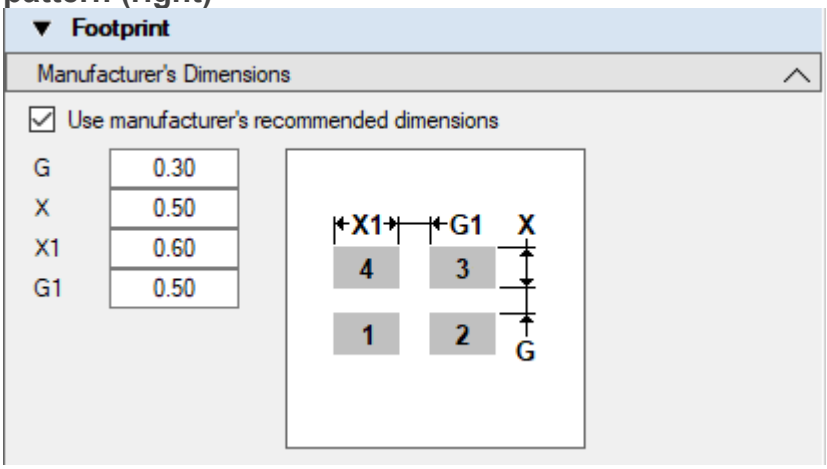
Set tab stops for: ○ Nom/Tol ○ Min/Max ◉ Req'd.

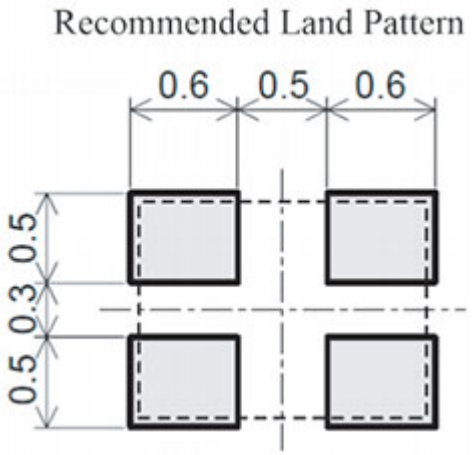
Ref.	Nom	- Tol	+ Tol	Min	Max
A					* 1.00
D	3.20	-0.10	0.10	* 3.10	* 3.30
D1	1.20	-0.20	0.20	* 1.00	* 1.40
E	2.50	-0.10	0.10	* 2.40	* 2.60
E1	0.90	-0.20	0.20	* 0.70	* 1.10

* Required entry (unless optional)



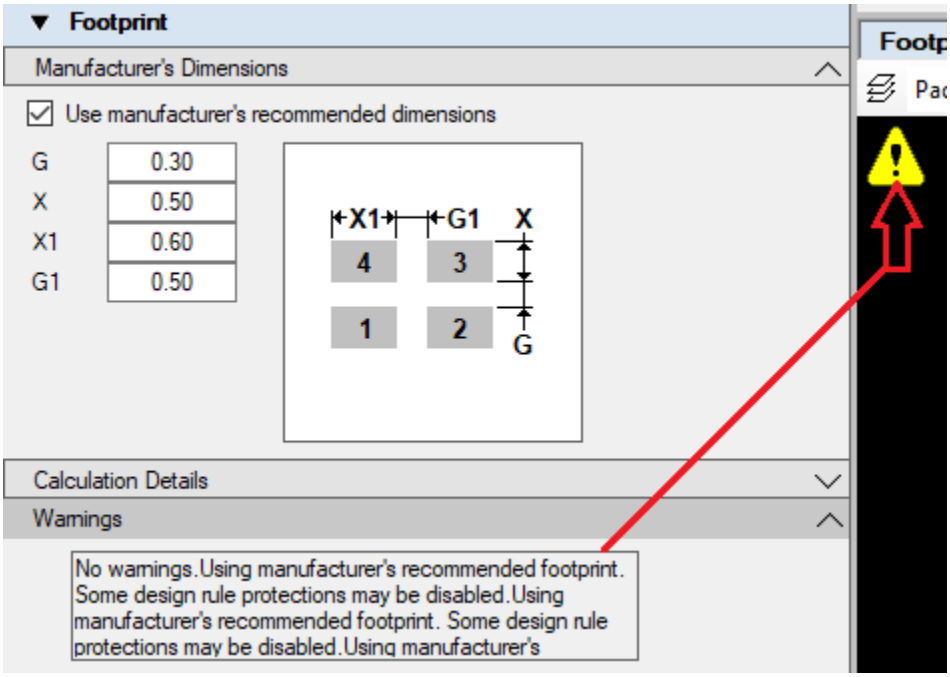
Here is the IPC-7351 calculated footprint, select the "Footprint" tab - Compared to the mfr. pattern (right)



