1 -   Schematic Libraries Files Format:

Schematic Libraries Files Format:

1.1 - Units

Sizes and coordinates are given in mils (1/1000 inch)

1.2 - Heading

format:

```
EESchema-LIBRARY Version 2.0 24/1/1997-18:9:6
description of the components
# End Library
```

1.3 - Description of a component

The format is as follows :

DEF *name reference* unused text_offset draw_pinnumber draw_pinname unit_count units_locked option_flag
ALIAS *name1 name2…*
fields list
DRAW
list graphic elements and pins
ENDDRAW
ENDDEF

*Parameters for **DEF** :*

- *name* = component name in library (74LS02 ...)
- *référence* = Reference (U, R, IC .., which become U3, U8, R1, R45, IC4...)
- *unused* = 0 (reserved)
- t*ext_offset* = offset for pin name position
- *draw_pinnumber* = Y (display pin number) ou N (do not display pin number).
- *draw_pinname* = Y (display pin name) ou N (do not display pin name).
- *unit_count* = Number of part (or section) in a component package.
- *units_locked* = = L (units are not identical and cannot be swapped) or F (units are identical and therefore can be swapped) (Used only if unit_count > 1)
- *option_flag* = N (normal) or P (component type "power")

Example:

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```
DEF BNC P 0 40 Y NR 1 L NR
F0 "P" 10.120 60 H V L C
F1 "BNC" 110 - 60 40 V V L C
DRAW
C 0 0 70 0 1 0
C 0 0 20 0 1 0
X Ext. 2 0 - 200 130 U 40 40 1 1 P
X In 1 - 150 0.130 R 40 40 1 1 P
ENDDRAW
ENDDEF
```

1.3.1 - Description of Alias

This line exists only if the component has alias names.
> format:
>> **ALIAS** *name1 name2 name3…*

1.3.2 - Description of the fields

format:
> **F** n *"text" posx posy dimension orientation visibility hjustify vjustify/italic/bold "name"*
> with:
> - n = field number :
>   - reference = 0.
>   - value = 1.
>   - Pcb FootPrint = 2.
>   - User doc link = 3. At present time: not used
> - n = 4..11 = fields 1 to 8 (since January 2009 more than 8 field allowed, so n can be > 11.
> - text (delimited by double quotes)
> - position X and Y
> - dimension (default = 50)
> - orientation = H (horizontal) or V (vertical).
> - Visibility = V (visible) or I (invisible)
> - hjustify vjustify = L R C B or T
>   - L= left
>   - R = Right
>   - C = centre
>   - B = bottom
>   - T = Top
> - Style: Italic = I or N (since January 2009)
> - Style Bold = B or N (since January 2009)
> - Name of the field (delimited by double quotes) (only if it is not the default name)

Note: vjustify, Italic and Bold are in the same 3 chars word.
Example:

```
DEF DIODE D 0 40 Y NR 1 0 NR
F0 "D" 0.100 50 H V L CNN
F1 "DIODE" 0 -100 50 H V L CIB
F5 "2euros" 0 -200 50 H V L CIB "PRICE"
```

1.3.3 - Description of graphic elements

There are of 5 types:
- Polygon (succession of segments), filled or normal.
- Rectangle.
- Circle.

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- Arc of circle.
- Text.

1.3.3.1 - Polygon :

Format:

P *Nb parts convert ltrait x0 y0 x1 y1 xi yi cc*
With:

- Nb = a number of points.
- unit = 0 if common to the parts; if not, number of part (1. .n).
- convert = 0 if common to the 2 representations, if not 1 or 2.
- *trait* = line thickness.
- xi yi coordinates of end i.
- cc = N F or F (F = filled polygon; f = . filled polygon, transparent background)

Example:

```
P 3 0 1 0 - 50 50 50 0 - 50 - 50 F
P 2 0 1 0 50 50 50 – 50 N
```

1.3.3.2 - Rectangle

Format:

S *startx starty endx endy unit convert ltrait cc*
With

- unit = 0 if common to the parts; if not, number of part (1. .n).
- convert = 0 if common to the representations; if not, 1 or 2.
- ltrait = thickness.
- cc = N F or F (F = filled Rectangle,; f = . filled Rectangle, transparent background)

Example:

```
S 0 50.900.900 0 1 0 f
```

1.3.3.3 - Circle

Format:

C *posx posy radius unit convert ltrait cc*
With

- unit = 0 if common to the parts; if not, number of part (1. .n).
- convert = 0 so common to the representations, if not 1 or 2.
- ltrait = thickness.
- cc = N F or F (F = filled Rectangle,; f = . filled Rectangle, transparent background)

Example:

```
C 0 0 70 0 1 0 F
C 0 0 20 0 1 0 N
```

1.3.3.4 - Arc of circle

Format:

With *posx posy radius start end part convert ltrait start_pointX start_pointY end_pointX end_pointY cc*

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With:

- start = <u>angle</u> of the starting point (in 0,1 degrees).
- end = <u>angle</u> of the end point (in 0,1 degrees).
- unit = 0 so common to the parts; if not, number of part (1. .n).
- convert = 0 if common to the representations, if not 1 or 2.
- ltrait = thickness.
- start_pointX start_pointY = coord of the starting point (role similar to start)
- end_pointX end_pointY = coord of the point of arrival (role similar to end)
- cc = N F or F (F = filled Rectangle,; f = . filled Rectangle, transparent background)

Example:

```
To 0.148 48 - 889 889 0 1 0 N
To 0 51 51 - 889 889 0 1 0 N
```

1.3.3.5 - Text field

Format:

T orientation *posx posy dimension unit convert Text*

With:

- orientation = horizontal orientation (=0) or vertical (=1).
- type = always 0.
- unit = 0 so common to the parts, if not number of part (1. .n).
- convert = 0 if common to the representations, if not 1 or 2.

Example:

```
T 0 - 320 - 10 100 0 0 1 VREF
```

1.3.4 - Description of pins

Format:

X *name number posx posy length orientation Snum Snom unit convert Etype [shape]*.

With:

- orientation = U (up) D (down) R (right) L (left).
- name = name (without space) of the pin. if ~: no name
- number = n pin number (4 characters maximum).
- length = pin length.
- Snum = pin number text size.
- Snom = pin name text size.
- unit = 0 if common to the parts; if not, number of part (1. .n).
- convert = 0 if common to the representations, if not 1 or 2.
- Etype = electric type (1 character)
- shape = if present: pin shape (clock, inversion…).

Example:

```
X TO 1 - 200 0.150 R 40 40 1 1 P
X K 2.200 0.150 L 40 40 1 1 P
X 0 1 0 0 0 R 40 40 1 1 W NC
X ~ 2 0 - 250 200 U 40 40 1 1 P
```

Etype list:

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INPUT	**I**
OUTPUT	**O**
BIDI	**B**
TRISTATE	**T**
PASSIVE	**P**
UNSPECIFIED	**U**
POWER INPUT	**W**
POWER OUTPUT	**w**
OPEN COLLECTOR	**C**
OPEN EMITTER	**E**
NOT CONNECTED	**N**

Shape list:
- If invisible pin, the shape identifier starts by **N**
- Next character is:

Line	None (default)
Inverted	**I**
Clock	**C**
Inverted clock	**CI**
Input low	**L**
Clock low	**CL**
Output low	**V**
Falling edge clock	**F**
Non Logic	**X**

Example:
A clock is coded **C** if visible, and **NC** if invisible.