

What is an FPX File?

The main purpose of an FPX file is to store component package dimensions and the component manufacturer's data. Here is a list of 9 attributes items that are default with the PCB Library Expert -

1. **Component Family** (auto-generated but not a visible column in the FPX editor)
 2. **Component Dimensions** (auto-generated but not a visible column in the FPX editor)
 3. **Footprint Name** (auto-generated by the Library Expert)
 4. **Physical Description** (auto-generated by the Library Expert)
 5. **Case Code** (component manufacturer's ID of the package)
 6. **Manufacturer** (component mfr. company name)
 7. **Part Number** (manufacturer's Logical part number)
 8. **Logical Description** (component manufacturer's logical description)
 9. **Datasheet** (<http://> web-link or network drive link + PDF file name)
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- Items 1 - 4 are auto-generated
 - Items 5 - 9 are inserted by the end user (used as search criteria to locate existing parts).

[show MP4 video](#)

The PCB Library Expert User can add as many attribute columns as necessary. Some of the most popular additional columns are "Revision or Version Control", "Supplier Name and Part Number" (Digi-Key), "Schematic Symbol Name", "Created By and Date", "Corporate Part Number" and so on.

The FPX file does not contain any user rules or footprint dimensions. It is important that the Library Expert end user knows that the main item to generate a footprint are the component family and component dimensions. This means that you cannot import your existing CAD tool library into an FPX file.

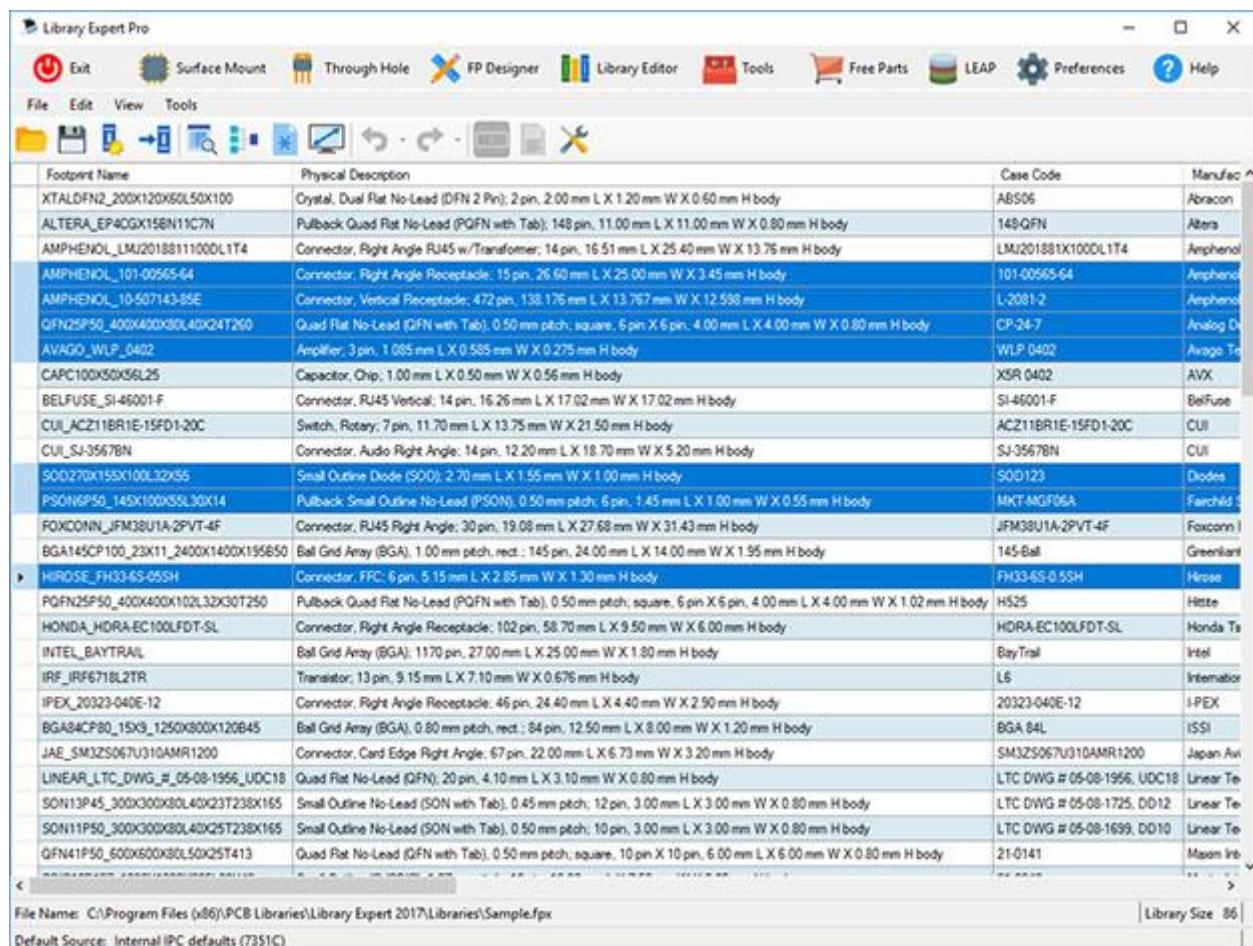
The User Preference Rules are applied to the component family and component dimensions to auto-generate a Footprint pattern for the PCB library.

