



Alternate KiCad Library User Manual

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1. Introduction

Alternate KiCad Library is a massive symbol and footprint library containing refreshed, new symbols and footprints for KiCad focused on improving Schematic and PCB readability and aesthetics, mainly intended for hobbyist use.

AKL started as a modification of the KiCad library, where select footprints received new silkscreen markings helpful during hand-assembly. The list of footprints that have been modified and added has been greatly expanded, along with brand new footprints and footprint libraries. Double-layer silkscreen variants have been added where symbols have additional information on the bottom silkscreen layer for easier troubleshooting. Refer to [Section 3](#) for more.

Alternate KiCad Library now contains massive symbol library (over 20 000 symbols as of version 2.0) with Diodes, Transistors, SCRs and Optocouplers. Each symbol is a separate orderable part number (example 1N4001, 1N4002, 1N4003 etc.), each has pre-assigned footprint and a datasheet link. Refer to [Section 2](#) for more.

This third-party library was not created up to the same quality standard as the first-party KiCad library, wide range of errors might be present. (improper footprint assigned to a symbol, wrong pinout, incorrect footprint dimensions just to name a few)

While using AKL please pay attention and double-check that a symbol:
Has the correct pin arrangement. (Most symbols have pin numbers visible, so it's easy to check)

Has the correct footprint assigned in the symbol properties. (Symbol description always states the footprint, but might not always agree with the pre-assigned footprint)

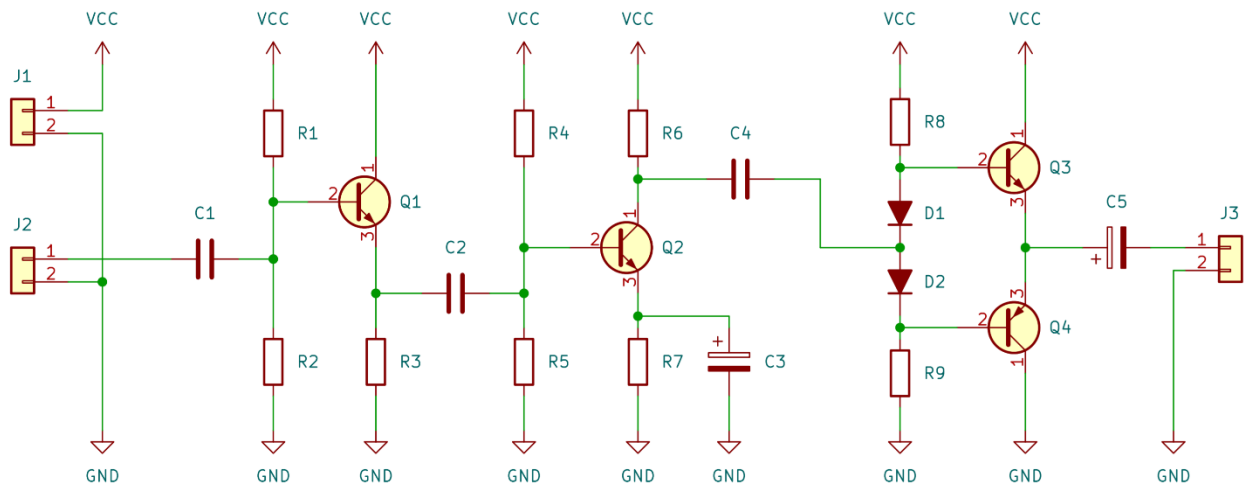
Also check that the footprint has correct pad/hole spacing referencing the part's datasheet.

If you find any errors in this library please, check that you have the newest version installed and if the issues were not yet resolved feel free to report them via the contact info at the end of this document. I will do my best to fix any errors and publish a new update as soon as possible.

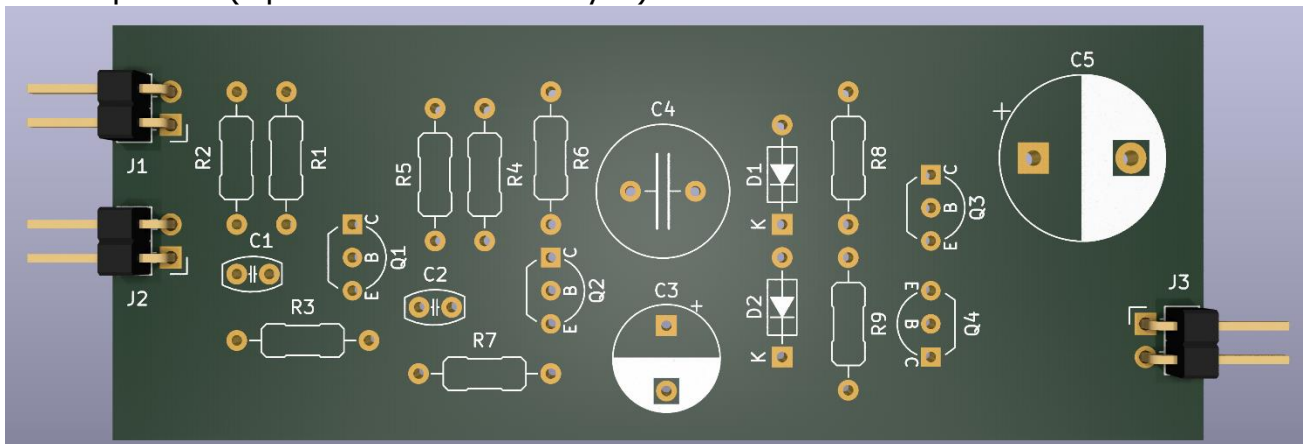
This library uses the same license as first-party KiCad Library, you can freely use it in your designs while retaining full rights to any schematics or PCBs made using this library. See [Section 5](#) for more details.

1.1 Example project showcasing some of the AKL features

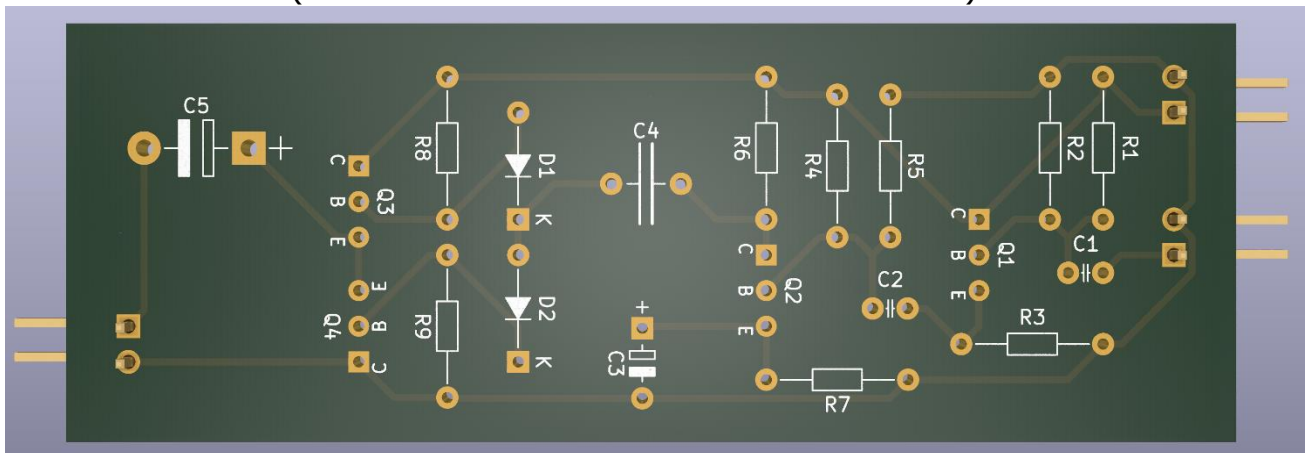
Schematic (Modified diode and transistor symbols)



PCB top view (Updated silkscreen layer)



PCB bottom view (Silkscreen on the bottom side of the PCB)



2. Symbol Libraries Overview

Symbol libraries consist of:

- Generic symbols
- Specific part symbols

Generic symbols will only contain graphics and basic description, they are mostly intended to be used as a foundation for specific part symbols.

Example: D_Generic (generic diode symbol)

Specific part symbols are usually aliases of a generic symbol and have:

- Name identical to a specific part number.
- Pre-assigned correct footprint for that specific part number
- Datasheet link
- Basic description

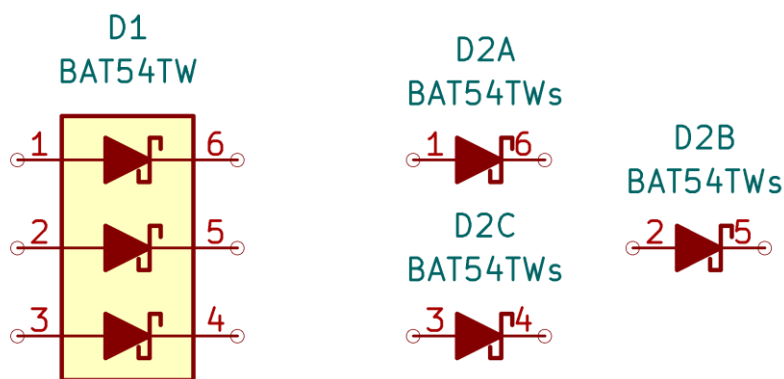
Example: 1N4148W (Specific diode in a SOD-123 package)

Parts that can be divided into separate parts (for example: triple diodes) will have separate multi-part symbol denoted by a single lowercase "s" at the end of the symbol name.

Example:

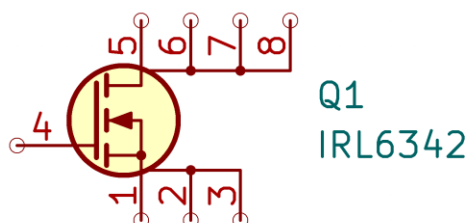
BAT54TW (on the left) is a single symbol.

BAT54TWs (on the right) is a multi-unit symbol.



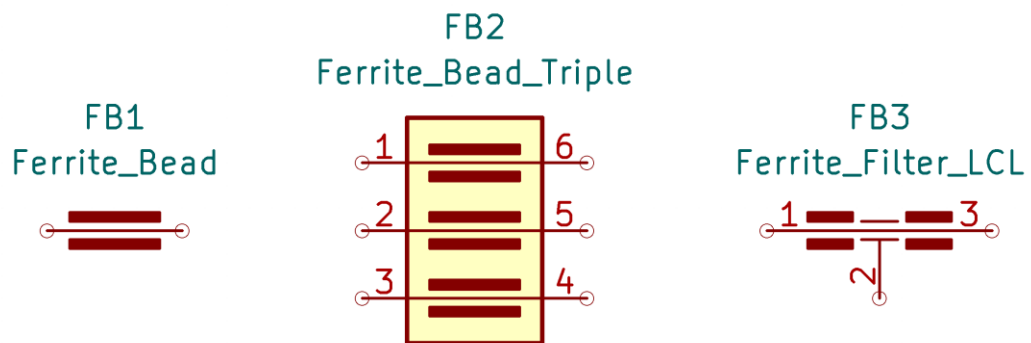
Parts with multiple pads used for the same connection will have them explicitly visible and accessible.

Example: IRL6342 is a MOSFET in a SO-8 package, with multiple package pins connected to drain and source.



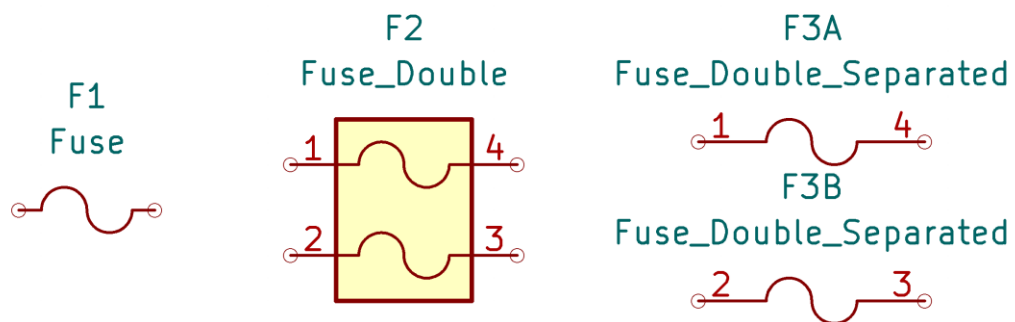
2.1 Device_AKL symbol library description

Device_AKL contains new generic ferrite bead symbols:



Double and Quadruple variant of the ferrite bead with multi-unit symbols are also available.

New ferrite symbols are quite similar to the standard fuse symbol, alternative fuse symbol has been added to reduce confusion:

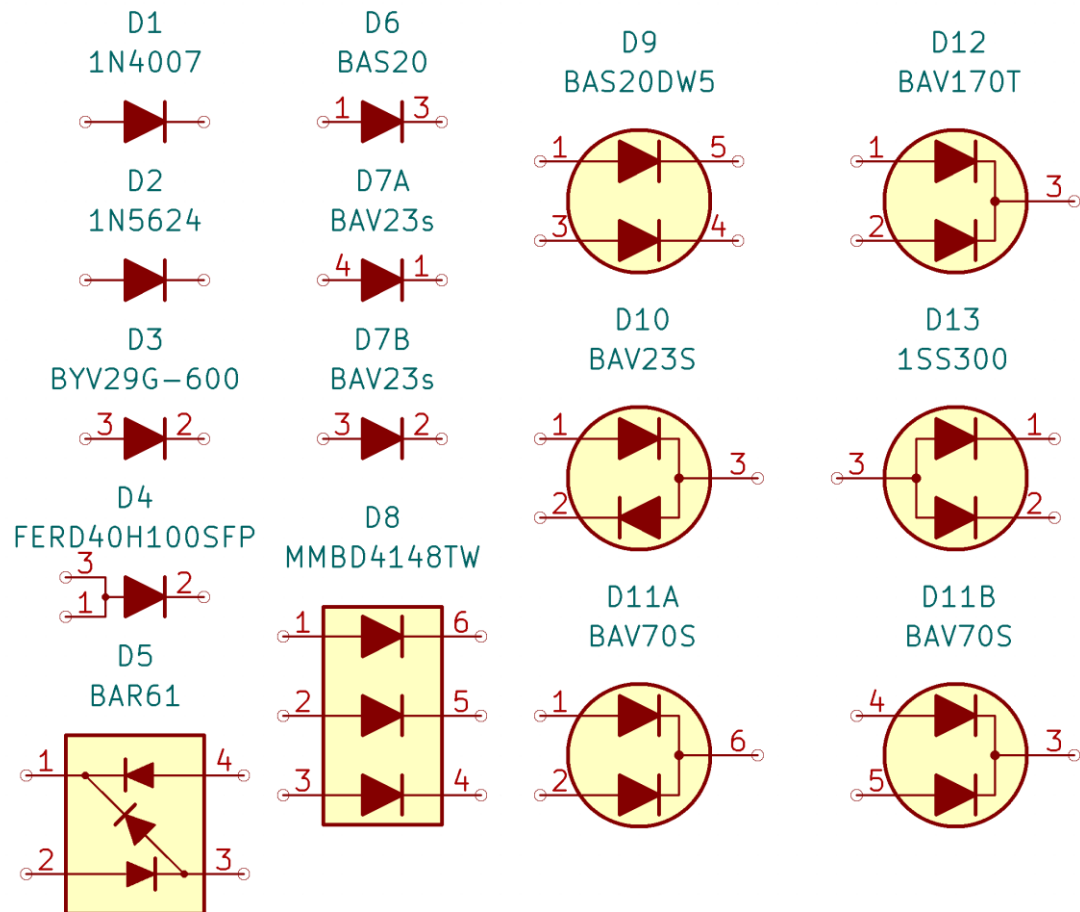


New Fuse_AKL, Ferrite_THT_AKL and Ferrite_SMD_AKL footprint libraries have been added and are consistent with these new symbols. See sections [3.8](#), [3.9](#) and [3.10](#) for more.

2.2 Diode_AKL symbol library description

Diode_AKL adds new generic symbols for diodes and around 2000 specific part symbols.

Some of the new diode symbols:



All specific part diodes have their footprint, device class (fast recovery, low leakage etc.) and current/voltage rating in the symbol description.

Diode symbols without pin numbers always have cathode on pin 1.

Correct footprints are pre-assigned to each specific part symbol.

THT and SMD Diodes use the standard diode footprints.

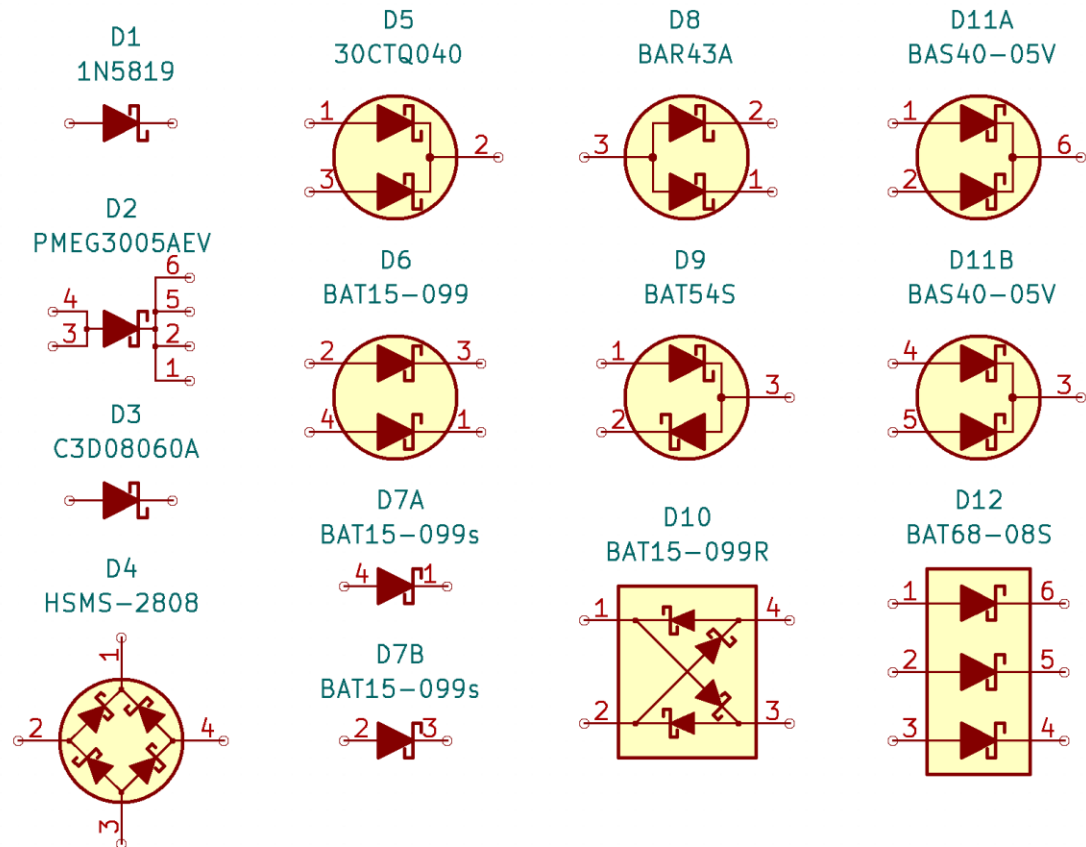
THT TO/SOT Diodes use the appropriate package variant with diode configuration indicated.

See section [3](#), [3.6](#), [3.7](#) and [3.23](#) for available footprint variants.

2.3 Diode_Schottky_AKL symbol library description

Diode_Schottky_AKL adds new generic symbols for Schottky diodes and around 1700 specific part symbols.

