

# CIRCUIT SCHEMATICS CHEAT SHEET

FOR THE WORKSHOP

## HOW TO DEMYSTIFY AUDIO CIRCUITS

ORGANIZED BY

**KOMA ELEKTRONIK**

1. SYMBOLS + POWER + PROTECTION + HARDWARE

2. TRANSISTOR & OPAMP CONFIGURATIONS

3. FENDER FUZZ WAH PEDAL

PRESENTED BY  
**MAX GENSON**

Workshop by  
**KOMA Elektronik**

Sheet: /

File: schematic\_symbols\_cheat\_sheet.kicad\_sch

**Title: Cheat Sheet**

Size: A4

Date: 2024-11-07

KiCad E.D.A. 8.0.6

Rev:

Id: 1/4

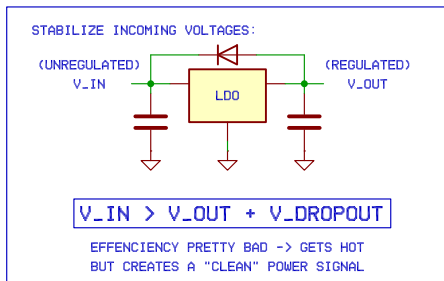
## BASIC COMPONENTS

| NAME                    | EU | US | LETTER |
|-------------------------|----|----|--------|
| RESISTOR                |    |    | R      |
| CAPACITOR (POLARIZED)   |    |    | C, CP  |
| CAPACITOR (UNPOLARIZED) |    |    | C      |
| INDUCTOR                |    |    | L      |

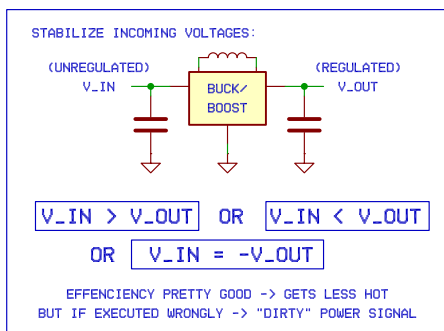
## TRANSISTORS

| NAME                             | N-TYPE | P-TYPE |
|----------------------------------|--------|--------|
| BIPOLAR JUNCTION TRANSISTOR      |        |        |
| FIELD EFFECT TRANSISTOR          |        |        |
| JUNCTION FIELD EFFECT TRANSISTOR |        |        |
| DARLINGTON BJT                   |        |        |

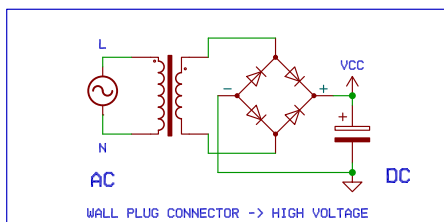
## LDO VOLTAGE REGULATOR



## BUCK/BOOST CONVERTERS



## SWITCHING MODE



## POWER SYMBOLS

| NAME    | SYMBOL |
|---------|--------|
| GROUND  |        |
| + POWER |        |
| - POWER |        |

## HARDWARE

| NAME                     | SYMBOL |
|--------------------------|--------|
| POTENTIOMETER (KNOB)     |        |
| DOUBLE ON-OFF SWITCH     |        |
| 3-POS SWITCH             |        |
| MOMENTARY SWITCH         |        |
| MONO (TS) JACK           |        |
| STEREO (TRS) JACK        |        |
| MONO (TS) JACK SWITCHED  |        |
| DC BARREL JACK           |        |
| GENERIC 4-POLE CONNECTOR |        |

