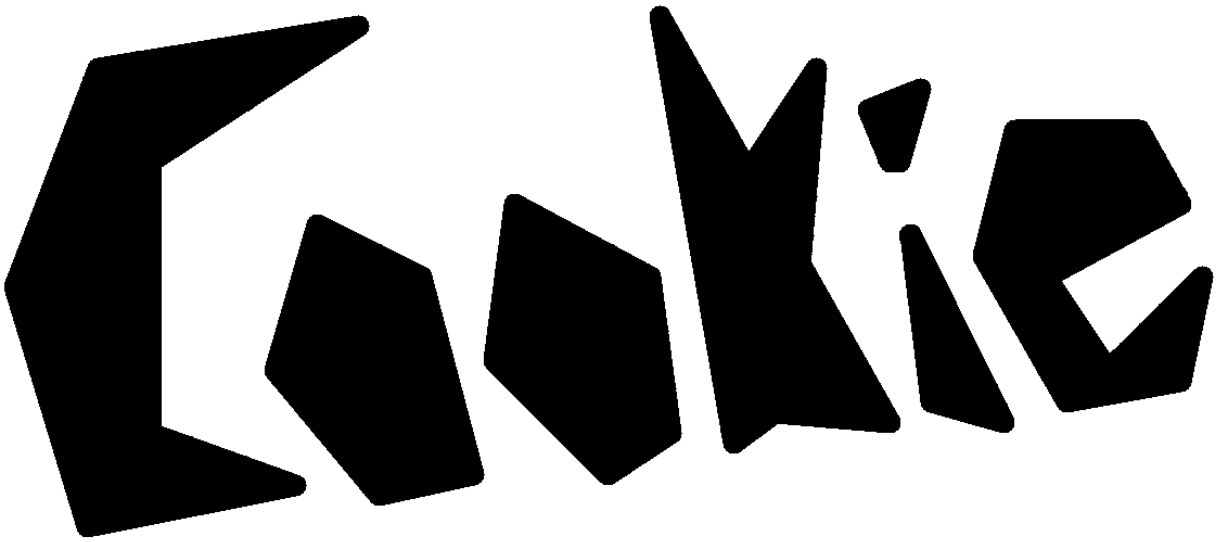
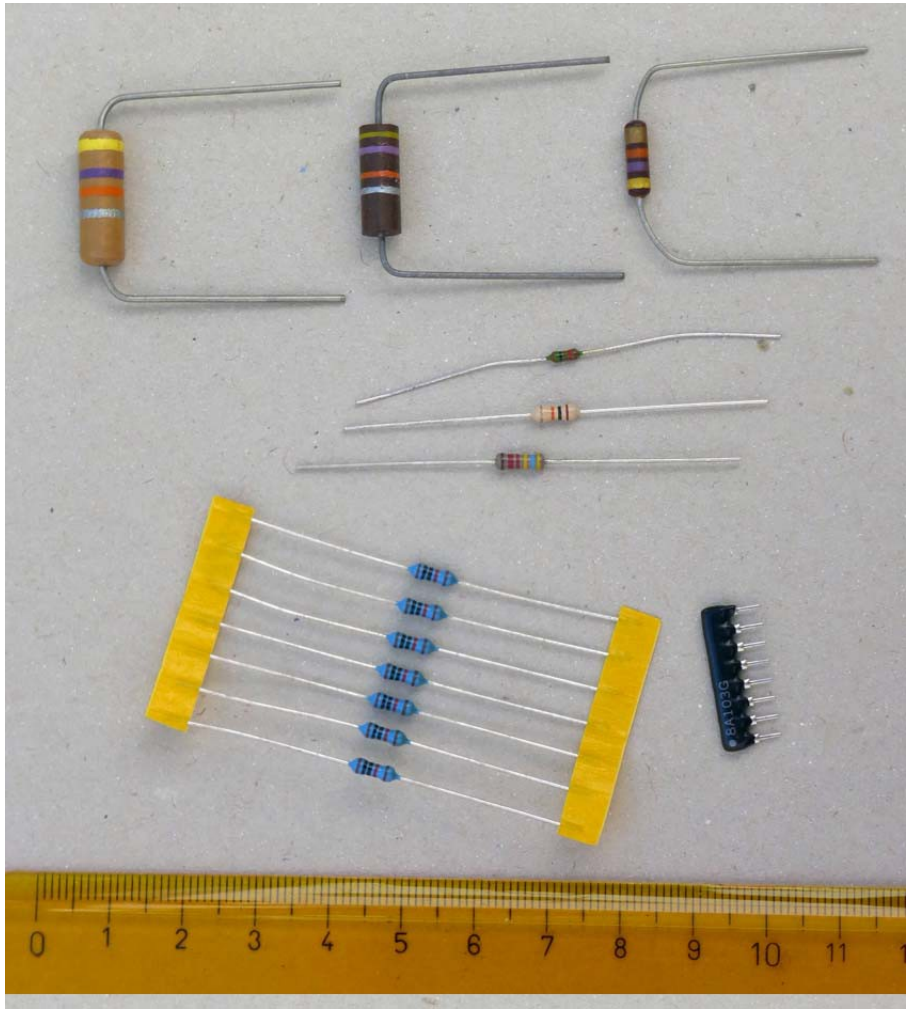