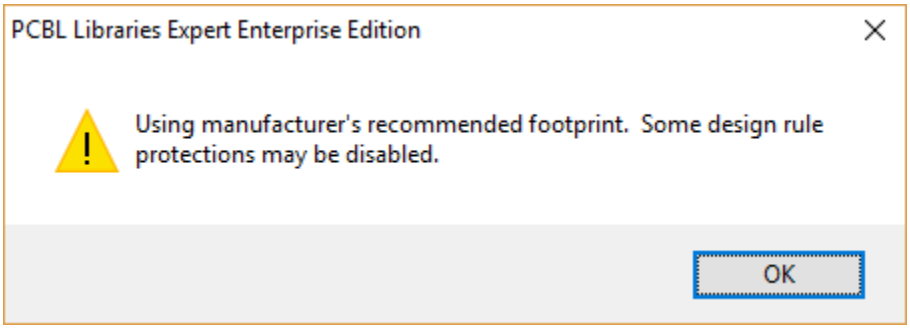


As you can see, the mfr. suggested pattern pad sizes and spacing are different than the IPC-7351 calculated pattern. If you select the radio button "Use manufacturer's recommended dimensions" you will be able to edit the calculated values and replace them with the component mfr. dimensional values. After you enter the new values select the "OK" button and the mfr. dimensions will be applied to the footprint and the silkscreen and courtyard outlines will automatically adjust to accommodate the mfr. pad size and spacing. Also notice that the Dot in the upper left corner of the footprint viewing screen will turn "Yellow" and provide a "Warning".

IMPORTANT FPX Guidelines

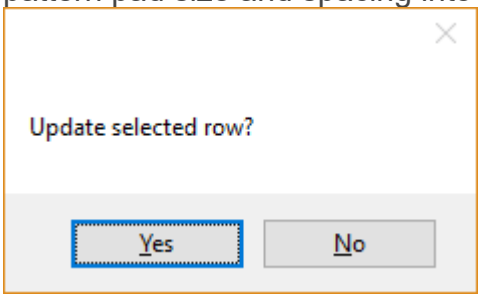


Double click the warning triangle in the display window and the Warnings message will appear -



Selecting the Gray box to the left of the footprint name in the FPX library will highlight the entire row in Blue.

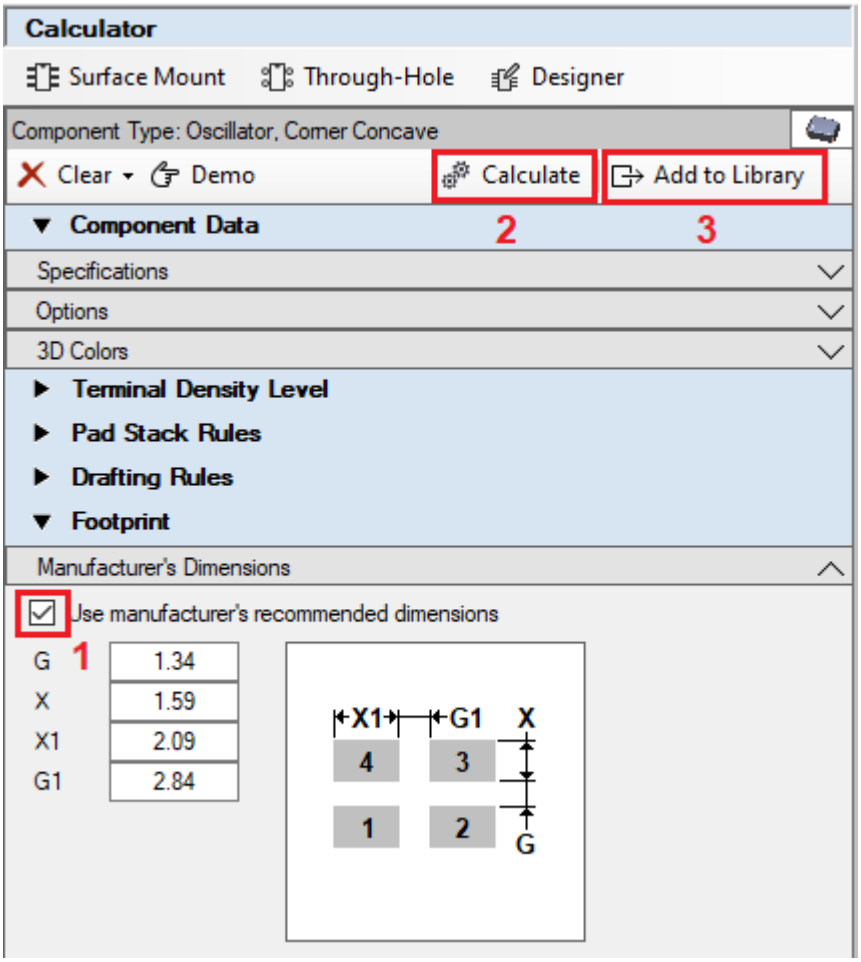
Selecting the "Add to Lib" icon in the Library toolbar or next to the OK button (there are 2 "Add to Lib" buttons in Library Expert) will auto-update the row and import the component mfr.'s recommended pattern pad size and spacing into the FPX file. Select "**Yes**" to "**Update selected row?**".