The component family and dimensions is stable data that never changes. So the User can continuously add new component dimensions to the FPX and never have to go back and change anything.

The User Preference Rules are continuously changing as manufacturers continue to improve their processes. So at any time, the Library Expert User can make a change to their Preference Rules and run all their component dimensions through those new rules and create a new library. So the Library Construction Rules may change at any time, but the FPX file never changes except to continually add additional package data.

There is no limit of how many parts can be put in an FPX file, but certain features are slow if the FPX file gets too big. To achieve maximum software performance, we recommend not exceeding 3,000 parts in an FPX file.

Here is a sample FPX file loaded in the Library Expert FPX Editor



The screenshot shows the Library Expert Pro interface with the title bar "Library Expert Pro". The menu bar includes "File", "Edit", "View", "Tools", and "Help". Below the menu is a toolbar with icons for Exit, Surface Mount, Through Hole, FP Designer, Library Editor, Tools, Free Parts, LEAP, Preferences, and Help. The main window displays a table of component data:

Footprint Name	Physical Description	Case Code	Manufacturer
XTALDFN2_200X120X50L50X100	Crystal, Dual Flat No-Lead (DFN 2 Pin), 2 pin, 2.00 mm L X 1.20 mm W X 0.60 mm H body	ABS06	Abracor
ALTERA_EP4CGX15BN11C7N	Pullback Quad Flat No-Lead (PQFN with Tab), 148 pin, 11.00 mm L X 11.00 mm W X 0.80 mm H body	148-QFN	Altera
AMPHENOL_LMU2018811100DL1T4	Connector, Right Angle RJ45 w/Transformer, 14 pin, 16.51 mm L X 2.540 mm W X 13.75 mm H body	LMU201881X100DL1T4	Amphenol
AMPHENOL_101-00565-64	Connector, Right Angle Receptacle, 15 pin, 26.60 mm L X 2.50 mm W X 3.45 mm H body	101-00565-64	Amphenol
AMPHENOL_10-507143-85E	Connector, Vertical Receptacle, 472 pin, 138.176 mm L X 13.767 mm W X 12.598 mm H body	L-2081-2	Amphenol
QFN25P50_400X400X80L40X24T260	Quad Flat No-Lead (QFN with Tab), 0.50 mm pitch, square, 6 pin X 6 pin, 4.00 mm L X 4.00 mm W X 0.80 mm H body	CP-24-7	Analog Devices
AVAGO_WLP_0402	Amplifier, 3 pin, 1.085 mm L X 0.585 mm W X 0.275 mm H body	WLP 0402	Avago Technologies
CAPC100X50X56L25	Capacitor, Chip, 1.00 mm L X 0.50 mm W X 0.56 mm H body	X5R 0402	AVX
BELFUSE_SI-46001-F	Connector, RJ45 Vertical, 14 pin, 16.26 mm L X 17.02 mm W X 17.02 mm H body	SI-46001-F	BellFuse
CUI_ACZ11BR1E-15FD1-20C	Switch, Rotary, 7 pin, 11.70 mm L X 13.75 mm W X 21.50 mm H body	ACZ11BR1E-15FD1-20C	CUI