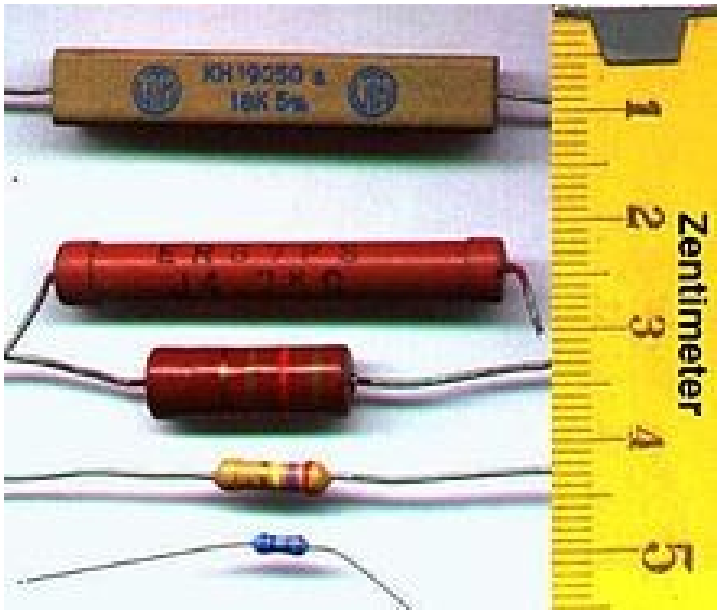
Synthesizer DIY-Workshop

Widerstand



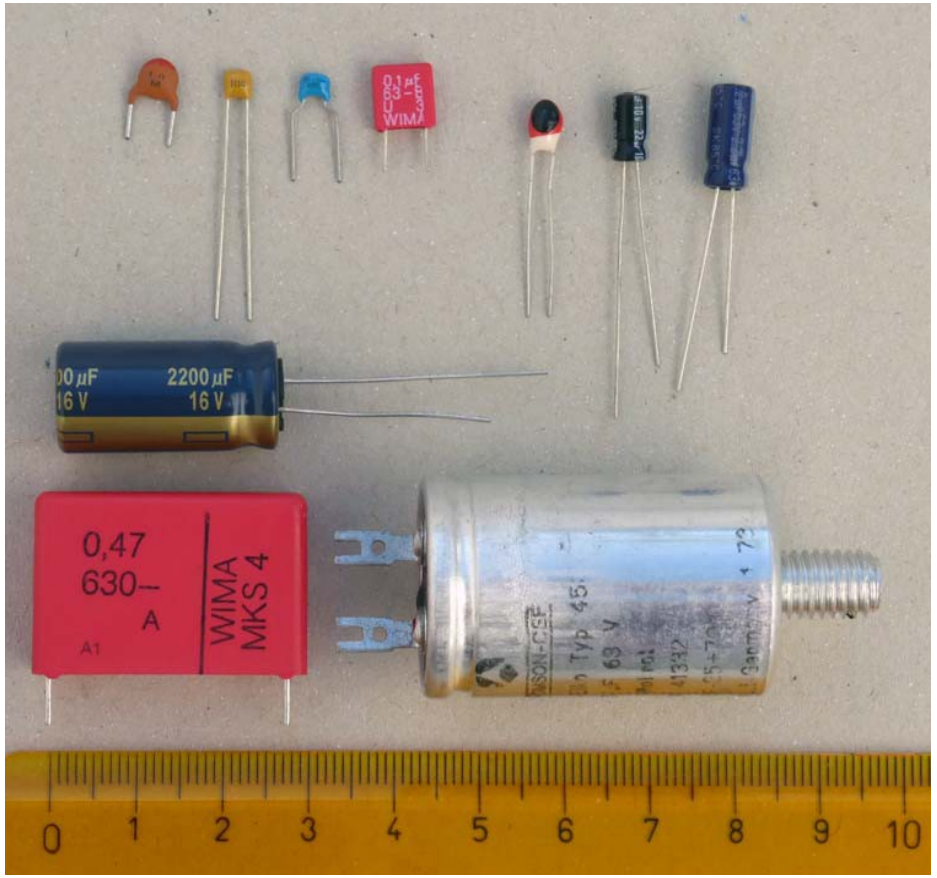
Schaltzeichen

Einheit: Ohm (Ω)