Some of the new Schottky diode symbols:



All specific part Schottky diodes have their footprint and current/voltage rating in the symbol description.

Schottky diode symbols without pin numbers always have cathode on pin 1.

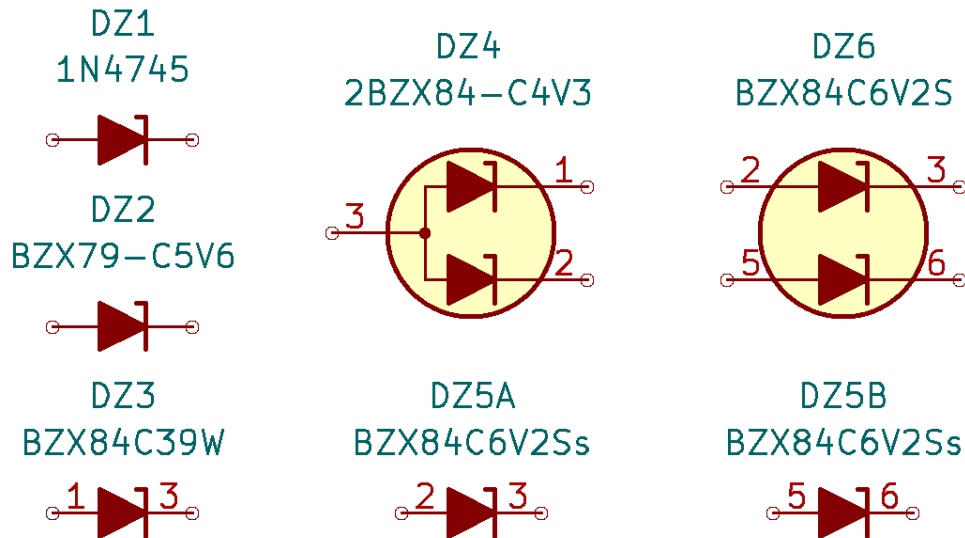
Correct footprints are pre-assigned to each specific part symbol. THT Schottky diodes use the "Schottky" variant of a standard diode footprint, SMD Schottky diodes use standard footprints. THT TO/SOT Schottky diodes use the appropriate package variant with diode configuration indicated.

See section [3](#), [3.6](#), [3.7](#) and [3.23](#) for available footprint variants.

2.4 Diode_Zener_AKL symbol library description

Diode_Zener_AKL adds new generic symbols for Zener diodes and around 3250 specific part symbols.

Some of the new Zener diode symbols:



All specific part Zener diodes have their footprint, breakdown voltage and power rating in the symbol description.

Default reference designator for Zener diodes is DZ.

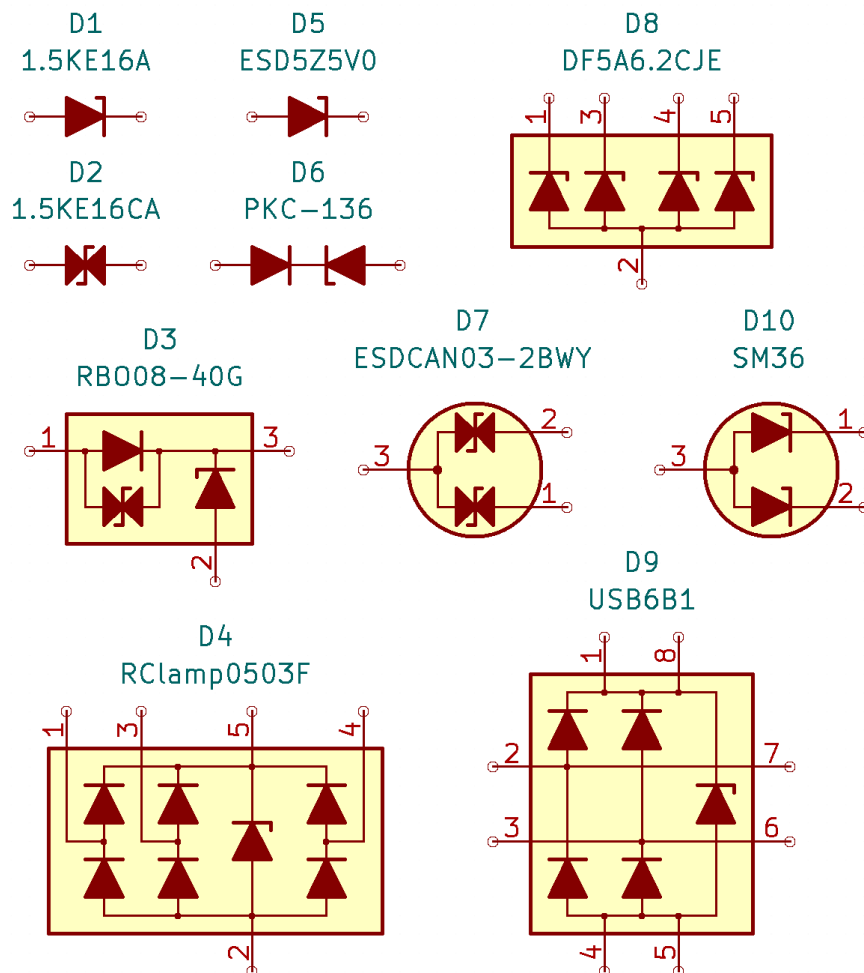
Zener diode symbols without pin numbers always have cathode on pin 1.

Correct footprints are pre-assigned to each specific part symbol. THT Zener diodes use the "Zener" variant of a standard diode footprint, SMD Zener diodes use standard footprints. See section [3](#), [3.6](#) and [3.7](#) for available footprint variants.

2.5 Diode_TVS_AKL symbol library description

Diode_TVS_AKL adds new generic symbols for unidirectional and bidirectional transient voltage suppressor (TVS) diodes and arrays totaling around 3100 specific part symbols.

Some of the new TVS diode symbols:



All specific part TVS diodes and arrays have their footprint, intended use case, breakdown voltage and peak power rating in the symbol description.

Unidirectional TVS diode symbols without pin numbers always have cathode on pin 1.

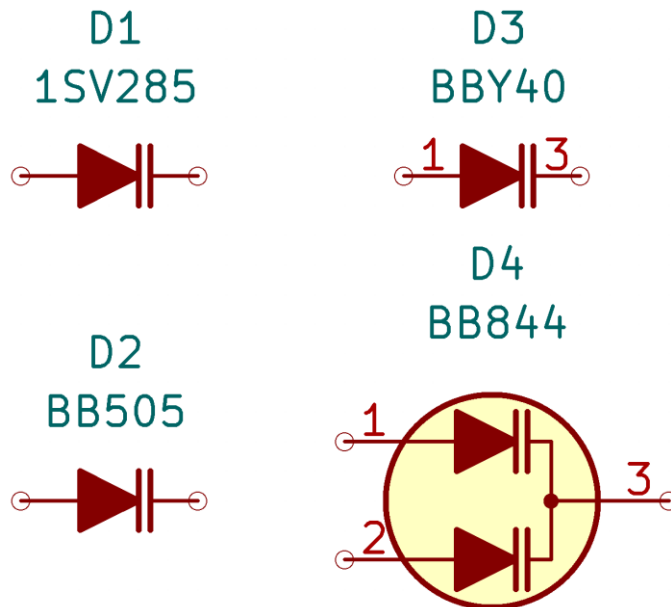
Correct footprints are pre-assigned to each specific part symbol. THT Unidirectional TVS diodes use the "Zener" variant of a standard diode footprint, THT Bidirectional TVS diodes use the "TVS" variant of a standard diode footprint. SMD Unidirectional TVS diodes use the standard diode footprint, SMD Bidirectional TVS diodes use the "TVS" variant of a standard diode footprint.

See section [3](#), [3.6](#) and [3.7](#) for available footprint variants.

2.6 Diode_Capacitance_AKL symbol library description

Diode_Capacitance_AKL adds new generic symbols for capacitance diodes and 30 specific part symbols.

Some of the new capacitance diode symbols:



All specific part capacitance diodes have their footprint, maximum reverse voltage, current rating and highest achievable capacitance in the symbol description.

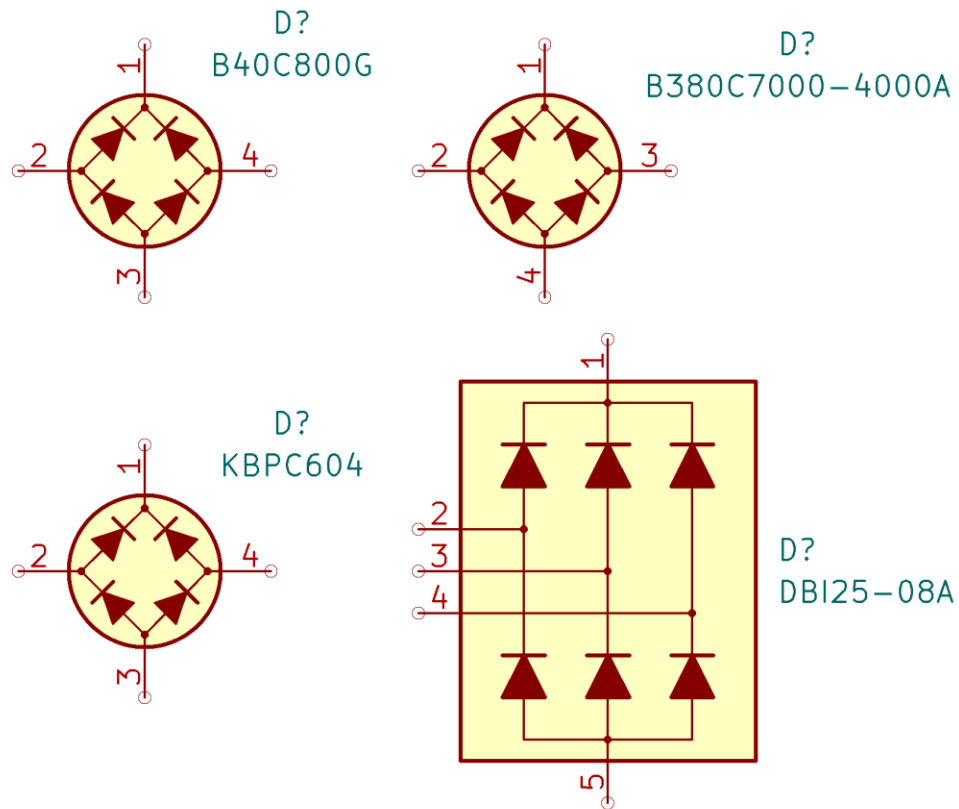
Capacitance diode symbols without pin numbers always have cathode on pin 1.

Correct footprints are pre-assigned to each specific part symbol. THT and SMD Capacitance diodes use the standard diode footprints. See section [3](#), [3.6](#) and [3.7](#) for available footprint variants.

2.7 Diode_Bridge_AKL symbol library description

Diode_Bridge_AKL adds new generic symbols for full bridge rectifiers and around 800 specific part symbols.

Some of the new bridge rectifier symbols:



All specific part bridge rectifiers have current and voltage ratings in the symbol description.

Correct footprints are pre-assigned to each specific part symbol.

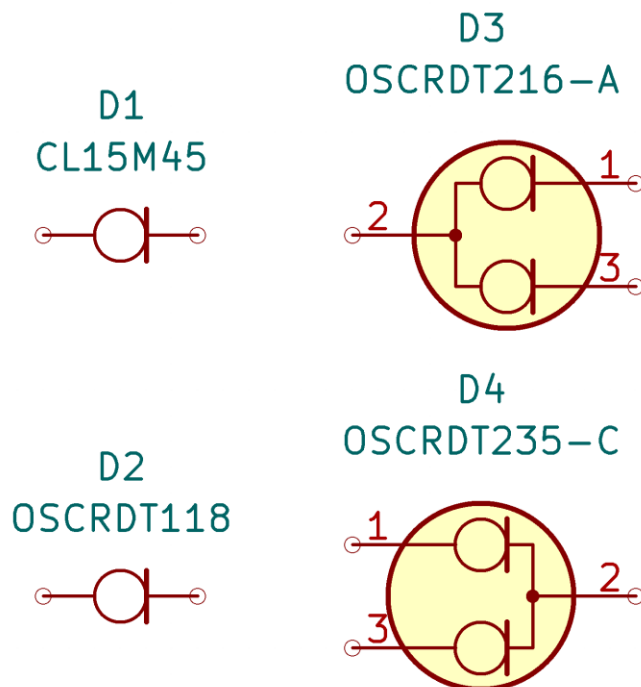
THT and SMD Bridges use the standard bridge footprints.

See section [3](#) and [3.7](#) for available footprint variants.

2.8 Diode_Current_Limiting_AKL symbol library description

Diode_Current_Limiting_AKL adds new generic symbols for current limiting diodes (current regulating diodes) and 12 specific part symbols.

Some of the new current limiting diode symbols:



All specific part current limiting diodes have their footprints, current, voltage and power ratings in the symbol description.

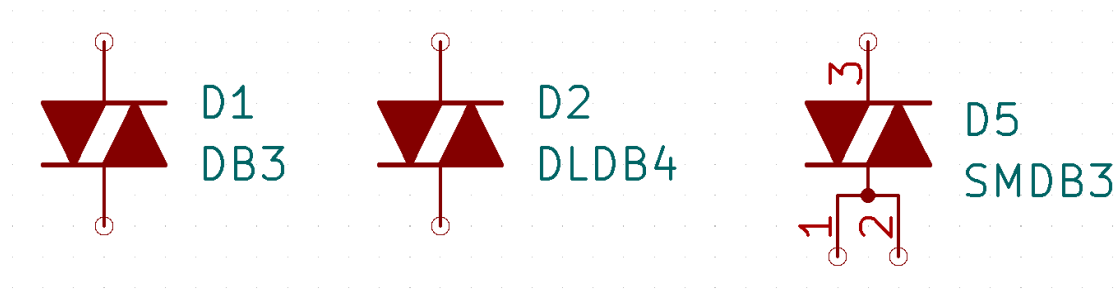
Current limiting diode symbols without pin numbers always have cathode on pin 1.

Correct footprints are pre-assigned to each specific part symbol. THT and SMD Current limiting diodes use the standard diode footprints.

2.9 Diac_AKL symbol library description

Diac_AKL adds new generic symbols for diacs (AC trigger diodes) and 10 specific part symbols.

Some of the new diac symbols:



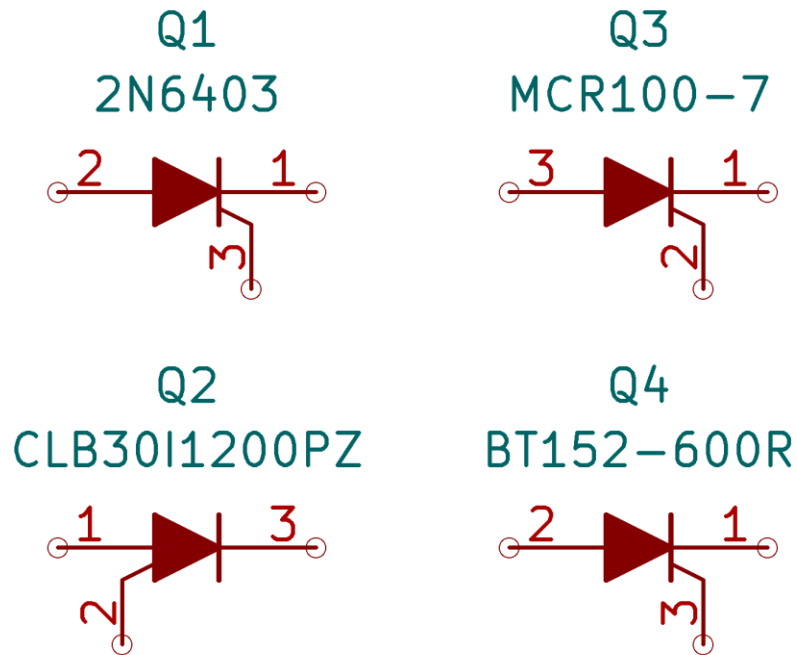
All specific part diacs have their footprints, voltage and current ratings in the symbol description.

Correct footprints are pre-assigned to each specific part symbol. THT Diacs use the "Diac" variant of a standard diode footprint, SMD Diacs use the "TVS" variant of a standard diode footprint. See section [3](#) and [3.6](#), [3.7](#) for available footprint variants.

2.10 Thyristor_AKL symbol library description

Thyristor_AKL adds new generic symbols for silicon controlled rectifiers (SCRs) and around 250 specific part symbols.

Some of the new thyristor symbols:



All specific part thyristors have their footprints, current and voltage ratings in the symbol description.

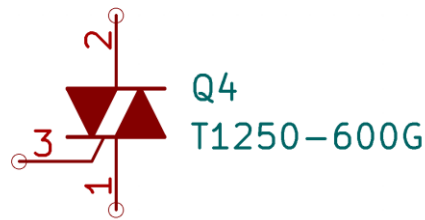
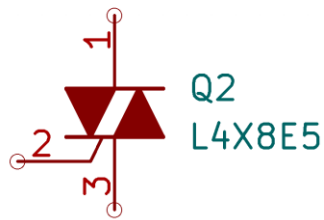
Default reference designator for thyristors is Q.

Correct footprints are pre-assigned to each specific part symbol.
THT thyristors use variants with Anode, Cathode and Gate indicators.
See section [3](#) and [3.23](#) for available footprint variants.

2.11 Triac_AKL symbol library description

Thyristor_AKL adds new generic symbols for silicon controlled rectifiers (SCRs) and around 250 specific part symbols.

Some of the new thyristor symbols:



All specific part triacs have their footprints, current and voltage ratings in the symbol description.

Default reference designator for triacs is Q.

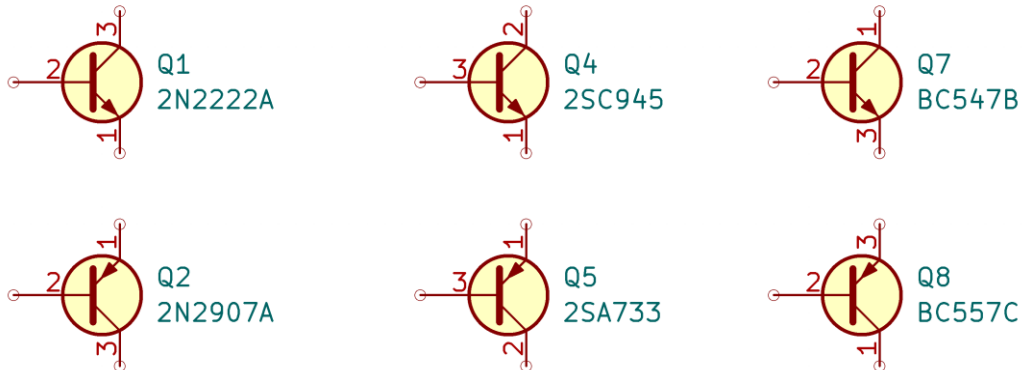
Correct footprints are pre-assigned to each specific part symbol.

THT triacs use variants with Anode and Gate indicators.

See section [3](#) and [3.23](#) for available footprint variants.