CUI_SJ-3567BN	Connector, Audio Right Angle, 14 pin, 12.20 mm L X 18.70 mm W X 5.20 mm H body	SJ-3567BN	CUI
SO0270X155X100L32X55	Small Outline Diode (SOD), 2.70 mm L X 1.55 mm W X 1.00 mm H body	SOD123	Diodes
PSO16P50_145X100X55L30X14	Pullback, Small Outline No-Lead (PSO), 0.50 mm pitch, 6 pin, 1.45 mm L X 1.00 mm W X 0.55 mm H body	MKT-MG06A	Farnell
FOXCONN_JFM38U1A-2PVT-4F	Connector, RJ45 Right Angle, 30 pin, 19.08 mm L X 27.68 mm W X 31.43 mm H body	JFM38U1A-2PVT-4F	Foxconn
BGA145CP100_23X11_2400X1400X195650	Ball Grid Array (BGA), 1.00 mm pitch, rect., 145 pin, 24.00 mm L X 14.00 mm W X 1.95 mm H body	145-Ball	Greenlant
HIROSE_FH03-6S-05SH	Connector, FFC, 6 pin, 5.15 mm L X 2.85 mm W X 1.30 mm H body	FH03-6S-05SH	Hirose
PQFN25P50_400X400X102L32X30T250	Pullback, Quad Flat No-Lead (PQFN with Tab), 0.50 mm pitch, square, 6 pin X 6 pin, 4.00 mm L X 4.00 mm W X 1.02 mm H body	H525	Hitite
HONDA_HDRA-EC100LFDT-SL	Connector, Right Angle Receptacle, 102 pin, 58.70 mm L X 9.50 mm W X 6.00 mm H body	HDRA-EC100LFDT-SL	Honda
INTEL_BAYTRAIL	Ball Grid Array (BGA), 1170 pin, 27.00 mm L X 25.00 mm W X 1.80 mm H body	BayTrail	Intel
IRF_IRF671BL2TR	Transistor, 13 pin, 9.15 mm L X 7.10 mm W X 0.676 mm H body	L6	International Rectifier
IPEX_20323-040E-12	Connector, Right Angle Receptacle, 46 pin, 24.40 mm L X 4.40 mm W X 2.90 mm H body	20323-040E-12	IP-PEX
BGA84CP80_15X9_1250X800X120B45	Ball Grid Array (BGA), 0.80 mm pitch, rect., 84 pin, 12.50 mm L X 8.00 mm W X 1.20 mm H body	BGA 84L	iSSi
JAE_SM3ZS067U310AMR1200	Connector, Card Edge Right Angle, 67 pin, 22.00 mm L X 6.73 mm W X 3.20 mm H body	SM3ZS067U310AMR1200	Japan Aviation Electronics
LINEAR_LTC_DWG_#_05-08-1956_UDC18	Quad Flat No-Lead (QFN), 20 pin, 4.10 mm L X 3.10 mm W X 0.80 mm H body	LTC DWG # 05-08-1956, UDC18	Linear Technology
SON13P45_300X300X80L40X23T23BX165	Small Outline No-Lead (SON with Tab), 0.45 mm pitch, 12 pin, 3.00 mm L X 3.00 mm W X 0.80 mm H body	LTC DWG # 05-08-1725, DD12	Linear Technology
SON11P50_300X300X80L40X25T23BX165	Small Outline No-Lead (SON with Tab), 0.50 mm pitch, 10 pin, 3.00 mm L X 3.00 mm W X 0.80 mm H body	LTC DWG # 05-08-1699, DD10	Linear Technology
QFN41P50_500X500X80L50X25T413	Quad Flat No-Lead (QFN with Tab), 0.50 mm pitch, square, 10 pin X 10 pin, 6.00 mm L X 6.00 mm W X 0.80 mm H body	21-0141	Maxim Integrated

File Name: C:\Program Files (x86)\PCB Libraries\Library Expert 2017\Libraries\Sample.fpx | Library Size: 86 | Default Source: Internal IPC defaults (7351C)