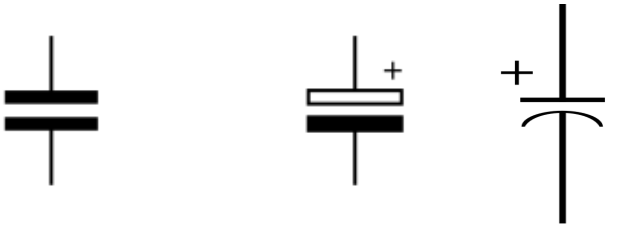


Kondensator

Einheit: Farad (F)



Schaltzeichen

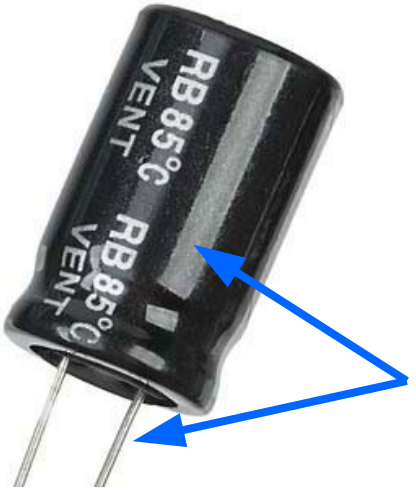


Kondensator

Elektrolyt-
kondensator

bei Elkos:

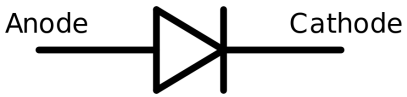
Polarität beachten!