Alternatively, when you download a FPX file from "Parts on Demand" (POD) it may have the mfr. recommended dimensions already entered for you. If you would rather use the IPC calculation, simply

IMPORTANT FPX Guidelines

uncheck the box in the Footprint tab "Use manufacturer's recommended dimensions". Select "OK" and "Add to Lib".



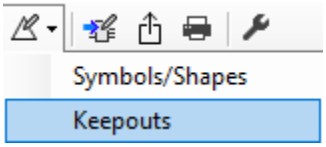
When you "**Batch Create**" a FPX file, all parts with mfr. recommended pattern data will use the mfr. data.

i.e.: when using the IPC calculated pattern, there are 3 Density Levels. But when using the mfr. recommended pattern, there is only 1 Density level.

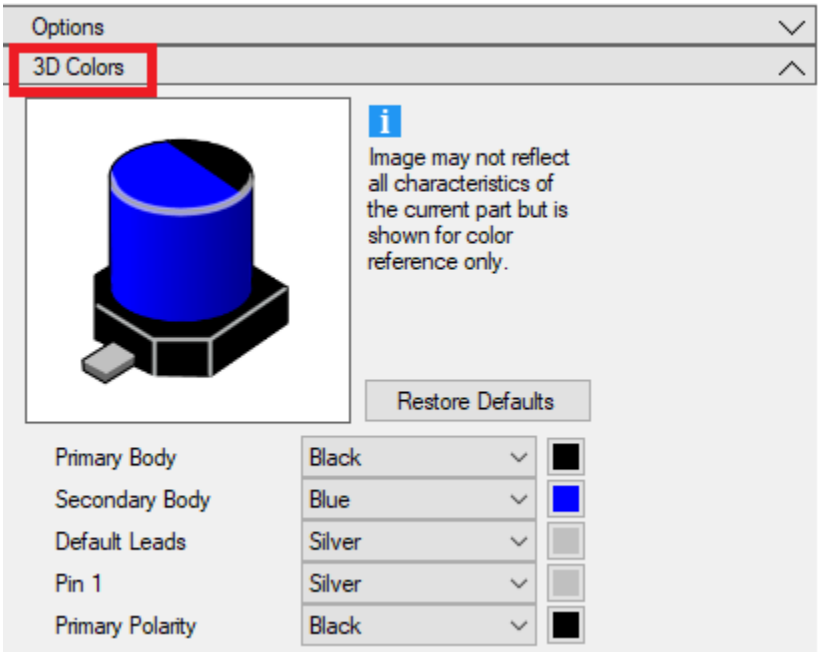
The FPX file saves your personal Polarity Marking for Silkscreen Legend and Assembly - Top and Bottom

The FPX file also saves "Keep-outs" for Top, Bottom or All layers

IMPORTANT FPX Guidelines



The FPX file also saves your personal 3D STEP color assignments for Body, Polarity and terminal leads.



Note: The FPX file does not save any User Preferences.

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