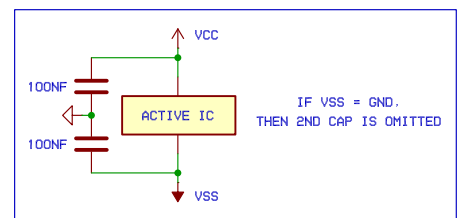
## DIODES

| NAME         | SYMBOL | FUNCTION                           |
|--------------|--------|------------------------------------|
| SMALL SIGNAL |        | STANDARD DIODE                     |
| LED          |        | EMITS LIGHT                        |
| ZENER        |        | CONSTANT REVERSE BREAKDOWN VOLTAGE |
| SCHOTTKY     |        | LOW BARRIER VOLTAGE                |

## OPAMPS

| NAME                    | SYMBOL |
|-------------------------|--------|
| VOLTAGE FEEDBACK OPAMP  |        |
| TRANS-CONDUCTANCE OPAMP |        |

## POWER CONDITIONING



## PROTECTION

|                                     |  |
|-------------------------------------|--|
| STATIC DISCHARGE<br>TVS DIODES      |  |
| REVERSE VOLTAGE<br>RECTIFIER DIODES |  |
| OVERVOLTAGE<br>SCHOTTKY DIODES      |  |
| OVERCURRENT<br>FUSES                |  |

THESE ARE USUALLY FOUND AT INPUTS OF POWER CIRCUITS OR SOMETIMES AUDIO INPUTS

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Sheet: /1. Symbols + Power + Protection + Hardware/

File: symbols.kicad\_sch

Title: Symbols + Power + Protection + Hardware

Size: A4

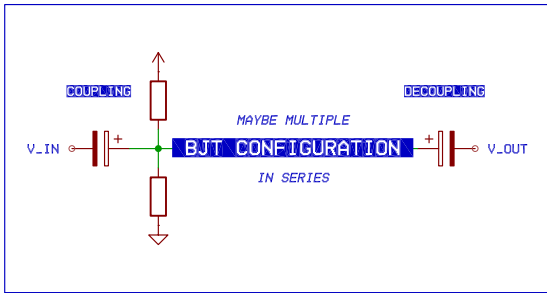
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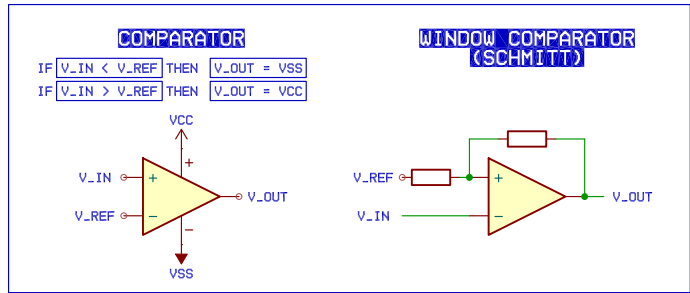
Rev:

Id: 2/4

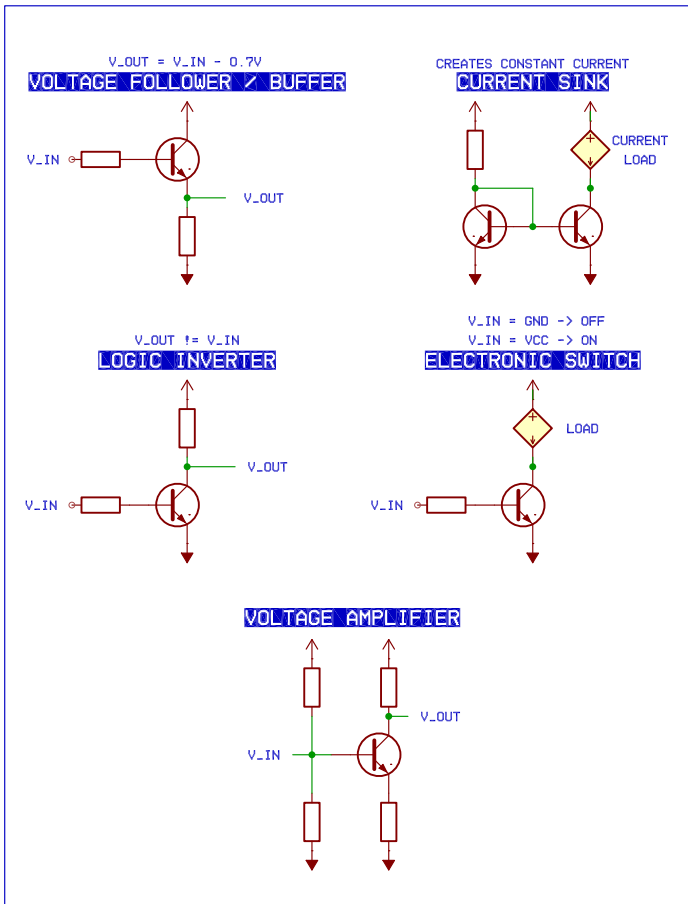
## UNIPOLAR STRUCTURE



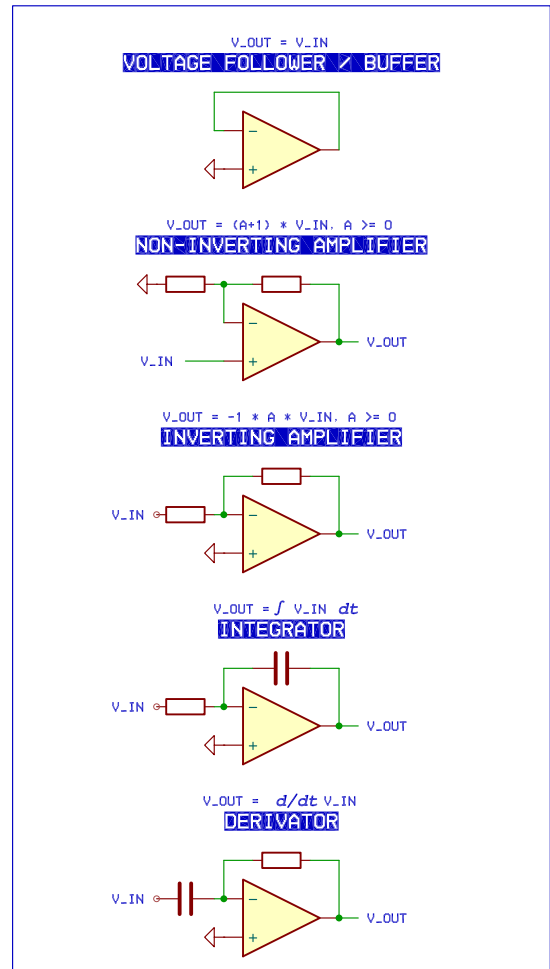
## POSITIVE FEEDBACK OPAMPS



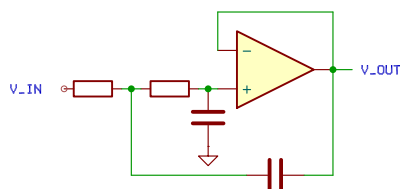
## MOST COMMON BJT CONFIGURATIONS



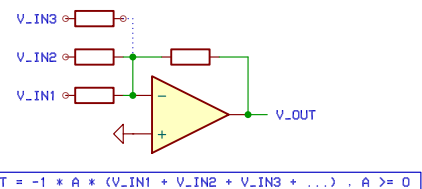
## NEGATIVE FEEDBACK OPAMPS



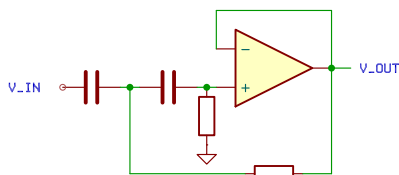
## ACTIVE 2ND ORDER LOW PASS



## INVERTING SUMMING AMPLIFIER



## ACTIVE 2ND ORDER HIGH PASS



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Sheet: /2. Transistor & Opamp Configurations/  
File: configurations.kicad\_sch