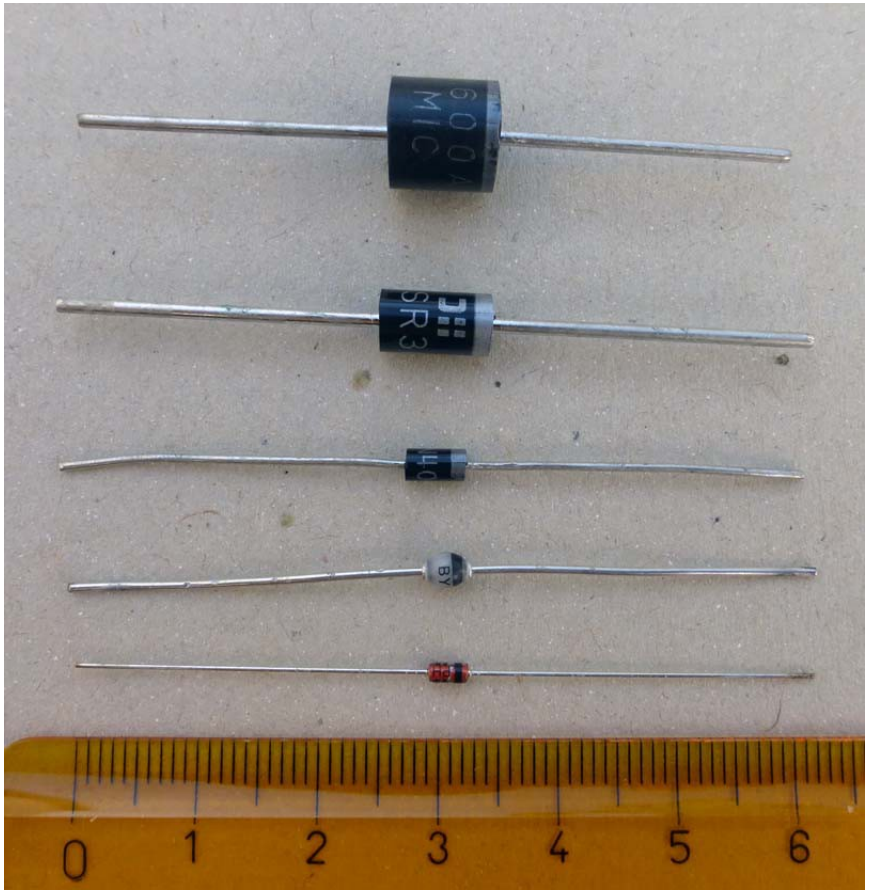


Minuspol

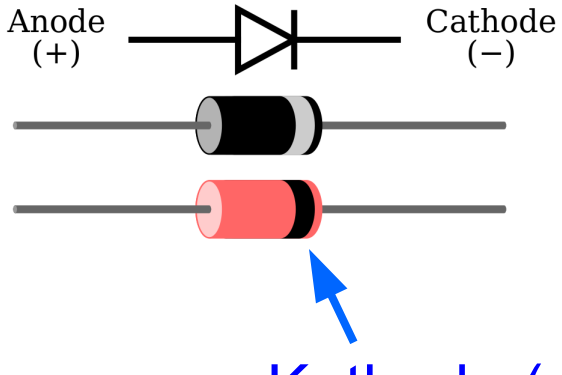
Diode

Schaltzeichen

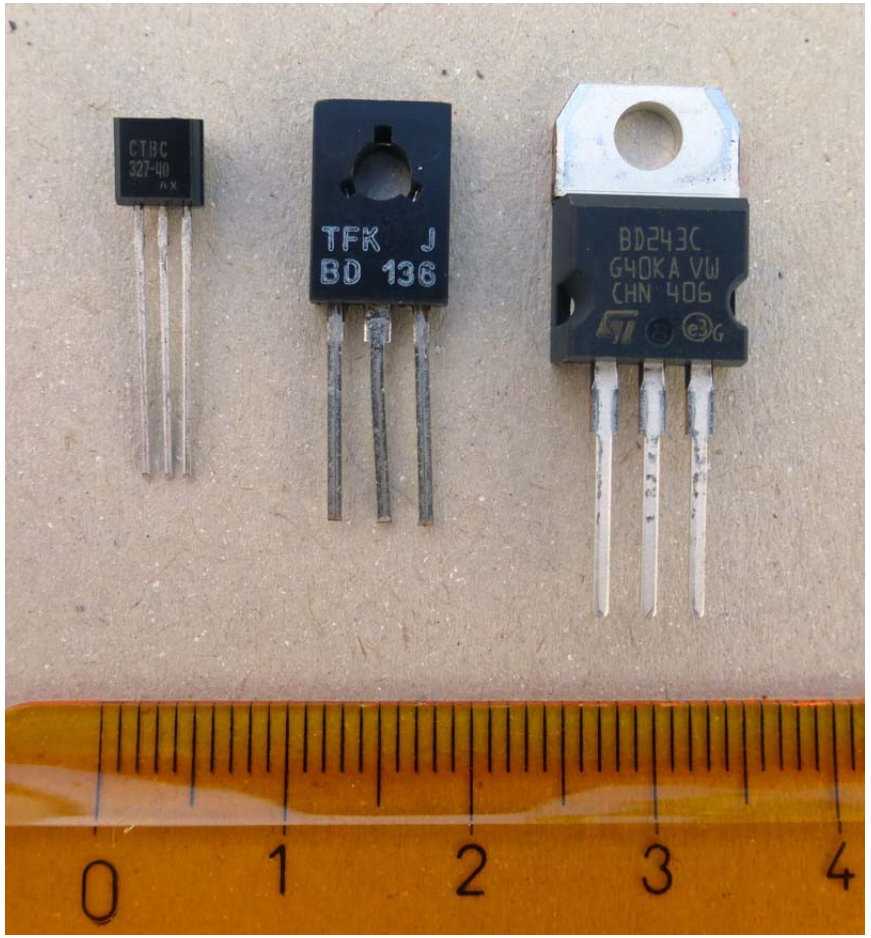




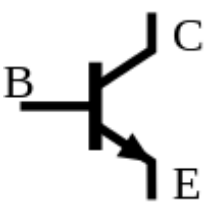
Polarität beachten!