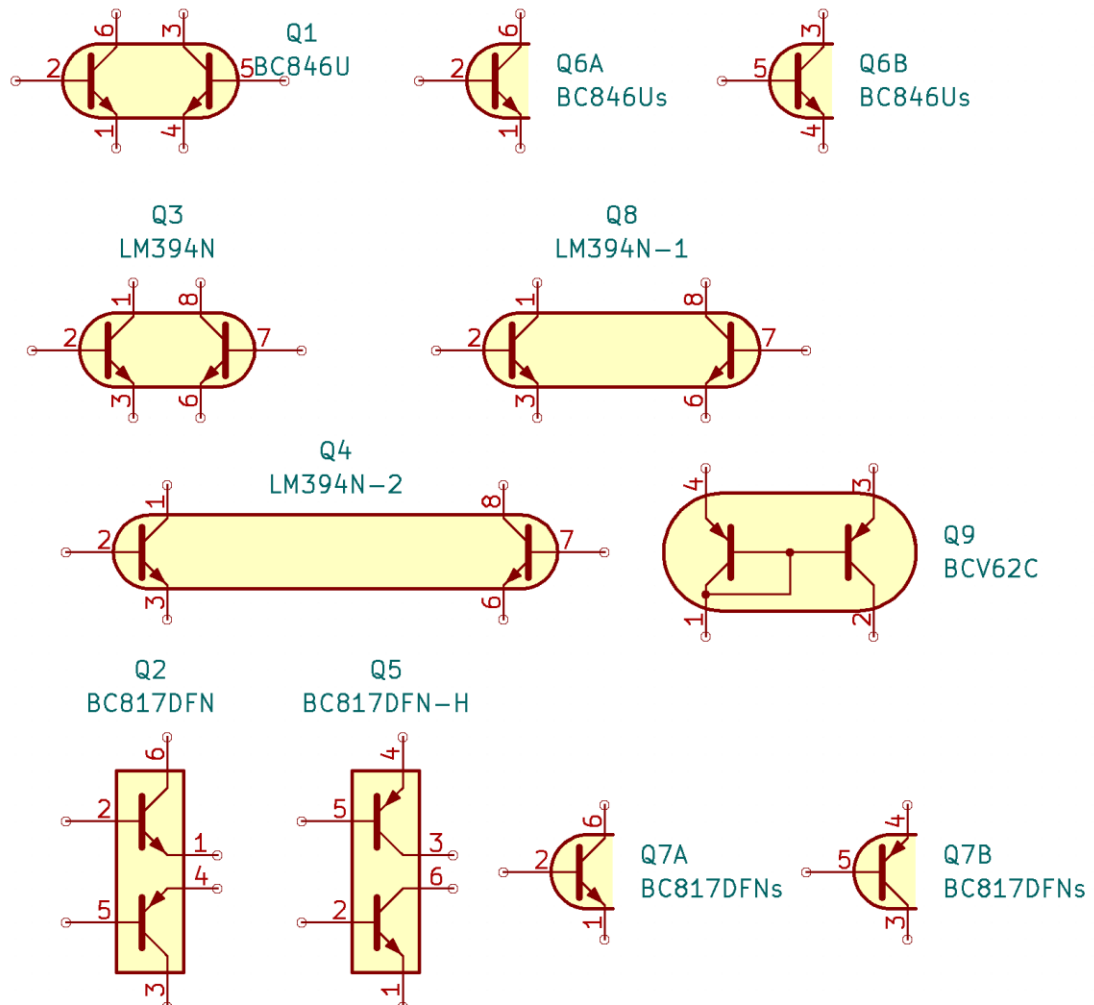
2.12 Transistor_BJT_AKL symbol library description

Transistor_BJT_AKL adds new generic symbols for bipolar junction transistors (BJTs) and arrays with around 1300 specific part symbols. Some of the new single transistor symbols:



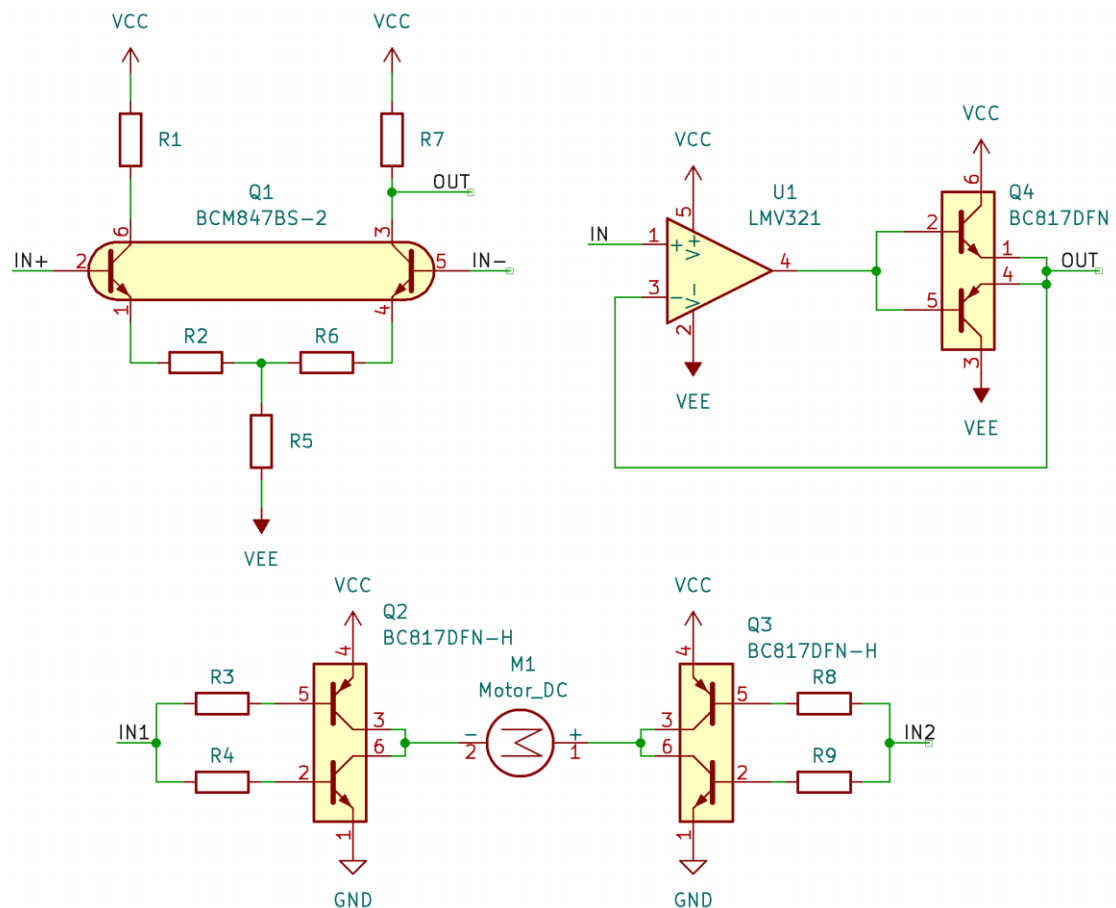
PNP transistors by default are flipped along the X-axis, because usually voltage on the emitter is higher than on the collector. This helps during schematic capture where it is a good practice to have higher voltage nets drawn higher on the schematic.

Some of the new dual transistor symbols:



Standard dual transistors come in both single- and multi-unit variants, with distinct symbols to indicate that these devices share a package. Dual matched transistors have additional variants with wider spacing between transistors in a single-unit symbol for added flexibility while drafting differential amplifiers.

Complementary dual transistors come with 2 single-unit symbol variants, standard variant is most suitable for drawing complementary drivers/power amplifiers, while the “-H” variant is most suitable for drawing H-Bridges, see the schematic examples below:

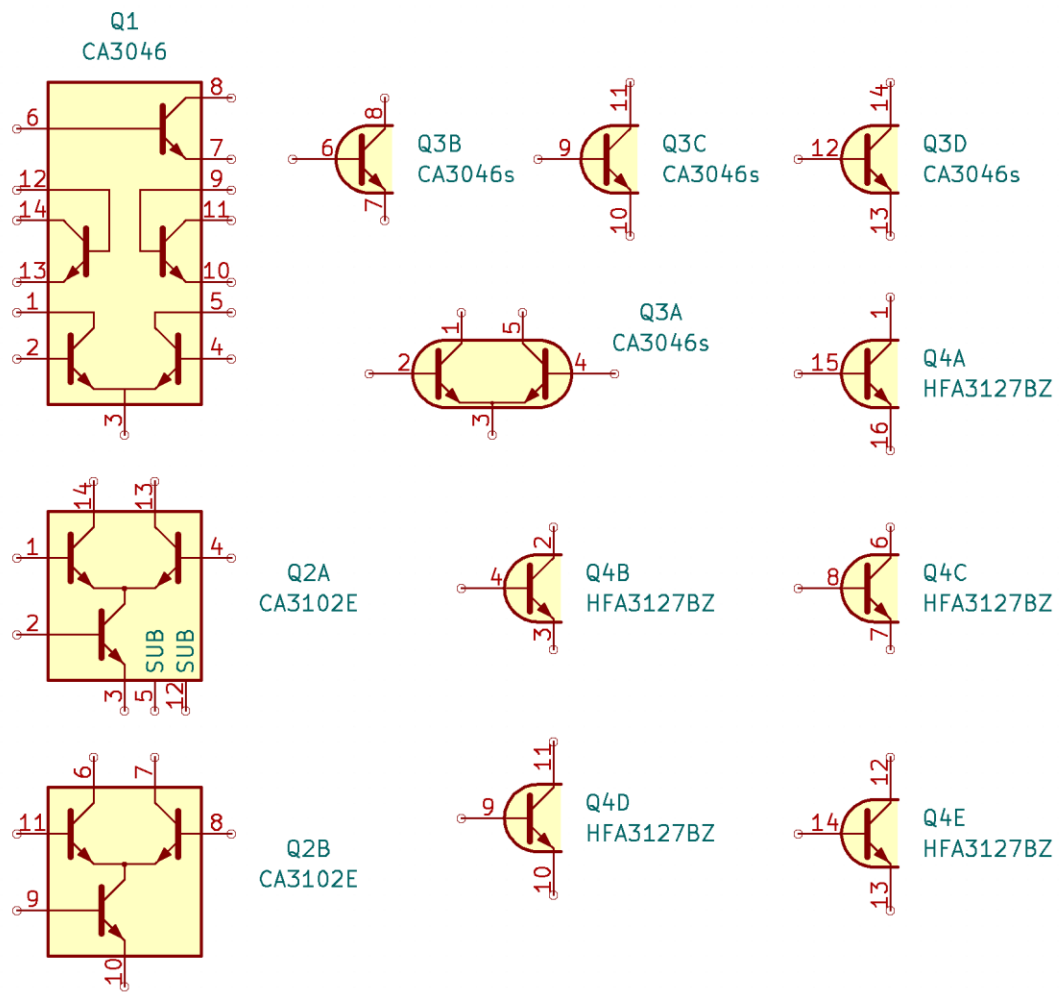


Q1 is an example of using “-2” variant of BCM847BS to draw a clearer and more reader-friendly differential amplifier schematic.

Q2 and Q3 are examples of using the “-H” variant of BC817DFN to draw a DC motor control circuit.

Q4 is an example of using standard variant of BC817DFN as part of a power amplifier.

Some of the new transistor array symbols:



All specific part transistors have their footprints, device type, current, voltage and power ratings in the symbol description.

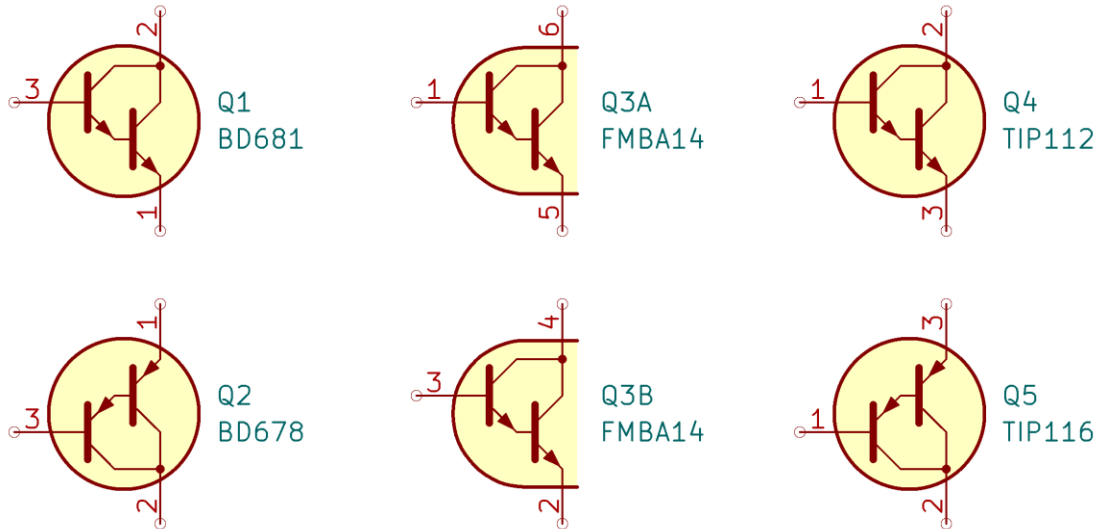
Correct footprints are pre-assigned to each specific part symbol. THT transistors use variants with Base, Collector and Emitter indicators.

See section [3](#) and [3.23](#) for available footprint variants.

2.13 Transistor_BJT_Darlington_AKL symbol library description

Transistor_BJT_Darlington_AKL adds new generic symbols for Darlington transistors and around 200 specific part symbols.

Some of the new Darlington symbols:



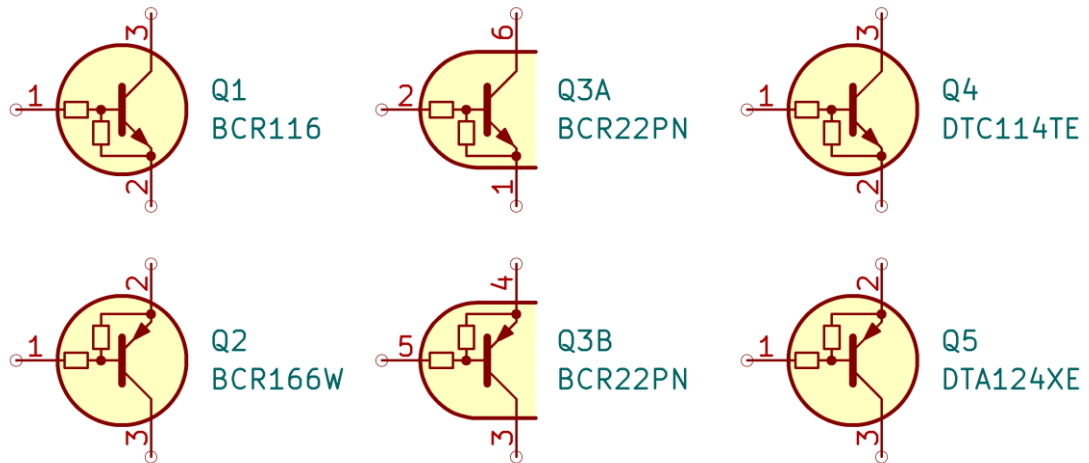
All specific part Darlington transistors have their footprints, current, voltage and power ratings in the symbol description.

Correct footprints are pre-assigned to each specific part symbol. THT transistors use variants with Base, Collector and Emitter indicators.

See section [3](#) and [3.23](#) for available footprint variants.

2.14 Transistor_BJT_Pre-Biased_AKL symbol library description

Transistor_BJT_Pre-Biased_AKL adds new generic symbols for Bias-Resistor Transistors (BRTs) and around 530 specific part symbols. Some of the new BRT symbols:



All specific part Bias Resistor Transistors have their footprints, current, voltage and power ratings in the symbol description.

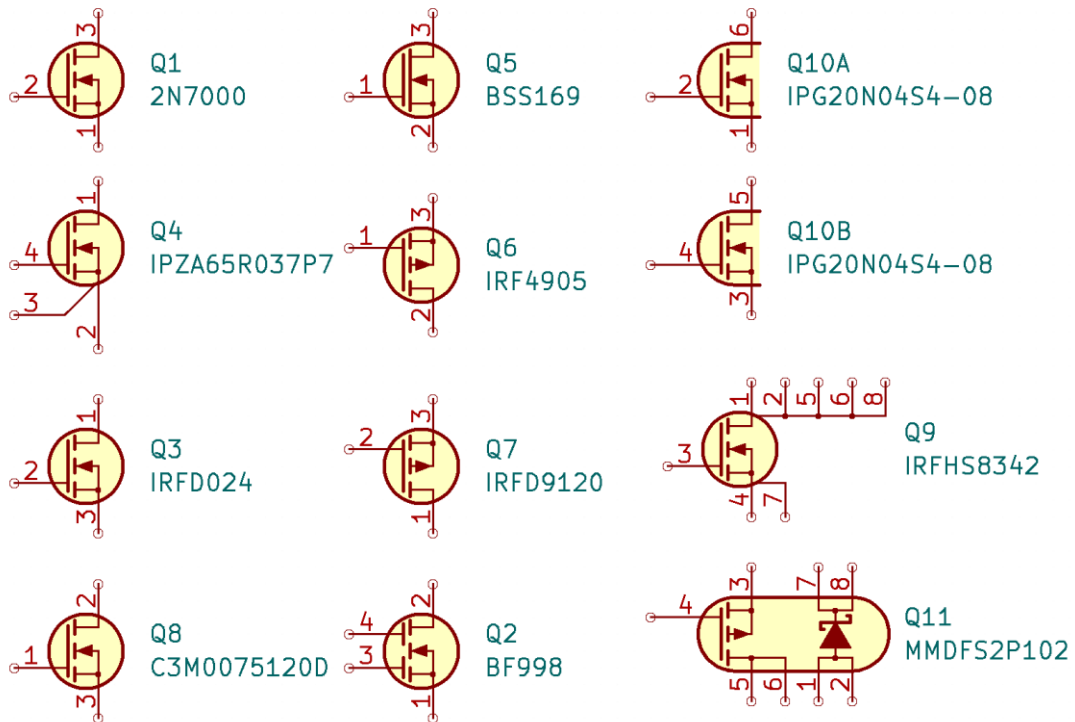
Correct footprints are pre-assigned to each specific part symbol. THT transistors use variants with Base, Collector and Emitter indicators.

See section [3](#) and [3.23](#) for available footprint variants.

2.15 Transistor_MOSFET_AKL symbol library description

Transistor_MOSFET_AKL adds new generic symbols for Metal-Oxide-Semiconductor Field Effect Transistors (MOSFETs) and around 6100 specific part symbols.

Some of the new MOSFET symbols:



New MOSFET symbols have the body diode omitted, instead the gate terminal has been shifted closer to source, and P-MOSFETs start with source on the top of the symbol.

Depletion mode transistors have solid channel line, MOSFETs with kelvin connection have the sense pin indicated.