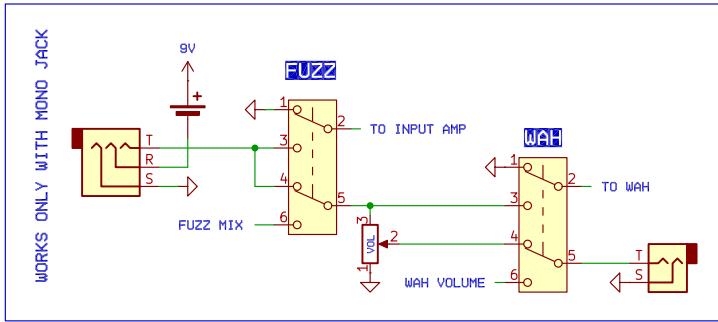
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Size: A4 Date: 2024-11-07  
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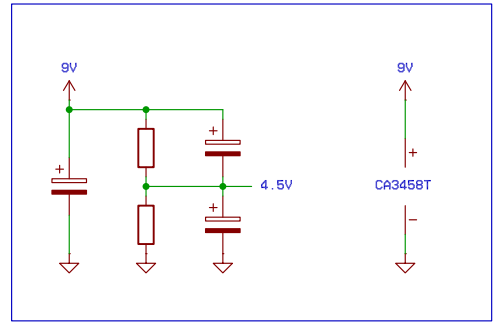
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# FENDER FUZZ WAH PEDAL (REVISITED)

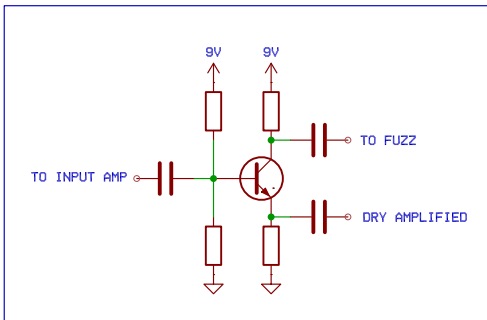
## SIGNAL ROUTING



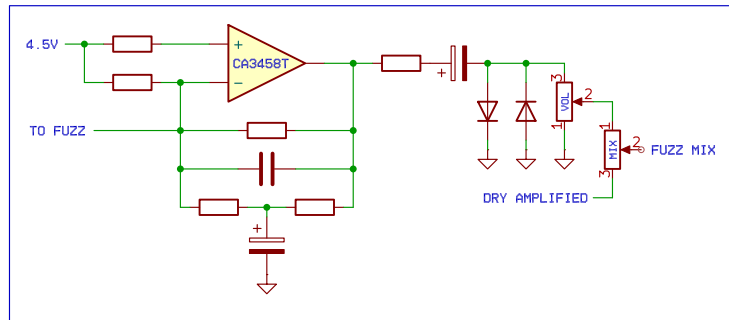
## POWER CONDITIONING



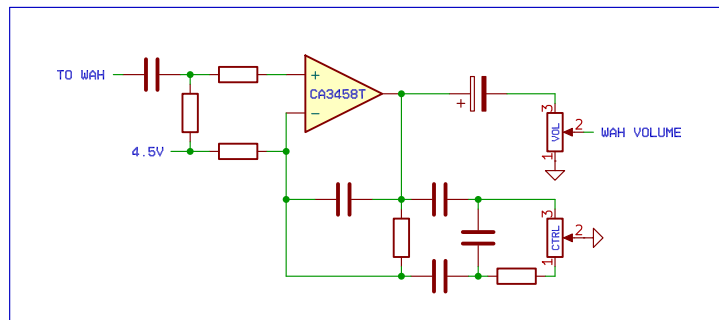
## FUZZ INPUT STAGE



## FUZZ MAGIC



## WAH MAGIC



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Sheet: /3. Fender Fuzz Wah Pedal/  
File: fuzz.kicad\_sch

**Title: Fender Fuzz Wah Pedal**

Size: A4 Date: 2024-11-07  
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