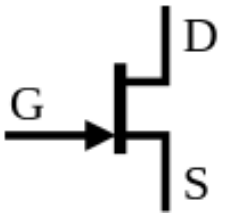


Transistor



Schaltzeichen





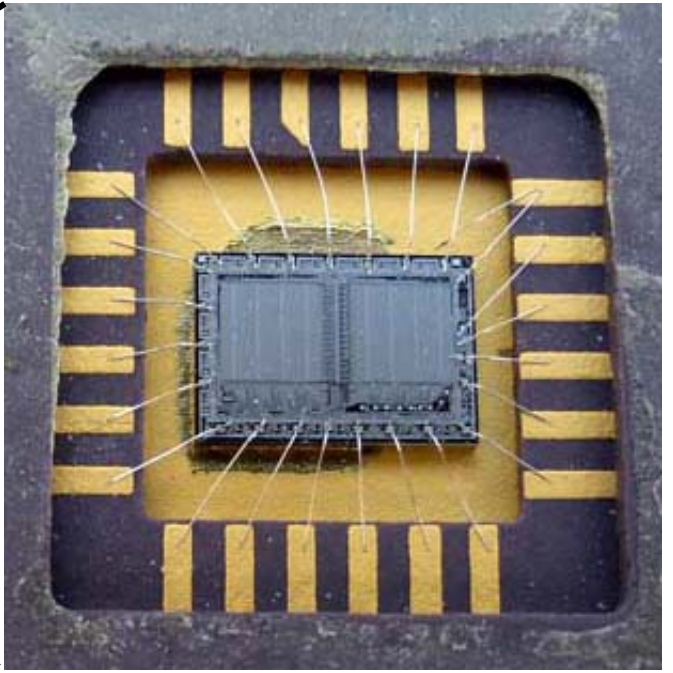
Einbaurichtung beachten!

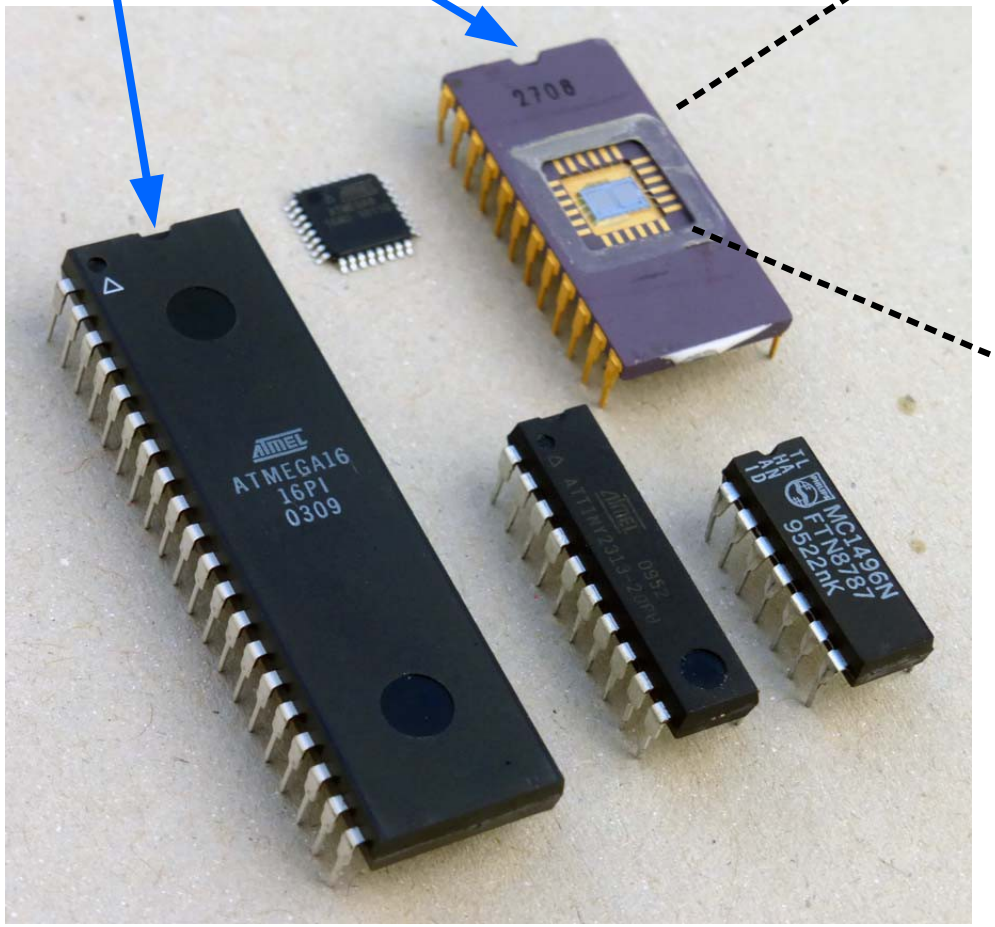
Integrierter Schaltkreis (IC)

Einbaurichtung beachten!