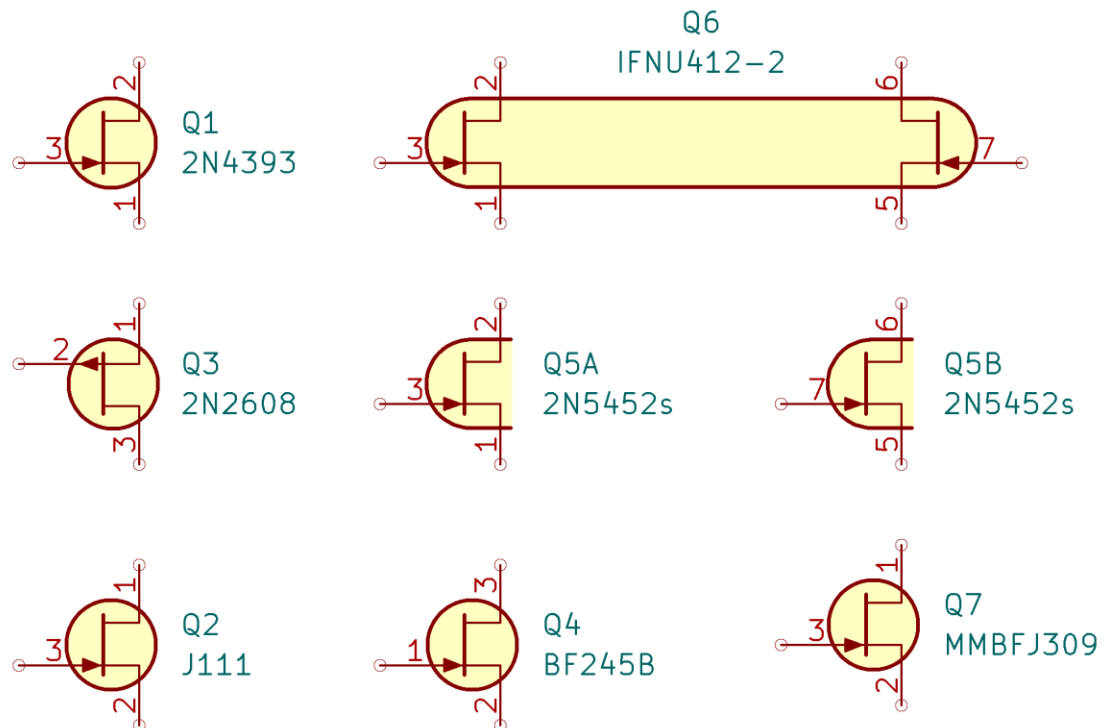
All specific part MOSFETs have their footprints, mode, current, voltage and power ratings in the symbol description.

Correct footprints are pre-assigned to each specific part symbol. THT transistors use variants with Gate, Drain and Source indicators. See section [3](#) and [3.23](#) for available footprint variants.

2.16 Transistor_JFET_AKL symbol library description

Transistor_JFET_AKL adds new generic symbols for Junction Field Effect Transistors (JFETs) and around 120 specific part symbols.

Some of the new JFET symbols:



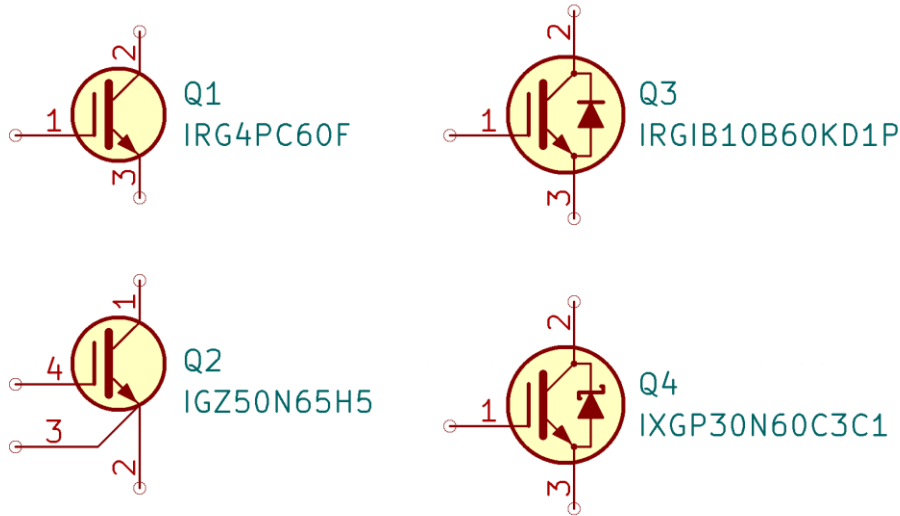
The new JFET symbols have the gate terminal moved closer to source, although JFETs by definition are symmetrical, distinguishing source and drain might have some advantages.

All specific part JFETs have their footprints, saturation current, voltage and power ratings in the symbol description.

Correct footprints are pre-assigned to each specific part symbol. THT transistors use variants with Gate, Drain and Source indicators. See section [3](#) and [3.23](#) for available footprint variants.

2.17 Transistor_IGBT_AKL symbol library description

Transistor_IGBT_AKL adds new generic symbols for Insulated Gate Bipolar Transistors (IGBTs) and around 650 specific part symbols. Some of the new IGBT symbols:



The new IGBT symbols have been completely changed, devices with integrated anti-parallel diode have it visibly indicated on the symbol.

All specific part IGBTs have their footprints, current, voltage and power ratings in the symbol description.

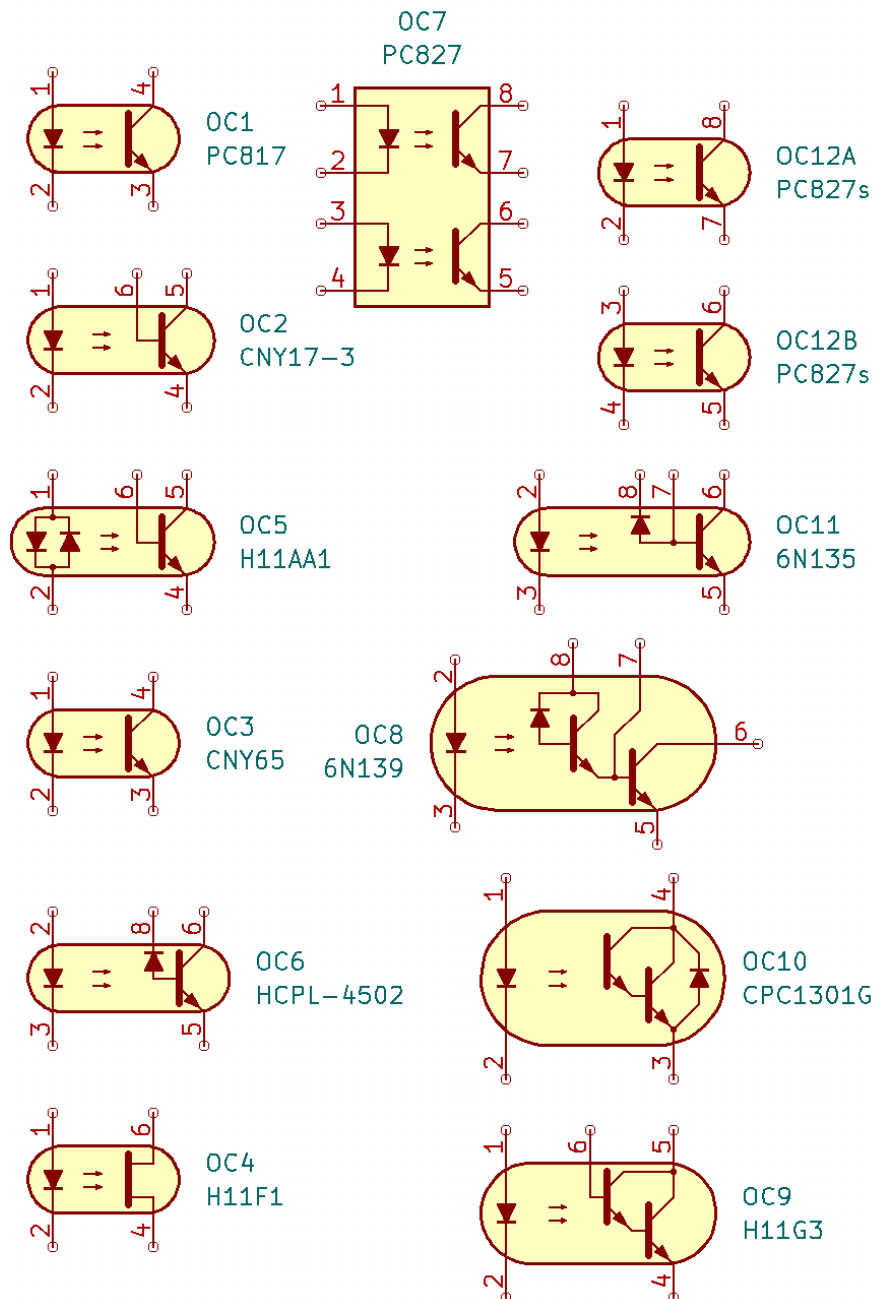
Correct footprints are pre-assigned to each specific part symbol. THT transistors use variants with Gate, Collector and Emitter indicators.

See section [3](#) and [3.23](#) for available footprint variants.

2.18 Optocoupler_AKL

Optocoupler_AKL adds new generic symbols for transistor-output optocouplers and around 1400 specific part symbols.

Some of the new optocoupler symbols:



All specific part optocouplers have their footprints, isolation voltage and response times in the symbol description.

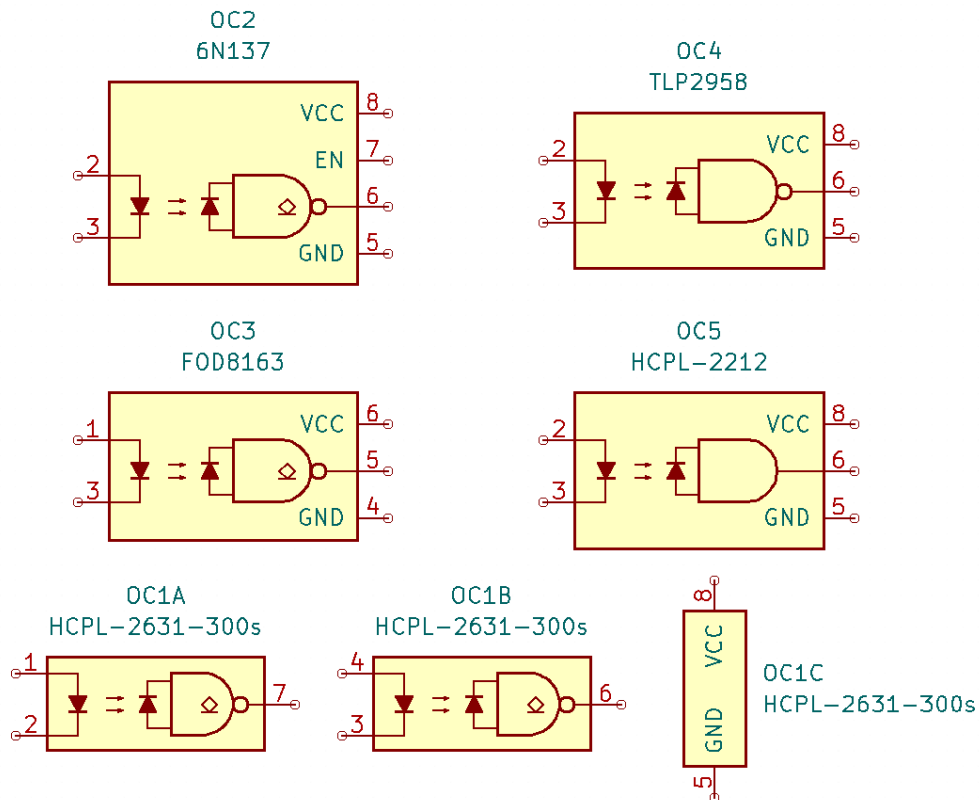
Default reference designator for optocouplers is OC.

Correct footprints are pre-assigned to each specific part symbol.
Default THT optocouplers use the "LongPads" DIP package variant.
See section [3](#) and [3.17](#) for available footprint variants.


2.19 Optocoupler_Logic_AKL symbol library description

Optocoupler_Logic_AKL adds new generic symbols for logic-output optocouplers and around 280 specific part symbols.

Some of the new optocoupler symbols:



The new optocoupler symbols clearly portray the output configuration: Dot at the output of the detector gate indicates that output is low when the LED current is high.

The  symbol indicates open collector/drain output.

All specific part optocouplers have their footprints, isolation voltage and data rate/propagation delay in the symbol description.

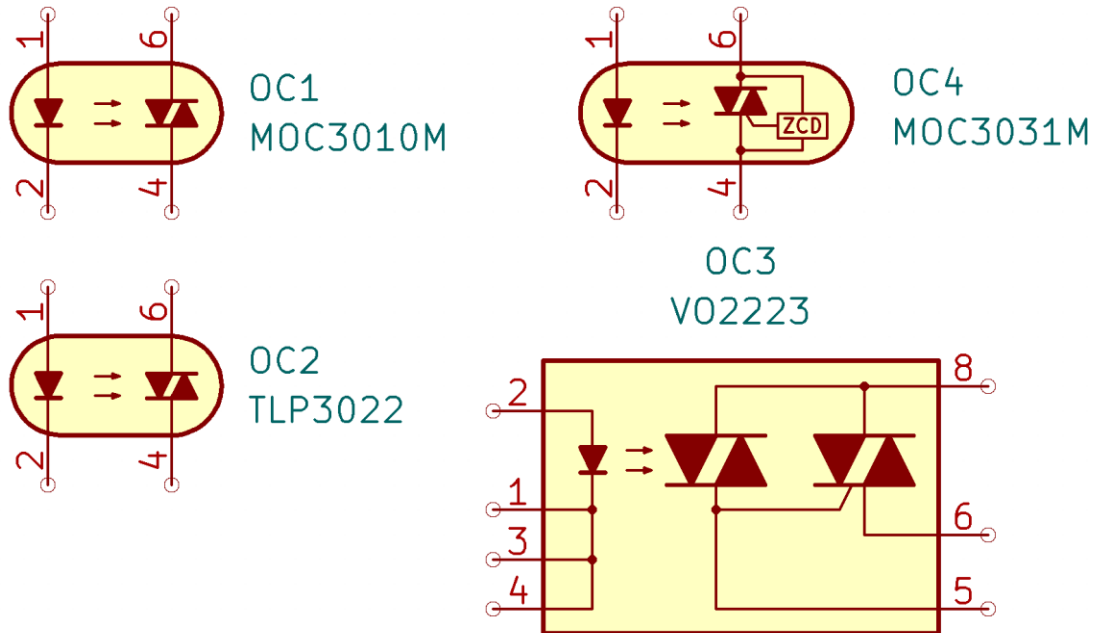
Default reference designator for optocouplers is OC.

Correct footprints are pre-assigned to each specific part symbol. Default THT optocouplers use the "LongPads" DIP package variant. See section [3](#) and [3.17](#) for available footprint variants.

2.20 Optocoupler_Triac_AKL symbol library description

Optocoupler_Triac_AKL adds new generic symbols for phototriacs and around 300 specific part symbols.

Some of the new phototriac symbols:



All specific part phototriacs have their footprints, isolation voltage and detector current/voltage rating in the symbol description.

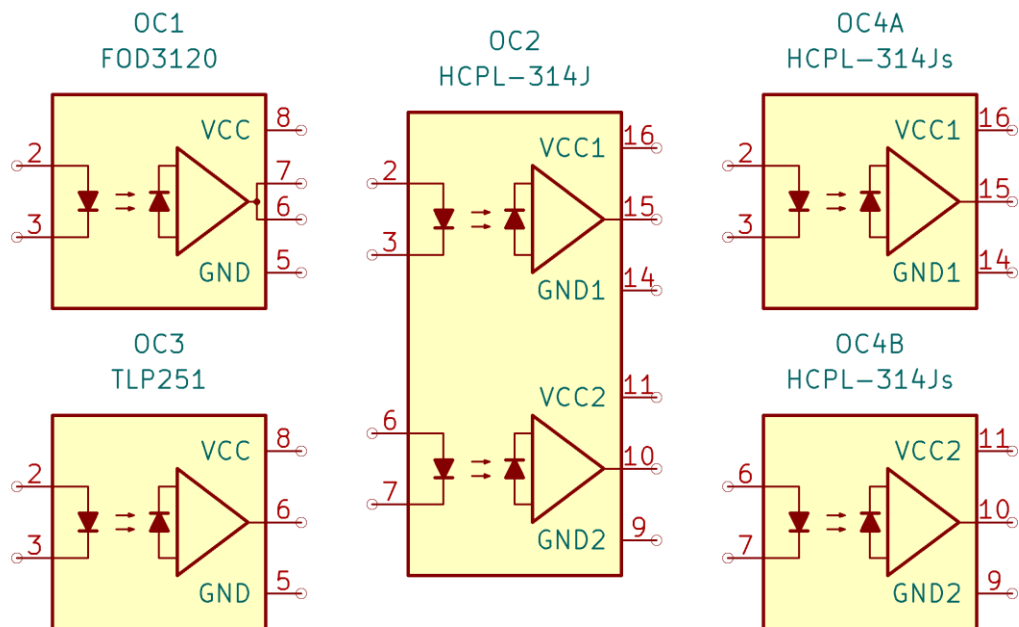
Default reference designator for phototriacs is OC.

Correct footprints are pre-assigned to each specific part symbol.
Default THT optocouplers use the "LongPads" DIP package variant.
See section [3](#) and [3.17](#) for available footprint variants.

2.21 Optocoupler_Gate_Driver_AKL symbol library description

Optocoupler_Gate_Driver_AKL adds new generic symbols for optocouplers designed for driving MOSFETs and IGBTs and around 80 specific part symbols.

Some of the new gate drive optocoupler symbols:



Gate driver symbol is visibly distinct from the ones used in logic optocouplers.

All specific part gate drive optocouplers have their footprints, isolation voltage, peak output current and switching frequency/times in the symbol description.

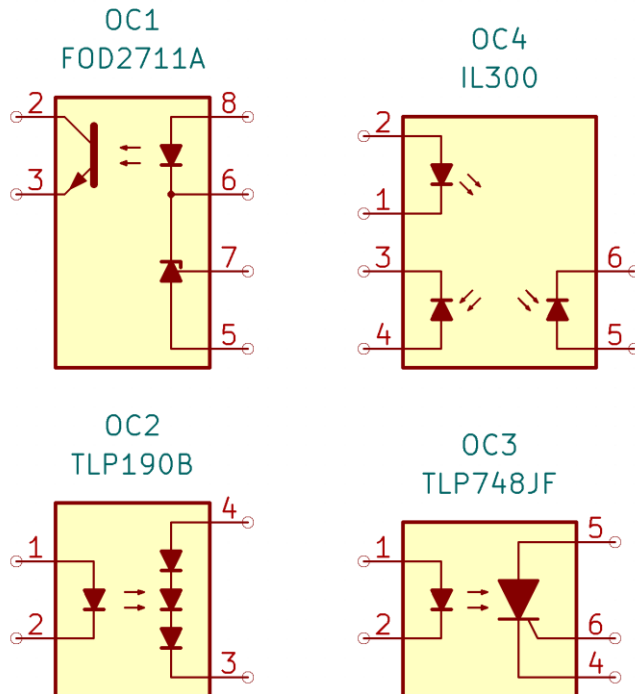
Default reference designator for gate drive optocouplers is OC.

Correct footprints are pre-assigned to each specific part symbol. Default THT optocouplers use the "LongPads" DIP package variant. See section [3](#) and [3.17](#) for available footprint variants.

2.22 Optocoupler_Misc_AKL symbol library description

Optocoupler_Misc_AKL adds new generic symbols for miscellaneous opto-isolation devices that don't fit in with previous categories and around 100 specific part symbols.

Some of the new gate drive optocoupler symbols:




Each device has the detector configuration indicated in a way that helps identify the device type (isolated error amplifier, photovoltaic output optocoupler etc.)

All specific optocouplers have their footprints, device types and relevant parameters listed in the symbol description.

Default reference designator for optocouplers is OC.

Correct footprints are pre-assigned to each specific part symbol. Default THT optocouplers use the "LongPads" DIP package variant. See section [3](#) and [3.17](#) for available footprint variants.