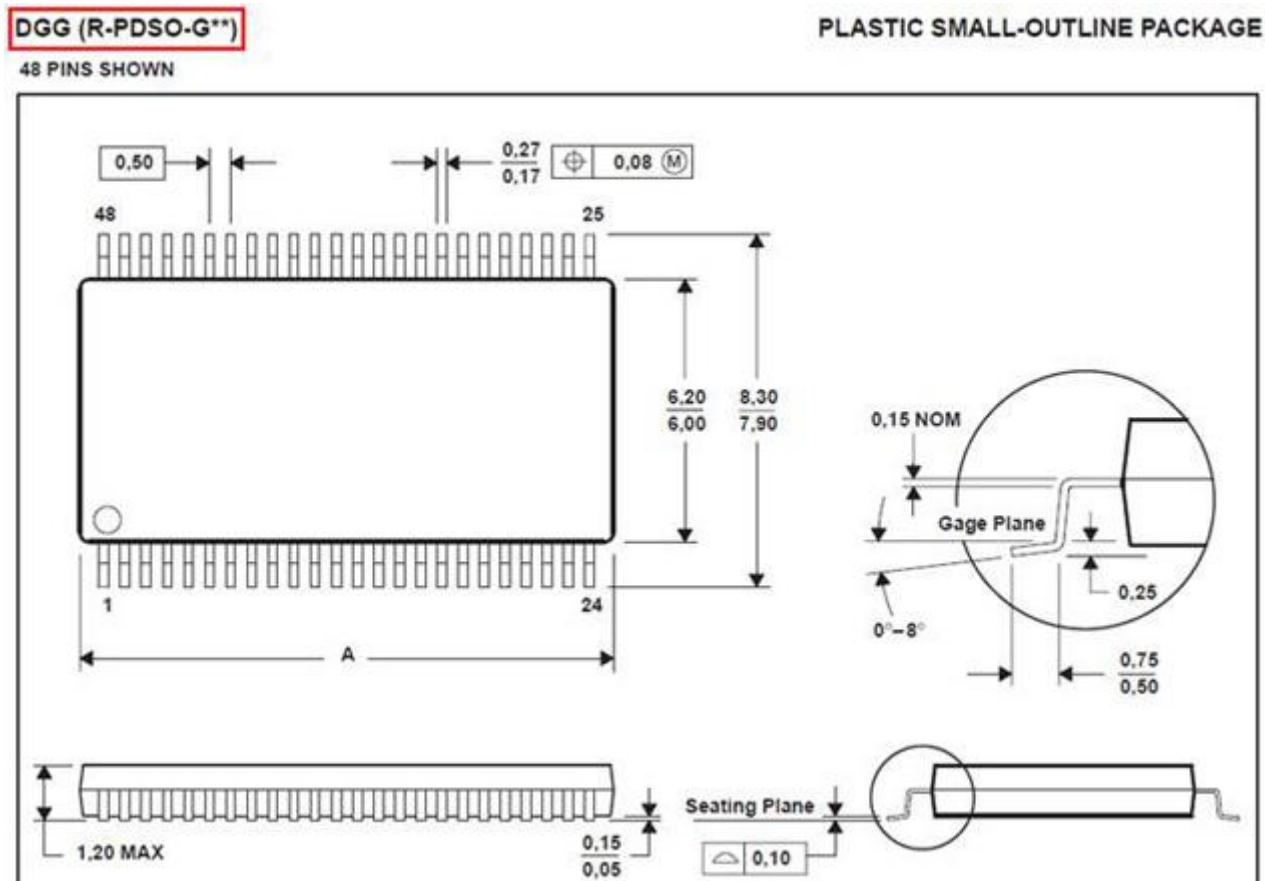
The column data that the User inserts comes directly from the component manufacturer Logical datasheet.

Using this Texas Instruments datasheet as an example, the number in the upper right corner is the "**Logical Part Number**" and the text below the part number is the "**Logical Description**".



- Member of the Texas Instruments **Widebus™ Family**
- **EPIC™** (Enhanced-Performance Implanted CMOS) Submicron Process
- **DOC™** (Dynamic Output Control) Circuit Dynamically Changes Output Impedance, Resulting in Noise Reduction Without Speed Degradation
- Dynamic Drive Capability Is Equivalent to Standard Outputs With I_{OH} and I_{OL} of ± 24 mA at 2.5-V V_{CC}
- Overvoltage-Tolerant Inputs/Outputs Allow Mixed-Voltage-Mode Data Communications
- I_{off} Supports Partial-Power-Down Mode Operation
- Latch-Up Performance Exceeds 100 mA Per JEDEC 78, Class I
- Packaged in Thin Shrink Small-Outline Package

Included in the Logical datasheet are the component dimensions.



The component manufacturer uses a code to identify the package. In this Texas Instruments datasheet, the "**Case Code**" is located in the upper left corner.

The sample Datasheet URL is <http://www.ti.com/lit/ds/symlink/sn74avc16722.pdf> and includes both the Logical and physical data for the electronic device.

Für Rückfragen und weitere Informationen
steht Ihnen das CSK Team gerne zur Verfügung.

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