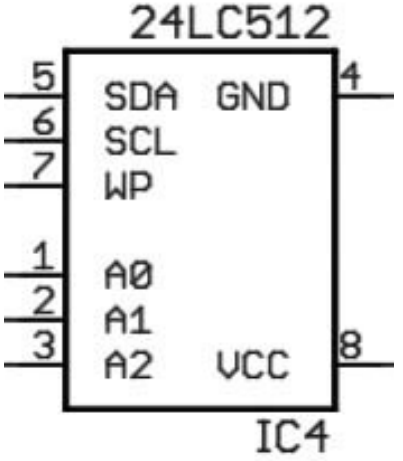
Kerbe

Mikrochip

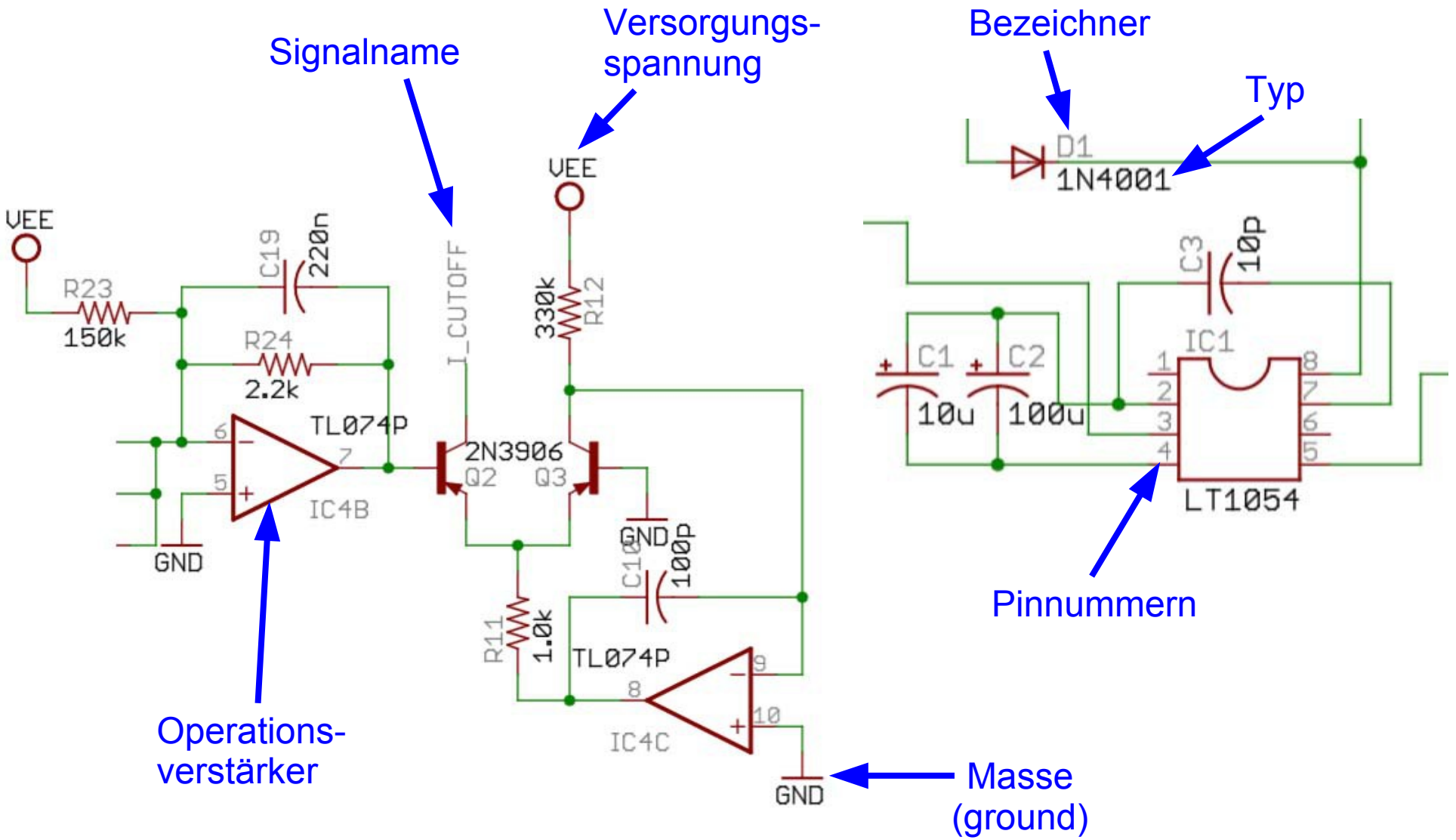




Schaltzeichen



Schaltplan lesen



BOM (bill of material)