3. Footprint Libraries Overview

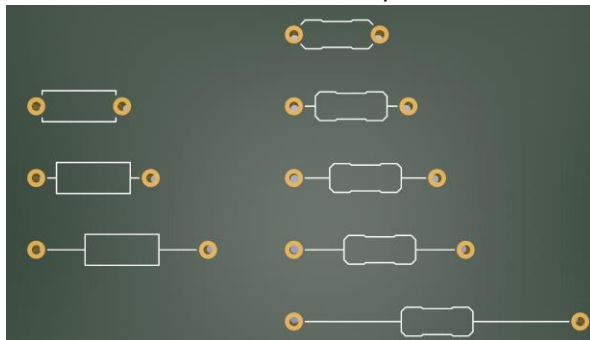
AKL footprint libraries have been derived from the first-party KiCad Library. Switching between AKL and vanilla KiCad during layout can be easily achieved by using the "Change Footprint" menu in the footprint properties and pasting or deleting "_AKL" at the end of library name in the "New footprint library id:" text field. (Always verify that the new footprint is actually there by pressing the  icon. If you changed the nicknames of any libraries in your library table you need to change the name of the library according to your naming scheme).

AKL Footprint Libraries have been modified to provide

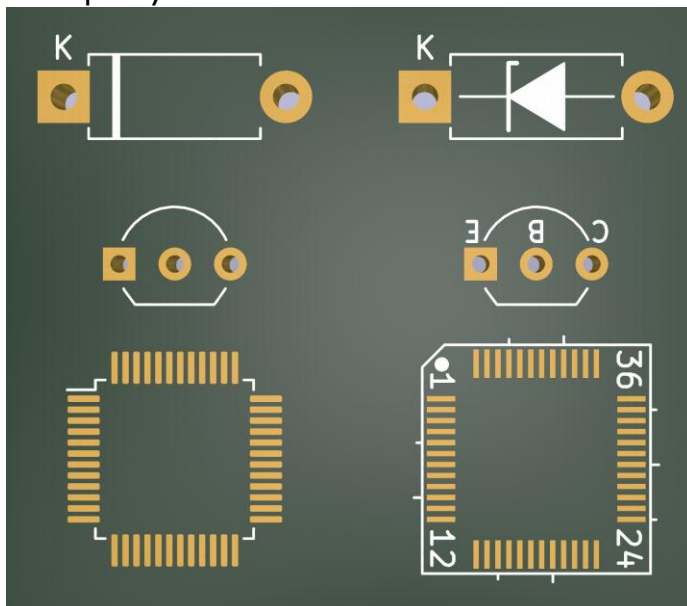
- More information on the silkscreen layer.
- More aesthetically pleasing silkscreen drawings of various devices.
- More pin pitch options for THT devices.
- More footprint variants for different devices (See [Section 3.1](#))

Examples:

DIN0207 THT Resistors, AKL on the right vs first-party KiCad on the left



Zener diode, Bipolar Transistor and a TQFP-48 IC, AKL on the right and first-party KiCAD on the left.



3.1 Footprint Library Variants

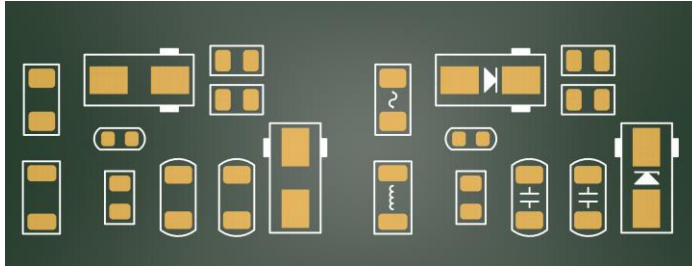
Some footprint libraries are provided in multiple variants, Description of each footprint library will state if any variants are available.

“HandSoldering” Variant

This library contains SMD footprints with silkscreen under the parts, this helps identify which component goes where, especially on PCBs without reference designators laid out. The main problem with this approach is that during machine soldering non-zero thickness of the silkscreen drawing means that the metal contacts of the part don't always contact the pads, which leads to “tombstoning”. If you intend to hand-solder your boards it is safe to use this variant, otherwise use the standard library.

Example:

Standard footprints on the left, HandSoldering footprints on the right



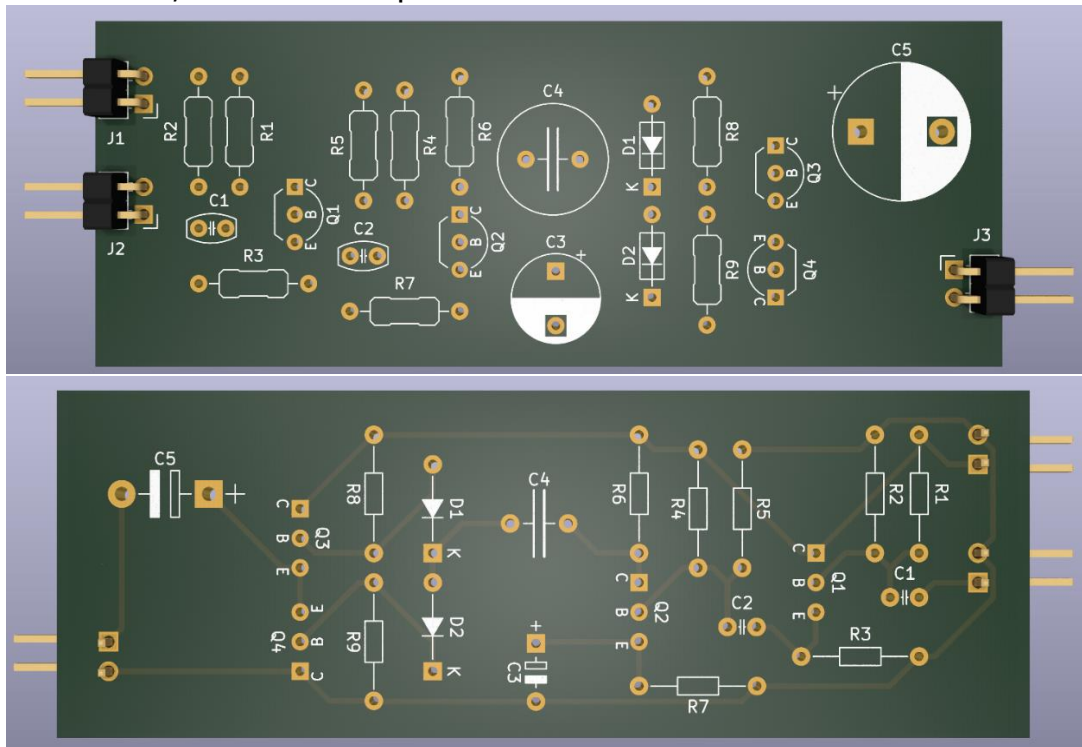
Please note that very small footprints don't have any silkscreen under them, even though they are included in the “HandSoldering Library”

"Double" Variant

Have you ever come across old single-layer PCBs with silkscreen on both sides? You could easily follow the circuit without flipping the board, just by looking at the bottom side. With this variant you can recreate that effect:

Example:

Same PCB, view from top and bottom.



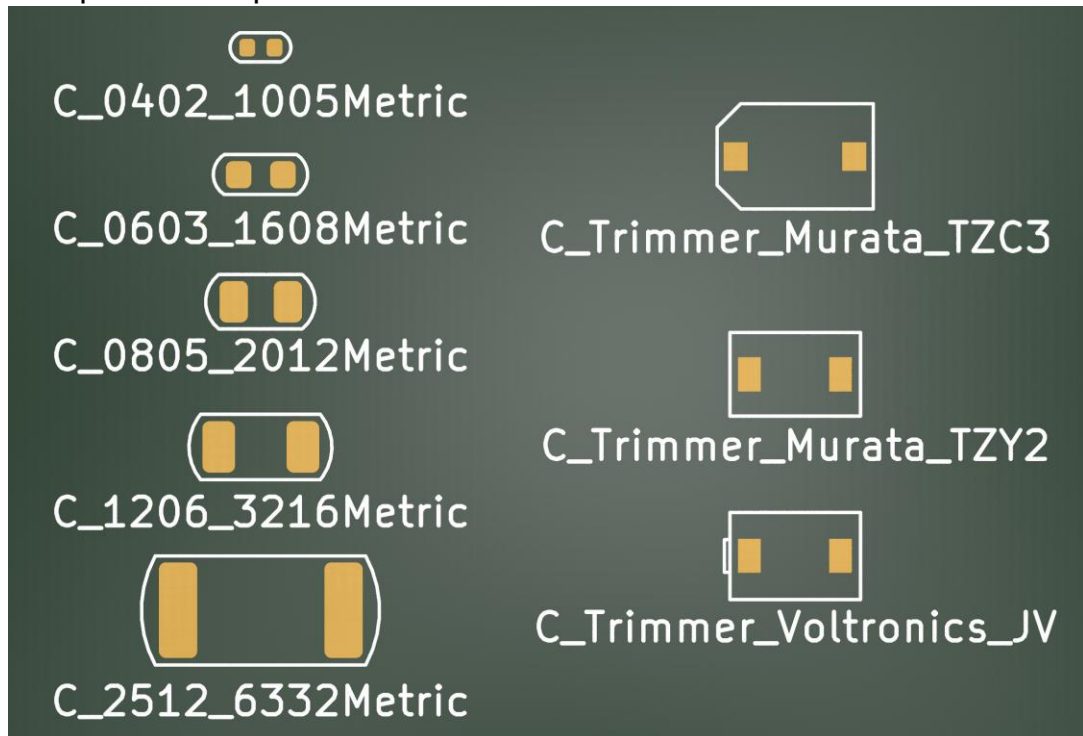
Bottom silkscreen will contain simplified symbol of the component as to not needlessly clutter up the bottom of the PCB. This variant is not recommended if you plan on using double-sided mixed THT/SMD devices in your design, as bottom layer will be taken up by silkscreen from components placed on the top layer.

3.2 Capacitor_SMD_AKL footprint library description

This footprint library contains modified SMD capacitor and trimmer footprints.

“HandSoldering” variant is available.

Footprint examples below:



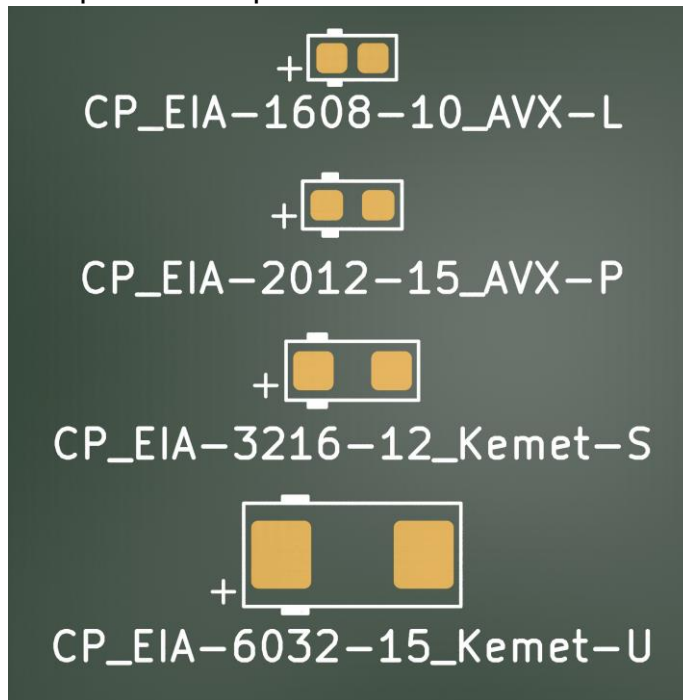
Chip capacitors have a distinct rounded outline, while trimmers have solid outline with direction marks where applicable.

3.3 Capacitor_Tantalum_SMD_AKL

This footprint library contains modified SMD tantalum capacitor footprints.

“HandSoldering” variant is available.

Footprint examples below:

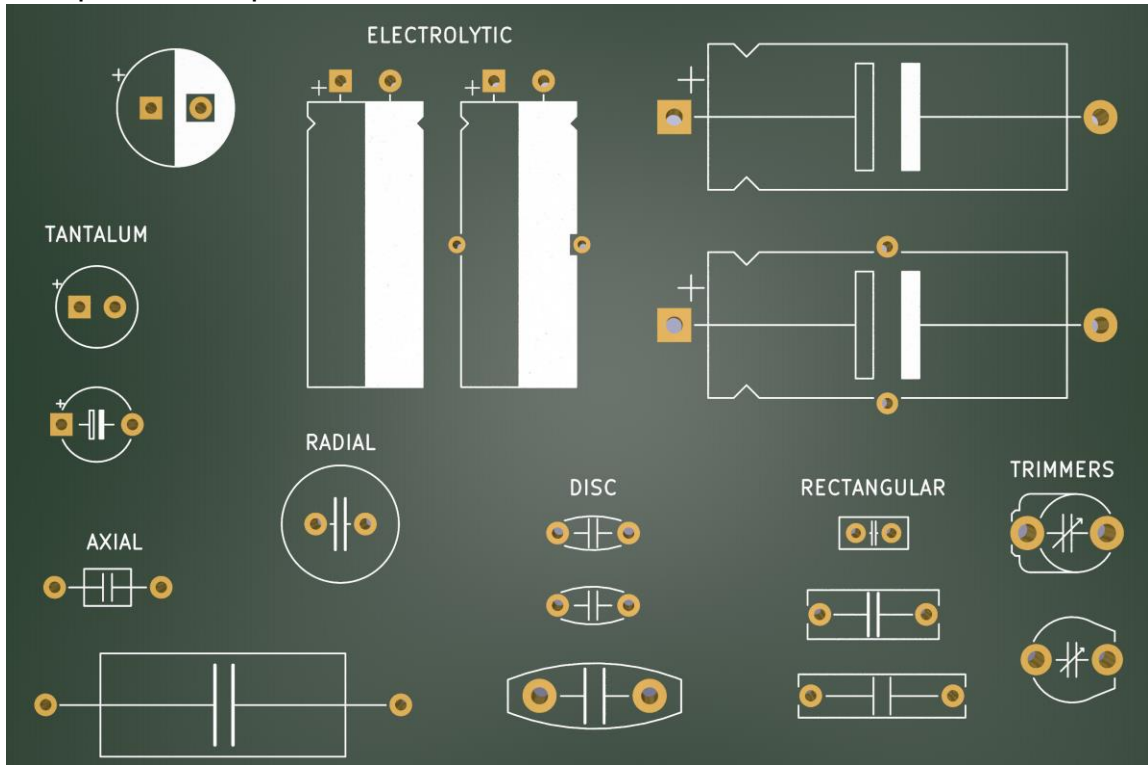


Tantalum capacitors have 2 polarity marks, plus sign near the positive pad and two rectangles in line with the stripe on the capacitor package.

3.4 Capacitor_THT_AKL

This footprint library contains modified THT capacitor footprints. "Double" variant is available.

Footprint examples below:

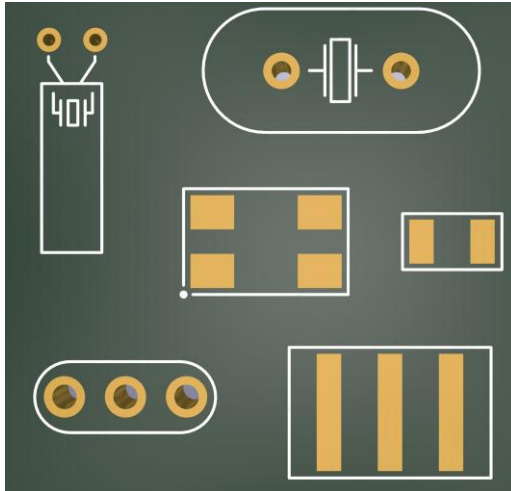


All non-polarized capacitors, trimmers and axial electrolytic capacitors have their symbol printed under the part. All polarized capacitors have a plus sign near the positive pad in addition to any other polarity marks. Radial electrolytic capacitors have a filled polygon on the negative side of the part. Large axial and horizontal radial parts have optional holes for soldering-in support wires.

3.5 Crystal_AKL footprint library description

This footprint library contains modified crystal and crystal oscillator footprints.

Footprint examples below:



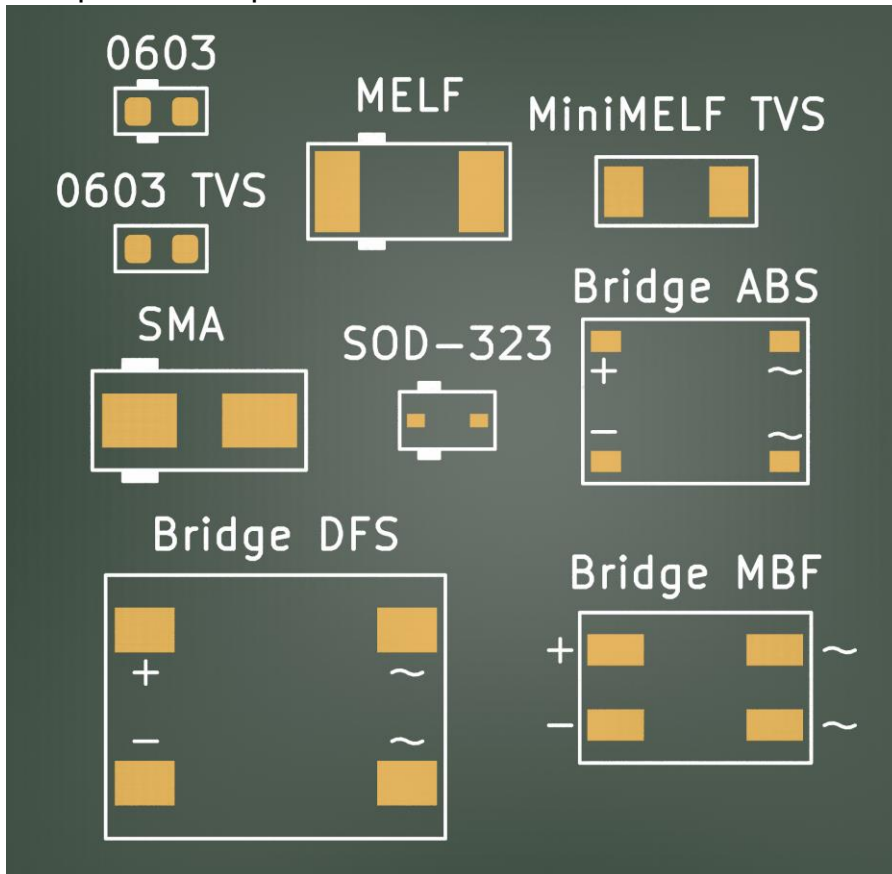
THT footprints have crystal symbols under the parts, SMD footprints have solid outline with a dot marking the pin 1 if applicable.

3.6 Diode_SMD_AKL footprint library description

This footprint library contains modified SMD diode and diode bridge footprints.