Qty	Designator	Description	Value	Mouser
2	X1, X2	MIDI connector		161-0504-E
10	R19, R18, R2-R9	Resistor 1%	220	660-MF1/4DCT52R2200F
2	R15, R16	Resistor 1%	2.2k	660-MF1/4DCT52R2201F
2	R14, R1	Resistor 1%	10k	660-MF1/4DCT52R1002F
1	R21	Trimmer	5k	81-PV36X502C01B00
1	D1	Diode 1N 4148		78-1N4148-TAP
1	RN1	Resistor network	10k	652-4607X-1LF-10K
2	C6, C7	Ceramic cap	18p	594-K180J15C0GF5TL2
8	C1..C5, C8..C10	Ceramic cap	100n	75-1C10Z5U104M050B
1	Q1	Quartz	20Mhz	717-9B-20.000MAAJ-B
1	ATMega644p	ATMega644p		556-ATMEGA644P-20PU
1	IC2	shift register, parallel inputs	74HC165	595-SN74HC165N
1	IC3	shift register, parallel outputs	74HC595	595-SN74HC595N
1	OK1	optocoupler	6N137	782-6N137

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Einheiten

1 Ω

1 kΩ = 1.000 Ω

1 MΩ = 1.000.000 Ω

Kurzschreibweise

4.7 kΩ → 4k7

2.2 MΩ → 2M2

1 F

1 µF (mikro) = 0.000001 F

1 nF (nano) = 0.000000001 F

1 pF (pico) = 0.000000000001 F

Kurzschreibweise

6.8 µF → 6µ8 oder 6u8

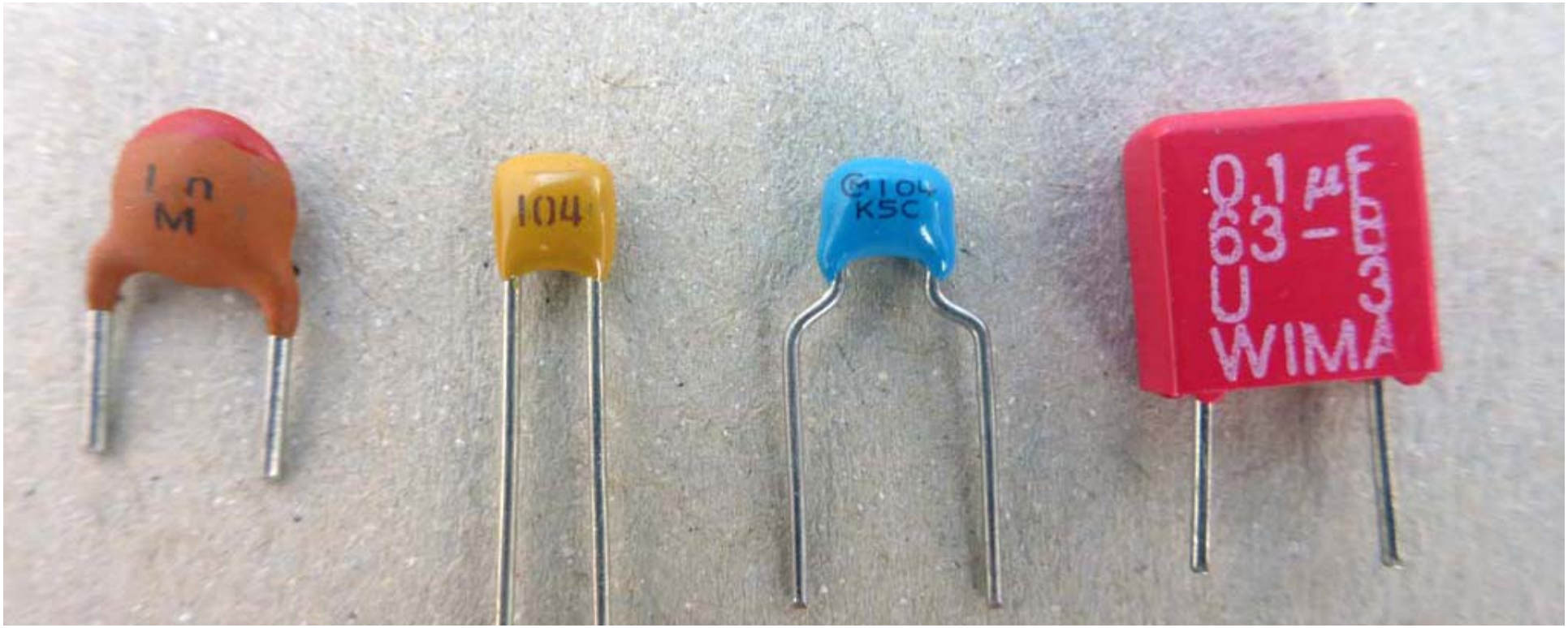
100 nF → 100n

8.2 pF → 8p2

Bei den Kurzschreibweisen ergibt sich die Einheit

aus dem Schaltzeichen (Widerstand, Kondensator etc.).

Kondensatorwerte



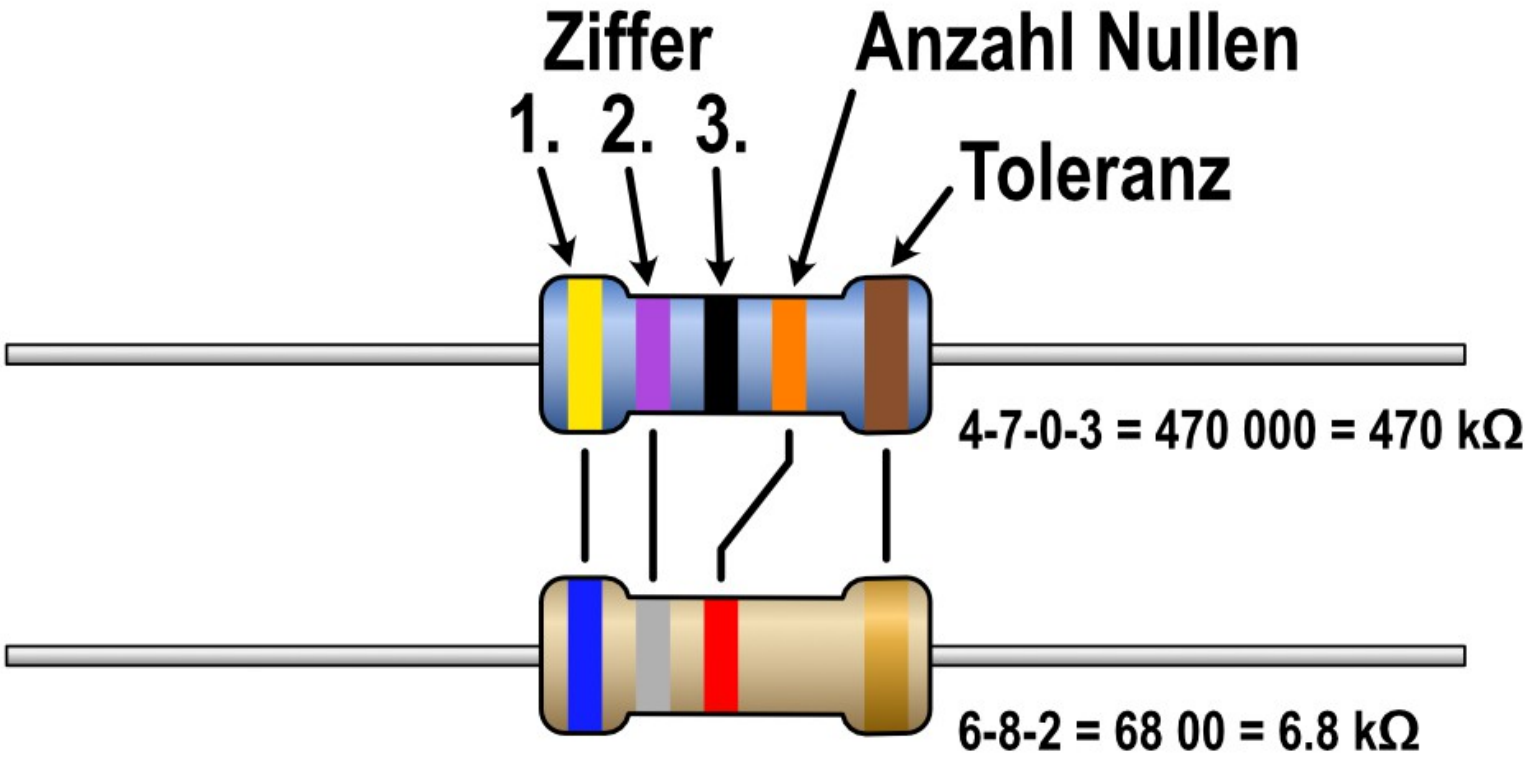
Die Art der Wertangabe von Kondensatoren variiert.

1 n → 1 nF

104 → 1 0 0000 pF = 100 nF

0.1 µF → So wünscht man sich das!

Farbcode von Widerständen



Ziffer	0	1	2	3	4	5	6	7	8	9

Toleranz	Silber ±10 %	Gold ±5 %	±1 %	±0.5 %	±0.1 %

Übung Widerstandswerte

3-9-3 → 3 9 000 = 39k

4-7-0 → 4 7 – = 47

1-5-2 → 1 5 00 = 1k5

1-0-1 → 1 0 0 = 100

2-2-2 → 2 2 00 = 2k2

4-7-3 → 4 7 000 = 47 kΩ

alle: ±5 % Toleranz