"HandSoldering" variant is available

Footprint examples below:



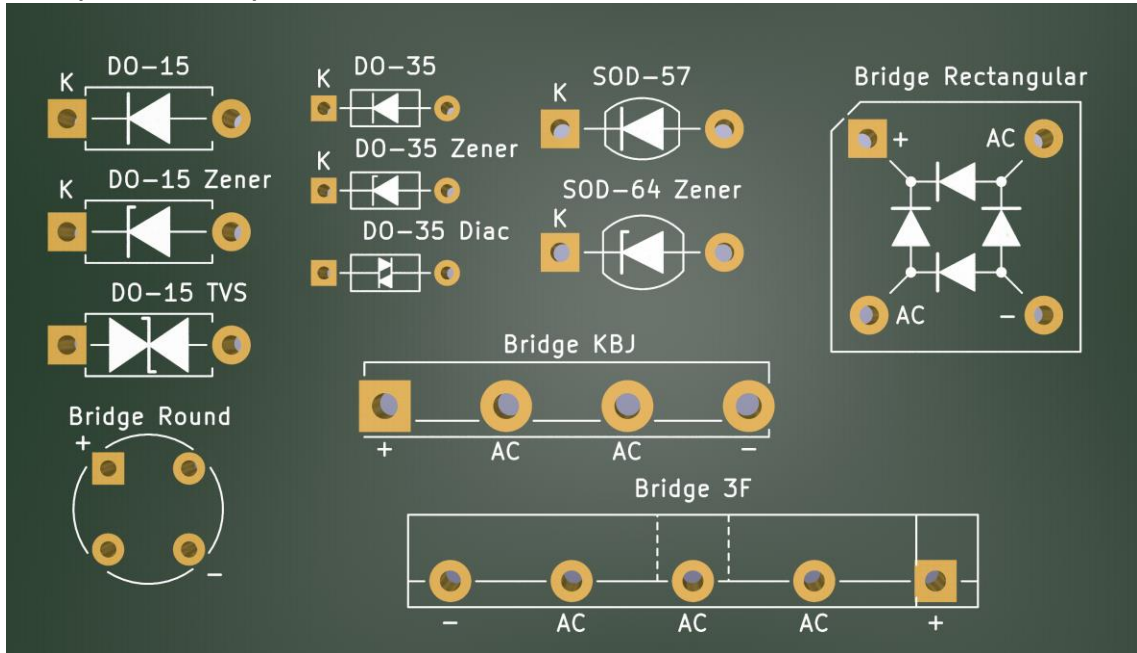
All SMD diode footprints now have a solid outline with 2 rectangles that line up with the cathode mark on standard diodes. TVS footprint variants are used by bidirectional Transient Voltage Suppressors that don't have polarity, more diode variants are available in the "HandSoldering" library. Diode bridges have their pinout indicated with "+", "-", and "~" marks.

3.7 Diode_THT_AKL footprint library description

This footprint library contains modified THT diode and diode bridge footprints.

"Double" variant is available

Footprint examples below:



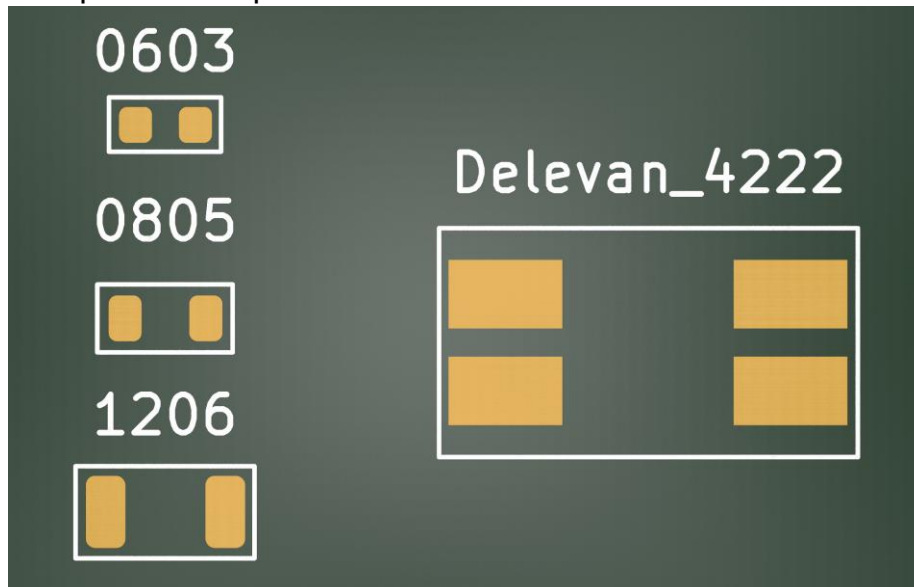
All THT diode footprints now have their respective symbol on the silkscreen, with Zener, TVS and Diac variants available. New SOD-57 and SOD-64 packages have been added. Diode bridges have their polarity marked with "+", "-", "AC". New three-phase bridge rectifier footprints have been added.

3.8 Ferrite_SMD_AKL footprint library description

This footprint library contains SMD ferrite bead footprints.

“HandSoldering” variant is available.

Footprint examples below:

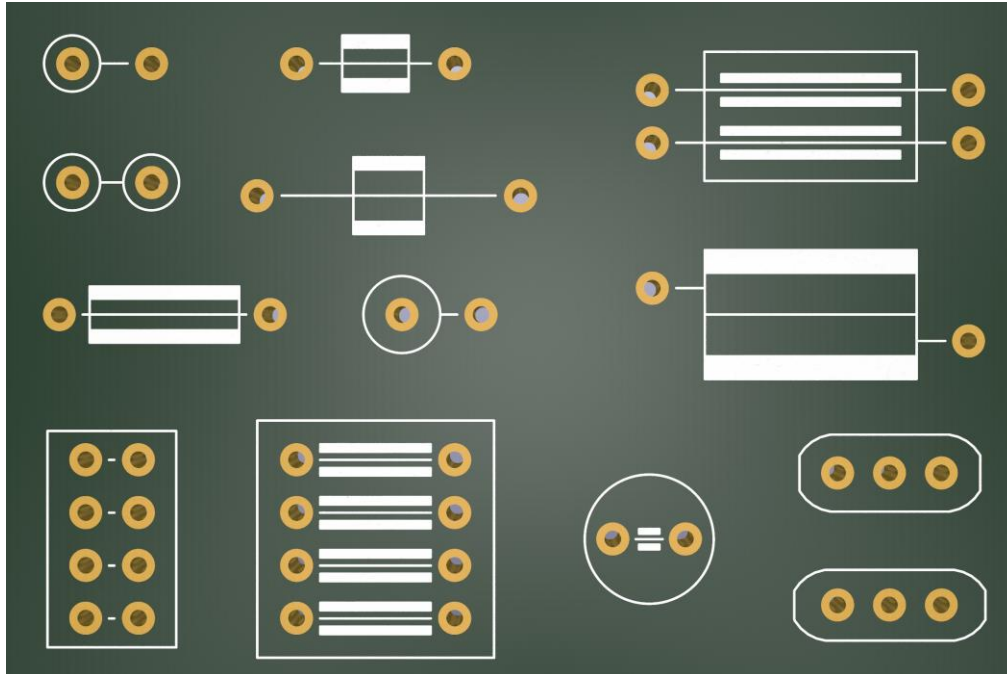


All SMD ferrite footprints have a solid outline. “HandSoldering” library variant has the new ferrite symbols printed under the parts.

3.9 Ferrite_THT_AKL

This footprint library contains new THT ferrite bead and filter footprints.

Footprint examples below:



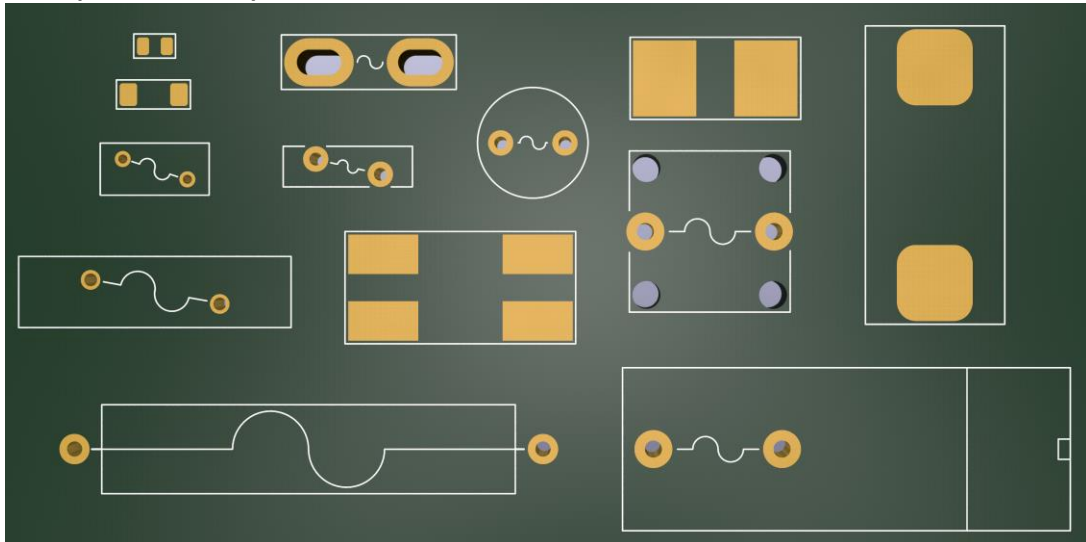
All THT ferrite bead footprints have the new symbol printed on the silkscreen, many different sizes and configuration are available.

3.10 Fuse_AKL footprint library description

This footprint library contains modified THT and SMD fuse and fuse holder footprints.

“HandSoldering” and “Double” variants are available

Footprint examples below:



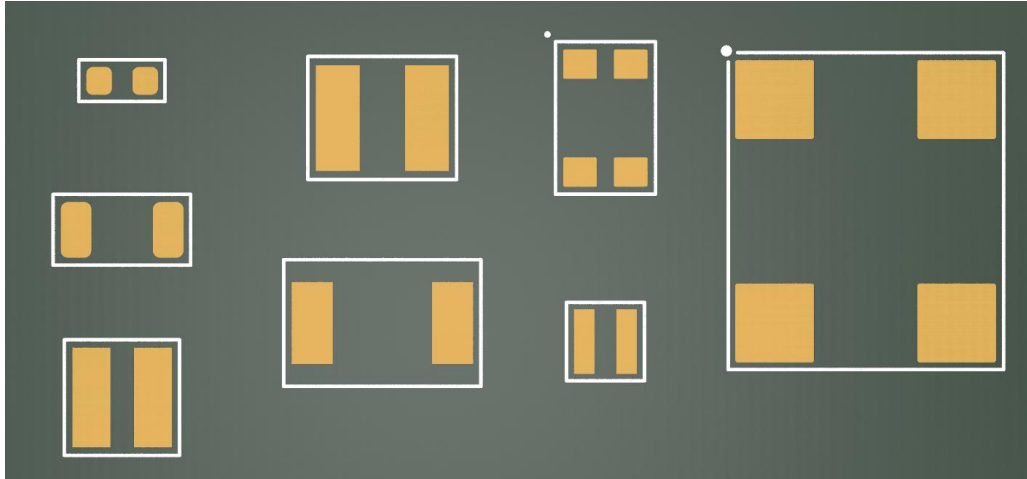
All THT fuses have their symbol on the silkscreen layer under the part, SMD fuses have a solid outline.

3.11 Inductor_SMD_AKL footprint library description

This footprint library contains modified SMD inductor footprints.

“HandSoldering” variant is available

Footprint examples below:



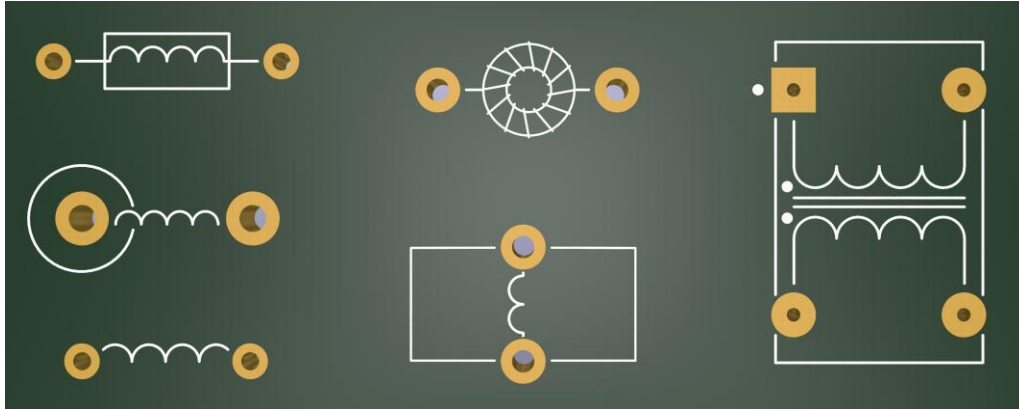
Most SMD inductors and common-mode chokes have solid outlines, common-mode chokes have a dot indicating pad 1.

3.12 Inductor_THT_AKL footprint library description

This footprint library contains modified THT inductor footprints.

“Double” variant is available

Footprint examples below:



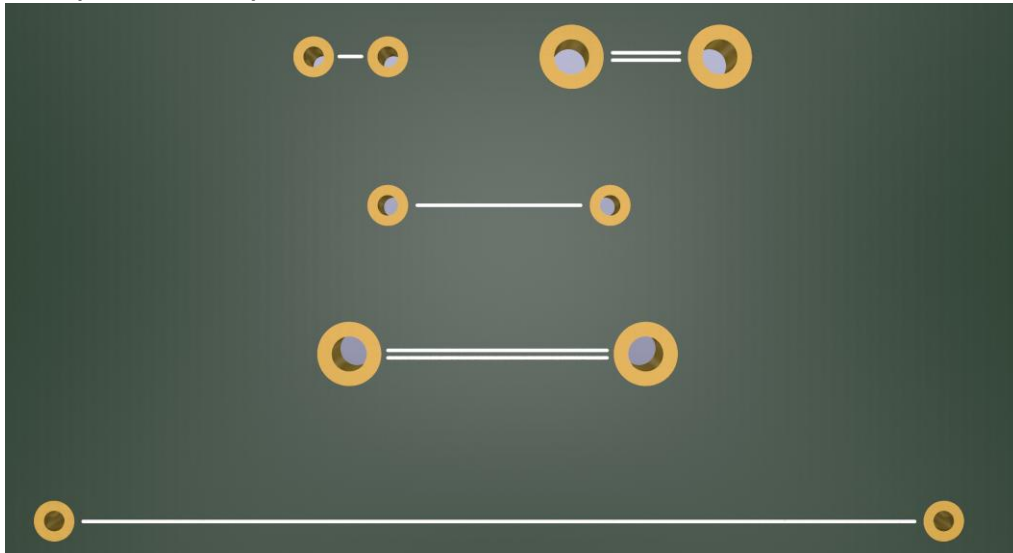
All THT inductors have their symbols on the silkscreen layer, except the horizontal toroids, which have their own symbolic representation. Common-mode chokes have both dot on pin 1 and phase dots.

3.13 Jumper_AKL footprint library description

This footprint library contains new THT jumpers, helpful during single-layer PCB layout.

“Double” variant is available

Footprint examples below:

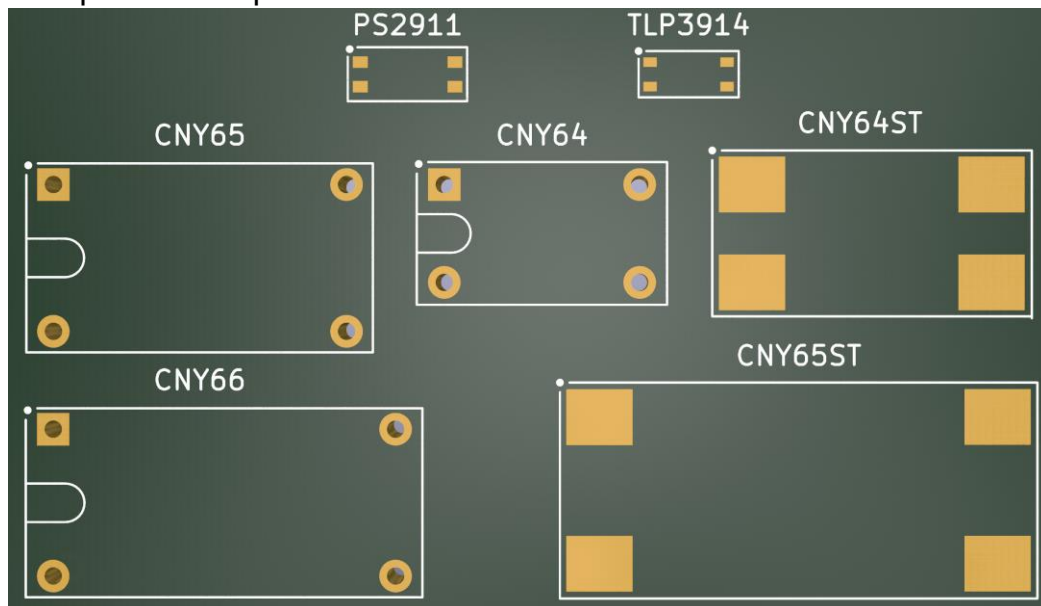


THT jumpers come in 2 thickness variants, 0.7mm and 1.2mm (hole diameter) and pin pitches up to 30.48mm.

3.14 Optocoupler_AKL footprint library description

This footprint library contains non-standard optocoupler footprints.

Footprint examples below:

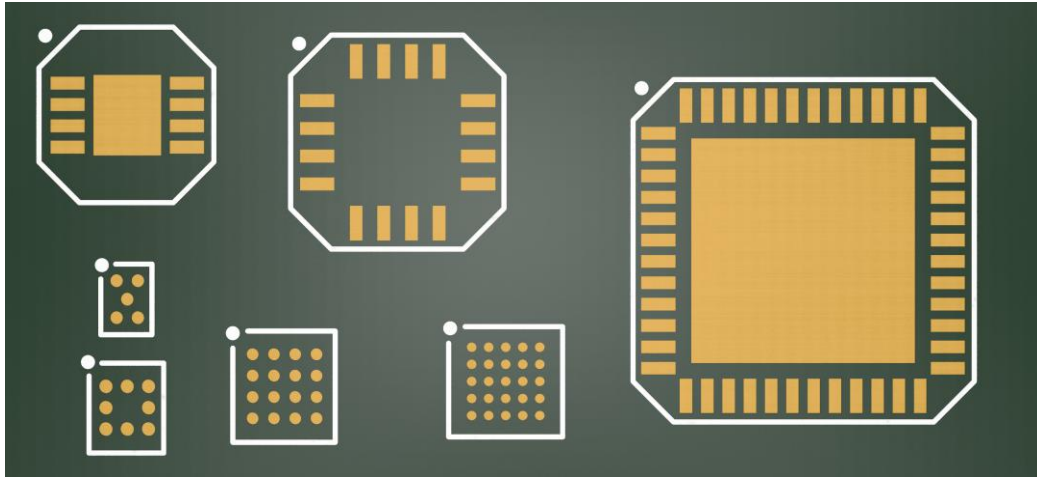


All footprints have the dot marking pin 1.

3.15 Package_CSP_AKL footprint library description

This footprint library contains modified SMD Chip Scale Packaging footprints.

Footprint examples below:

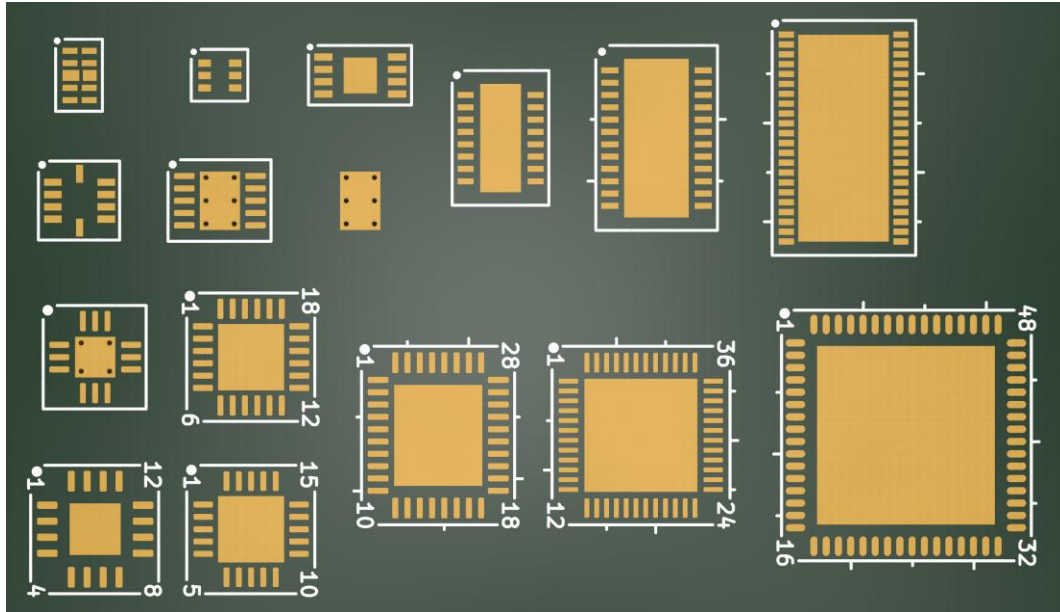


All footprints have the dot marking pad 1. Analog Devices makes ICs in CSP packages with octagonal shape named LFCSP-VD and LFCSP-VQ, footprints with outline following the package shape are available.

3.16 Package_DFN_QFN_AKL footprint library description

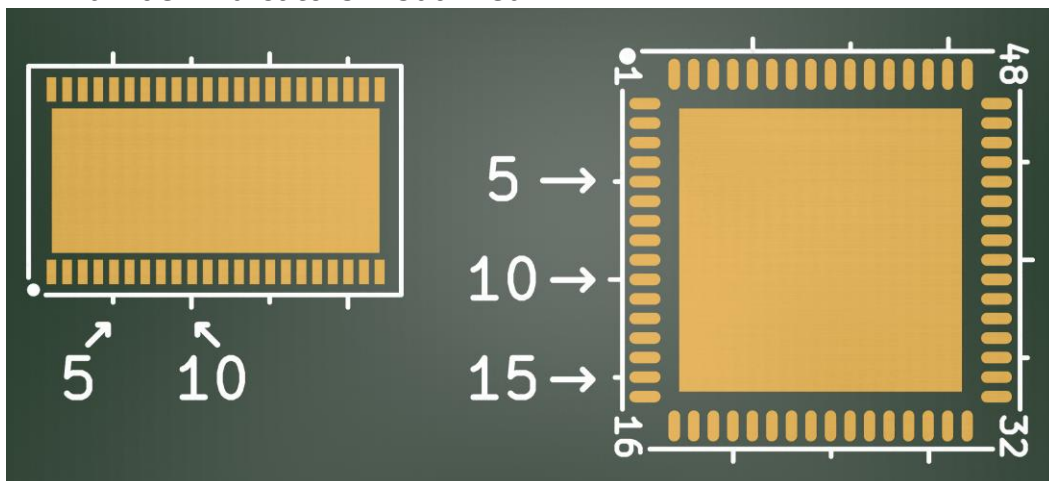
This footprint library contains modified SMD Dual and Quad Flat No-Lead packages.

Footprint examples below:



All footprints have the dot marking pad 1. Packages with exposed pad on the bottom of the package can come in a "Thermal Via" variant that has exposed copper on the bottom layer of the PCB. Large DFN packages have indicator lines every 5 and 10 pads, QFN packages have additional numbers on every corner of the package indicating previous pad's number.

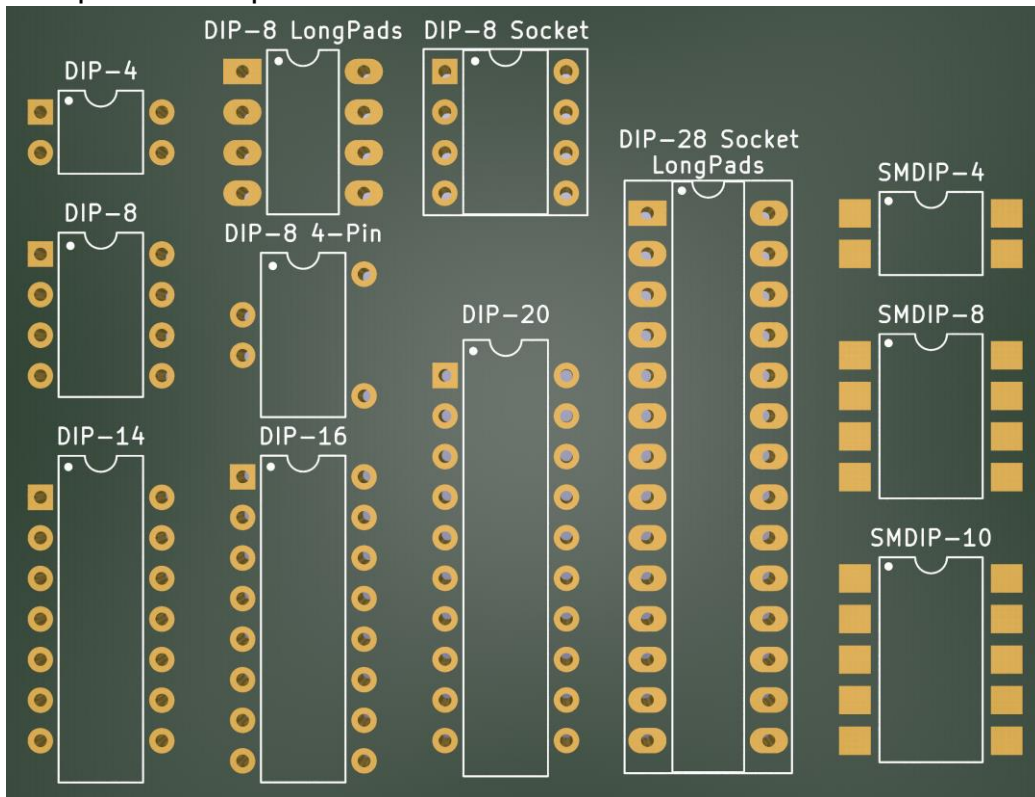
Pin number indicators visualized:



3.17 Package_DIP_AKL footprint library description

This footprint library contains modified DIP and SMDIP packages.

Footprint examples below:



All footprints have a dot and an indentation marking the pin 1. Some DIP package footprints have been elongated to match real-world packages. (DIP-14 is actually the same length as DIP-16).

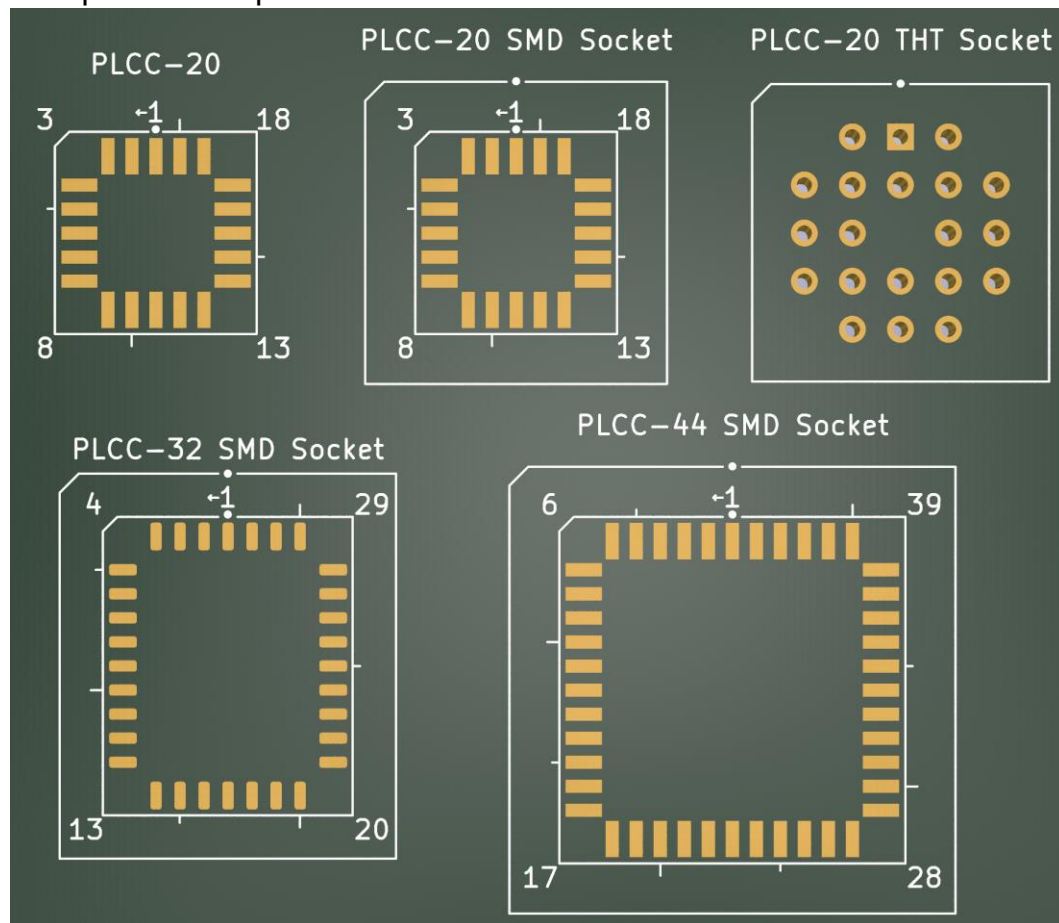
DIP packages can come in different variants:

- LongPads makes hand-soldering easier (AKL default)
- Socket has additional outline around the entire footprint
- Socket LongPads combines the previous two variants.

3.18 Package_LCC_AKL footprint library description

This footprint library contains modified PLCC packages.

Footprint examples below:



All footprints have a dot marking the pin 1 and a diagonal edge that matches most PLCC packages. All footprints have indicator lines every 5 and 10 pads and additional numbers on every corner of the package indicating previous pad's number.

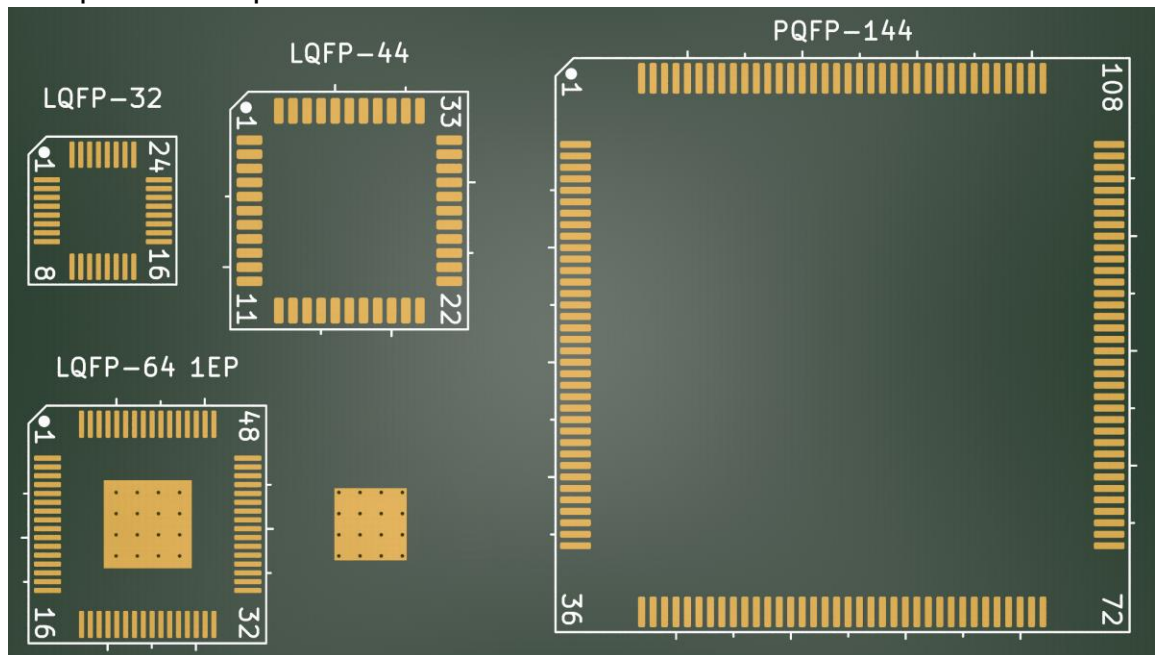
PLCC packages can come in different variants:

- SMD Socket has additional space reserved for the socket, It can be used even if you intend to mount the IC directly to the PCB, because pad layout is the same. Free space around PLCC package makes it easier to hand-solder as well.
- THT Socket has no pad number markings, but still retains the dot.

3.19 Package_QFP_AKL

This footprint library contains modified Quad Flat-Pack packages.

Footprint examples below:



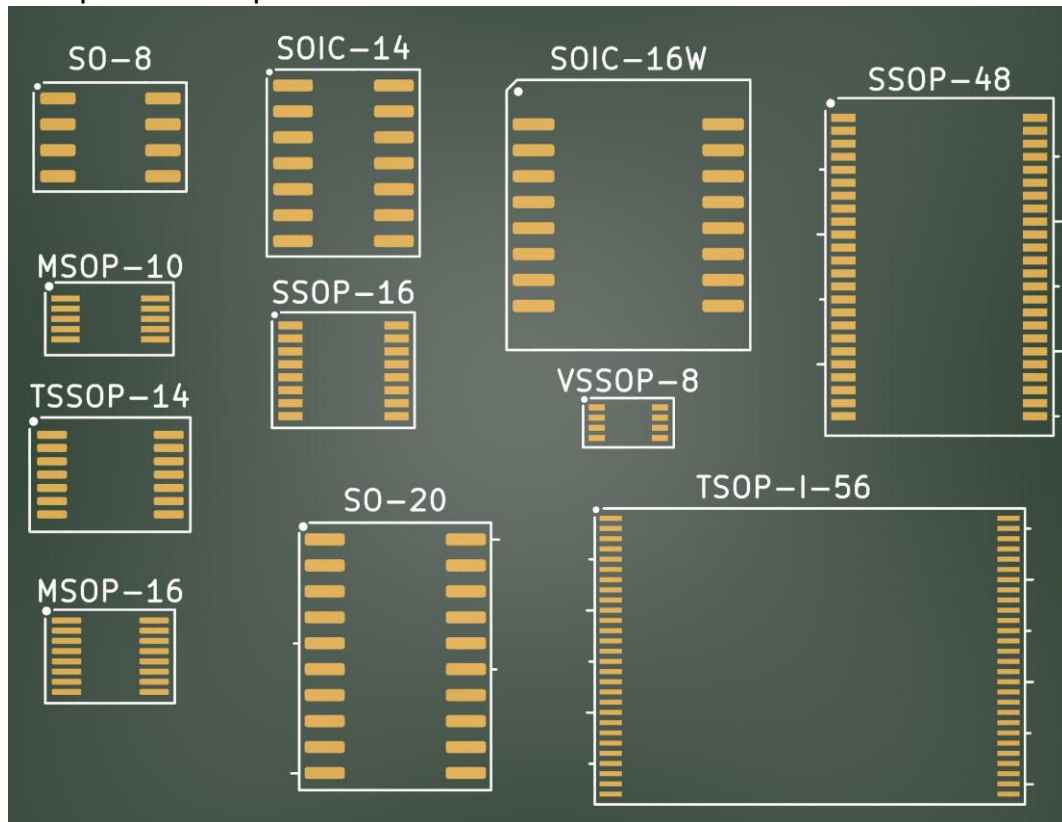
All footprints have a dot and a diagonal edge marking the pin 1. They also have indicator lines every 5 and 10 pads and additional numbers on every corner of the package indicating previous pad's number.

QFP packages with exposed pad on the bottom of the package can come in a "Thermal Via" variant that has exposed copper on the bottom side of the PCB.

3.20 Package_SO_AKL footprint library description

This footprint library contains modified SMD IC packages.

Footprint examples below:



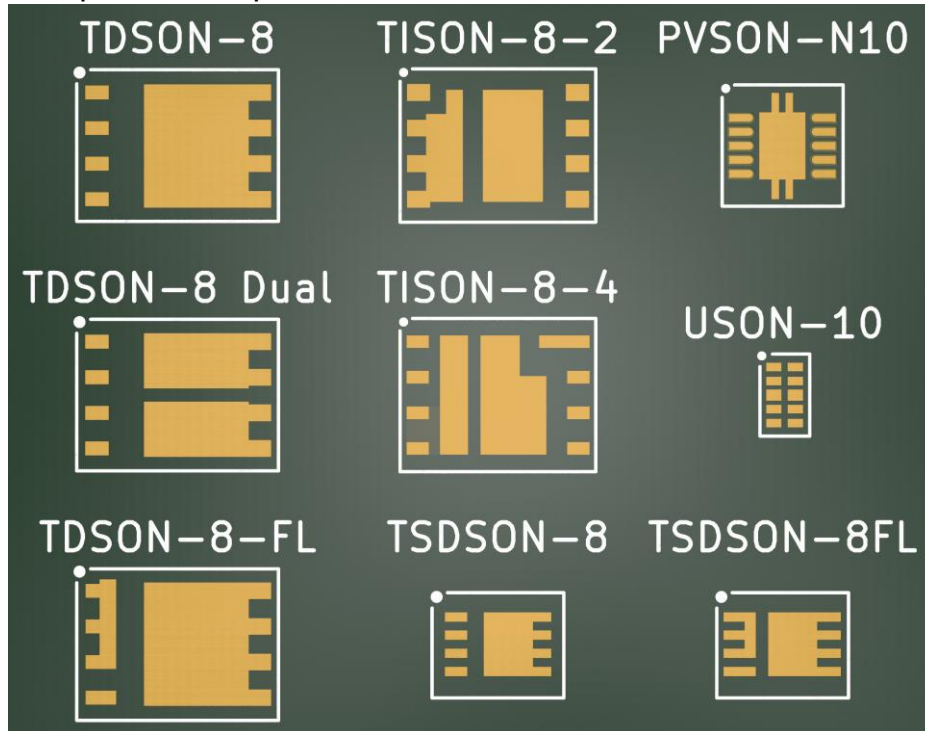
All footprints have a dot marking the pin 1.

Large packages also have indicator lines every 5 and 10 pads.

3.21 Package_SON_AKL

This footprint library contains modified Small Outline No-Lead packages.

Footprint examples below:

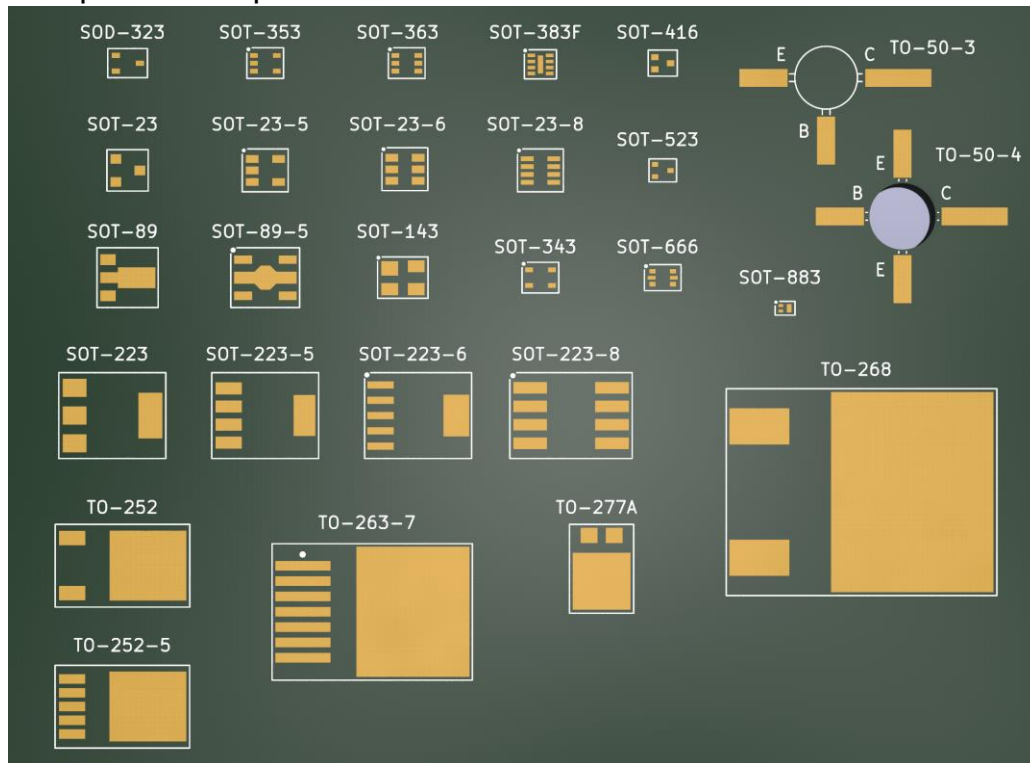


All footprints have a dot marking the pin 1.

3.22 Package_TO_SOT_SMD footprint library description

This footprint library contains modified SMD transistor packages.

Footprint examples below:

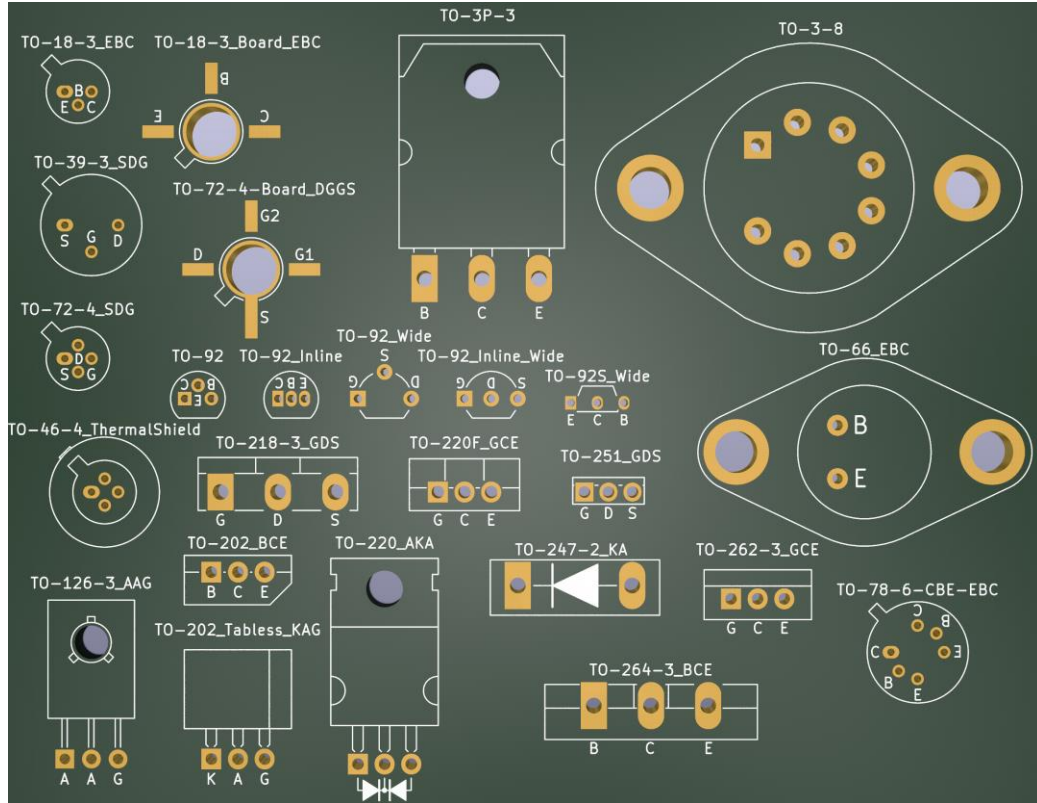


Footprints have a solid outline and a dot indicating pad 1 where necessary. TO-50 packages have multiple variants (pad length, PCB hole, B C E indicators).

3.23 Package_TO_SOT_THT footprint library description

This footprint library contains modified THT transistor packages. "Double" variant is available.

Footprint examples below:

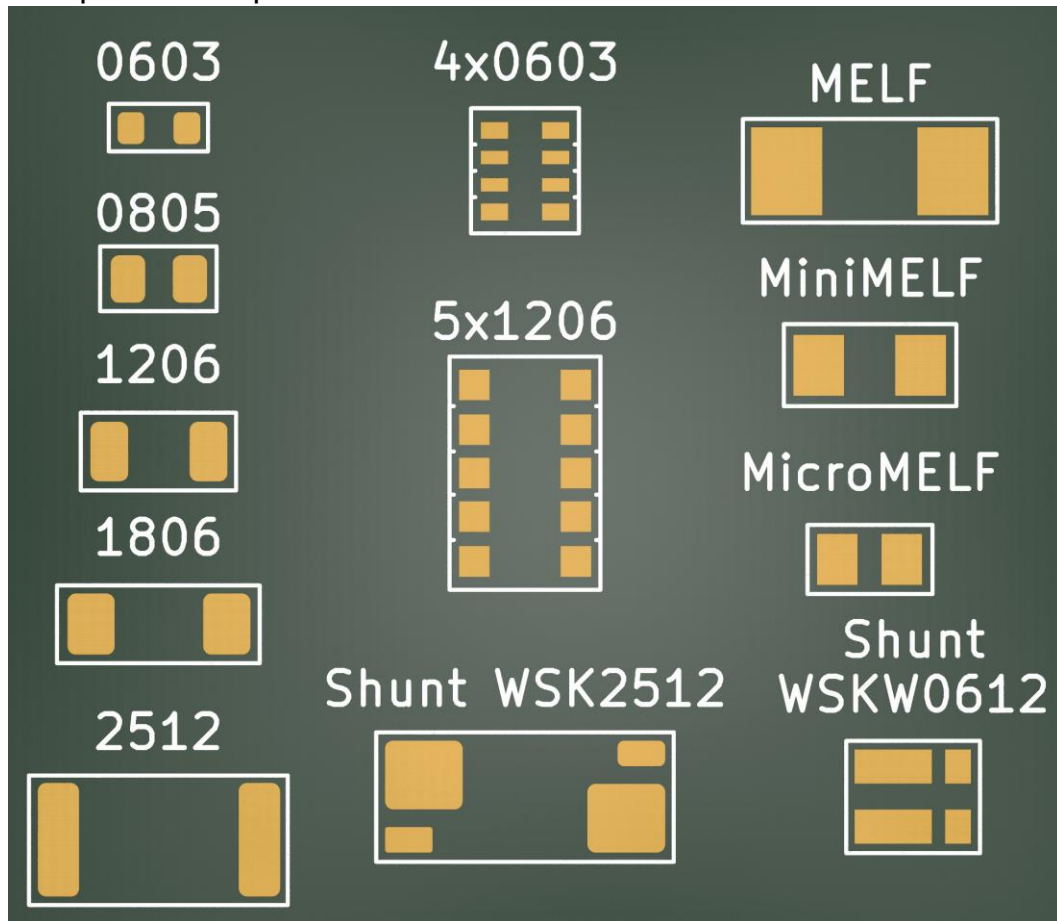


Footprints come in many different variants, All common transistor and rectifier footprints have text or graphical indicators for pin configuration. Metal can packages can be mounted through the PCB and soldered directly to the ground plane, TO-46 has an option for a thermal shield (Used by LM399). Plastic TO packages have different pin arrangements (staggered, inline etc.) and mounting orientations (horizontal, vertical).

3.24 Resistor_SMD_AKL

This footprint library contains modified SMD resistor and current shunt footprints.

Footprint examples below:

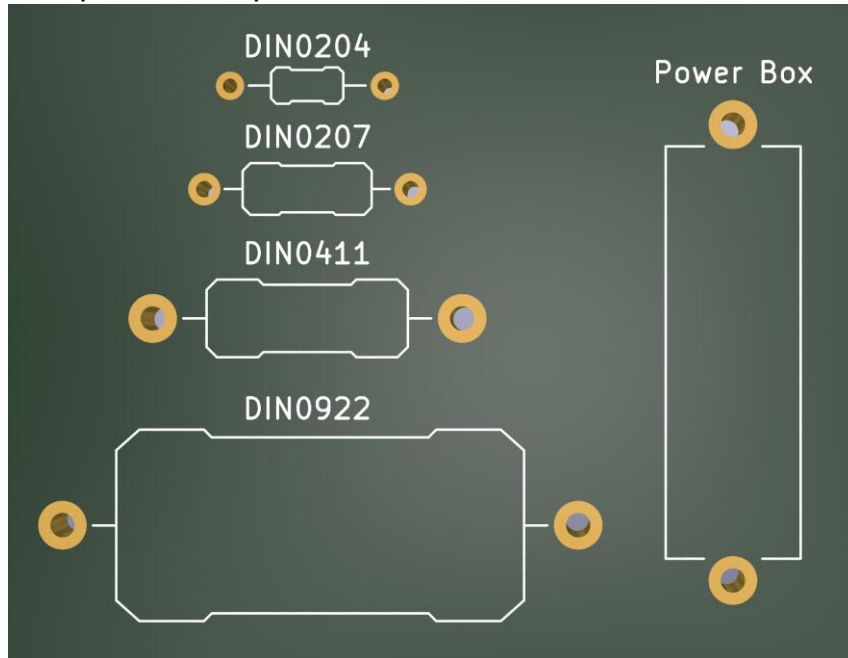


Resistors have a solid outline.

3.25 Resistor_THT_AKL footprint library description

This footprint library contains modified THT resistor footprints.
"Double" variant is available.

Footprint examples below:



Axial DIN resistor have changed outline.

"Double" variant footprints have simplified rectangular resistor symbols on the bottom silkscreen layer.

SIP resistor network footprints have more pronounced pin 1 indicator.

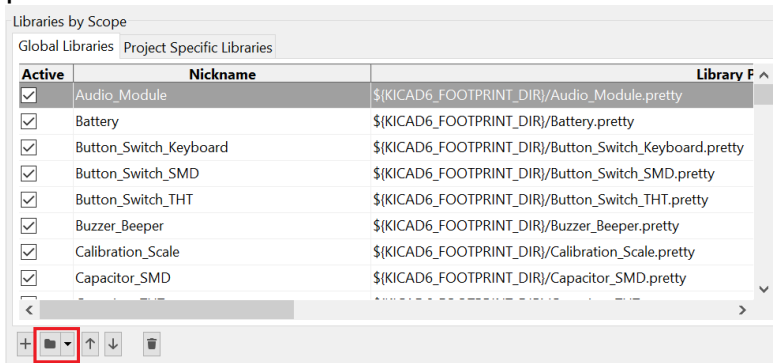
4. Installation Instructions

4.1 Installation using KiCad's Plugin and Content Manager:

In the "Libraries" tab search for 'Alternate KiCad Library' and install it.

KiCAD uses library tables to keep track of installed libraries. As of 6.0.0-rc1 **Content Manager DOES NOT automatically update these library tables.**

To do it manually, go to "**Manage Footprint Libraries**" in the preferences tab.

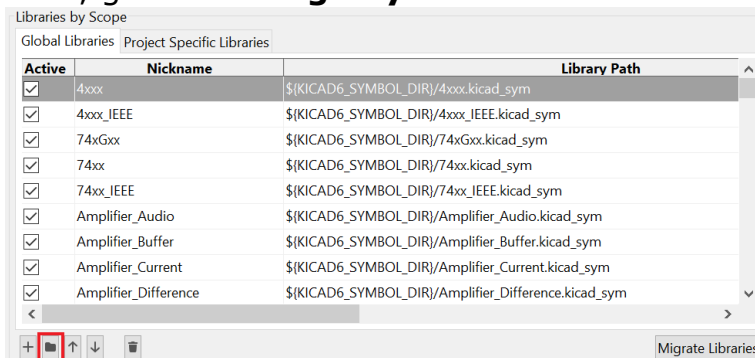


Press the icon highlighted in red and locate the folder:

<KiCAD 6 user directory> \3rdparty\footprints\alternate-kicad-library

Multiple folders ending in .Pretty should be visible. Each of these is a separate footprint library. Select all the libraries that you want to install and press "**Select Folder**".

Next, go to "**Manage Symbol Libraries**" in the preferences tab.



Press the icon highlighted in red and locate the folder:

<KiCAD 6 user directory> \3rdparty\symbols\alternate-kicad-library

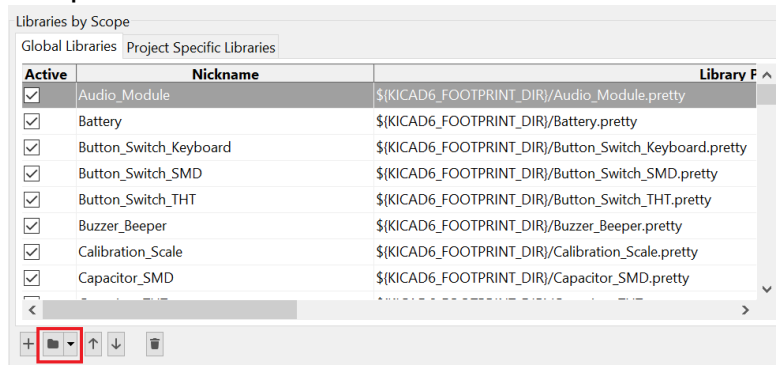
Multiple files ending in .kicad_sym should be visible. Each of these is a separate symbol library. Select all the libraries that you want to install and press "**Open**".

All the installed libraries should be now accessible.

4.2 Manual installation

Extract the downloaded AKL files into any folder you want.

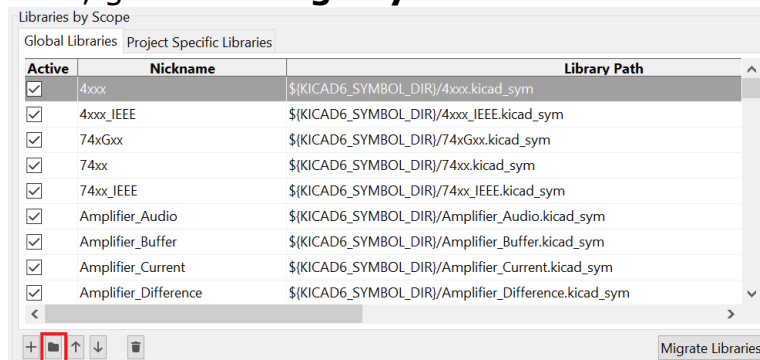
KiCAD uses library tables to keep track of installed libraries. To install libraries manually, go to “**Manage Footprint Libraries**” in the preferences tab.



Press the icon highlighted in red and locate the folder with the extracted footprint library files.

Multiple folders ending in .Pretty should be visible. Each of these is a separate footprint library. Select all the libraries that you want to install and press “**Select Folder**”.

Next, go to “**Manage Symbol Libraries**” in the preferences tab.



Press the icon highlighted in red and locate the folder with the extracted symbol library files.

Multiple files ending in .kicad_sym should be visible. Each of these is a separate symbol library. Select all the libraries that you want to install and press “**Open**”.

All the installed libraries should be now accessible.

4.3 Customizing KiCad library tables.

Symbol Libraries

Libraries by Scope

Global Libraries Project Specific Libraries

Active	Nickname	Library Path	Library Format	Options	Description
<input checked="" type="checkbox"/>	4xxx	\${KICAD6_SYMBOL_DIR}/4xxx.kicad_sym	KiCad		4xxx series symbols
<input checked="" type="checkbox"/>	4xxx_IEEE	\${KICAD6_SYMBOL_DIR}/4xxx_IEEE.kicad_sym	KiCad		4xxx series IEEE symbols
<input checked="" type="checkbox"/>	74xGxx	\${KICAD6_SYMBOL_DIR}/74xGxx.kicad_sym	KiCad		74xGxx symbols
<input checked="" type="checkbox"/>	74xx	\${KICAD6_SYMBOL_DIR}/74xx.kicad_sym	KiCad		74xx symbols
<input checked="" type="checkbox"/>	74xx_IEEE	\${KICAD6_SYMBOL_DIR}/74xx_IEEE.kicad_sym	KiCad		74xx series IEEE symbols

KiCad stores information about installed symbol and footprint libraries in library tables. You can view the table contents in the “Symbol Library Manager” and “Footprint Library Manager”.

Nickname Field contains the name of each library, by default it is identical to the file name. You can change it to your liking.

Library Path is the full path to the library file, usually used with a path substitution (KICAD6_SYMBOL_DIR for default KiCad libraries, KICAD6_3RD_PARTY for libraries downloaded using the content manager). You can add your own path substitution in the “Configure Paths” option in the “Preferences” tab.

Description contains short description of the library contents. It’s blank by default for third party libraries.

On windows you can find the library tables here:

C:\Users\<username>\AppData\Roaming\kicad\6.0

To access the appdata folder you need to either:

- Type “%appdata%” in windows search.
- Enable “Show Hidden Files” in windows explorer options.

Library table files have no file extension but can be edited with any text editor (Notepad):

fp-lib-table: Footprint library table

sym-lib-table: Symbol library table

Typical library table entry:

```
(lib (name "Filter") (type "KiCad")
(uri "${KICAD6_FOOTPRINT_DIR}/Filter.pretty") (options ""))
(descr "Filter footprints"))
```

name “<library name>” is the Nickname field.

uri “<library path>” is the path to the library file.

descr “<description>” is the description field.

You can paste multiple entries into the library table directly. Make sure to delete any duplicate entries during pasting.

Footprint library table contents:

```
(fp_lib_table
  Entry 1
  Entry 2
  ...
  Entry x
  <- Paste Here
)
```

In the "Tables" folder of the AKL Github

(<https://github.com/DawidCislo/Alternate-KiCad-Library>)

there are different library table fragments that you can paste into your library table files:

- Description_Symbols.txt and Description_Footprints.txt

Adds short descriptions to all AKL symbol and footprint libraries

- Prefix_Symbols.txt and Prefix_Footprints.txt

All AKL libraries have their nickname changed so the AKL is before the name. Descriptions from the previous files are also present.

Example:

AKL_Diode instead of Diode_AKL.

5. License

Alternate KiCad Library by Dawid Cisło is a derivative of [KiCad Library](#) made by KiCad community (see: [KiCad library GitLab](#)), used under [Creative Commons CC-BY-SA 4.0 License](#), with the following exception:

To the extent that the creation of electronic designs that use “Licensed Material” can be considered to be “Adapted Material”, then the copyright holder waives article 3 of the license with respect to these designs and any generated files which use data provided as part of the “Licensed Material”.

Additional information can be found here: [KiCad libraries license](#)

What does this mean?

You can freely use Alternate KiCad Library data for commercial, closed and non-commercial projects without any restrictions. There is no need to attribute this library or original KiCad libraries within your design and no obligation to share any project files under this or any other license agreement.

If you wish to redistribute the Alternate KiCad Library, or its parts (including in modified form) as a collection you need to share it under the same license agreement. Libraries must also retain attribution information and license documents which are distributed with the library files.

6. Contact info

If you have any issues or suggestions feel free to comment on the forum post here:

<https://forum.kicad.info/t/alternate-kicad-library-2-0/32096>

You can also contact me:

Via KiCAD forum – my username is Dawid_Cislo

Via EEVBlog forum – my username is Dave_C

Via e-mail – dawid_cislo@o2.pl