Short description of the measurements with the Transistor Tester Version 1.11k

Karl-Heinz K"ubbeler

kh_kuebbeler@web.de

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Chapter 1

Beschreibung der BJT-Messungen

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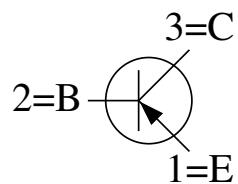
BC639
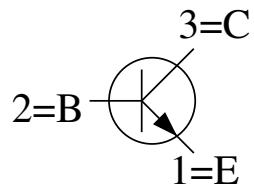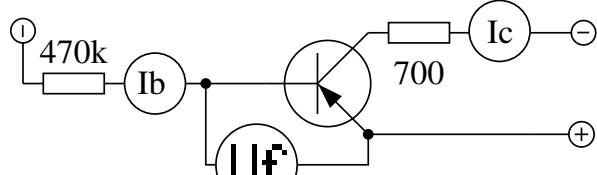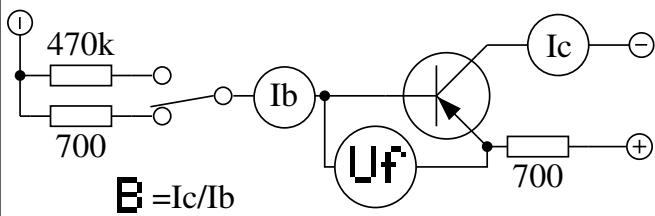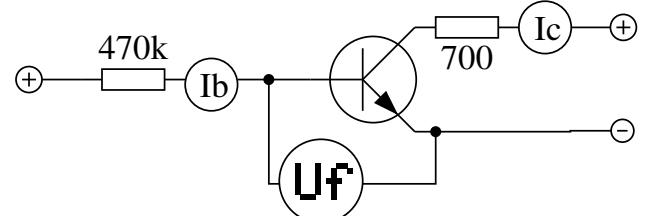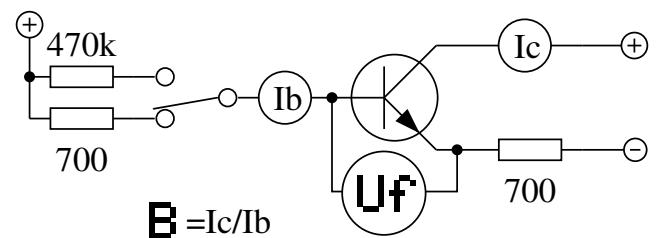
(a) PNP

(b) NPN

Figure 1.1. Bipolar Silizium transistors

AD161


```
NPN    123=EBC
ICE0=.64mA
```

```
NPN    123=EBC
ICEs=.02mA
```

```
NPN    123=EBC
B=296 Uf=127mV
```

B =Ic/Ib

B =(Ic−ICE0)/Ib
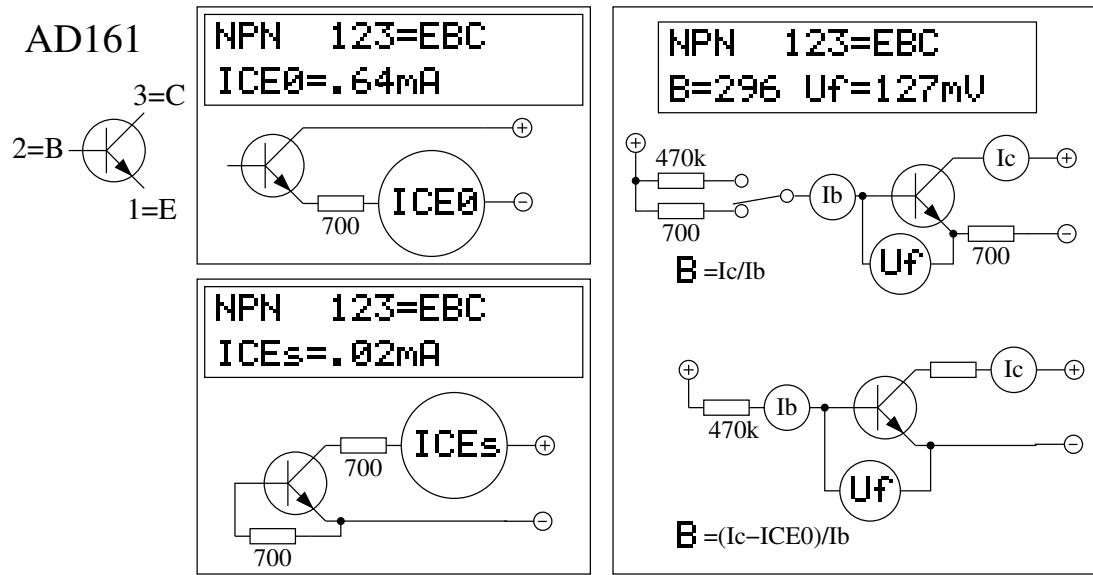
Figure 1.2. NPN Germanium transistor

AD162


```
NPN    123=EBC
ICE0=.24mA
```

```
NPN    123=EBC
ICEs=.02mA
```

```
NPN    123=EBC
B=86 Uf=107mV
```

B =Ic/Ib

B =(Ic−ICE0)/Ib
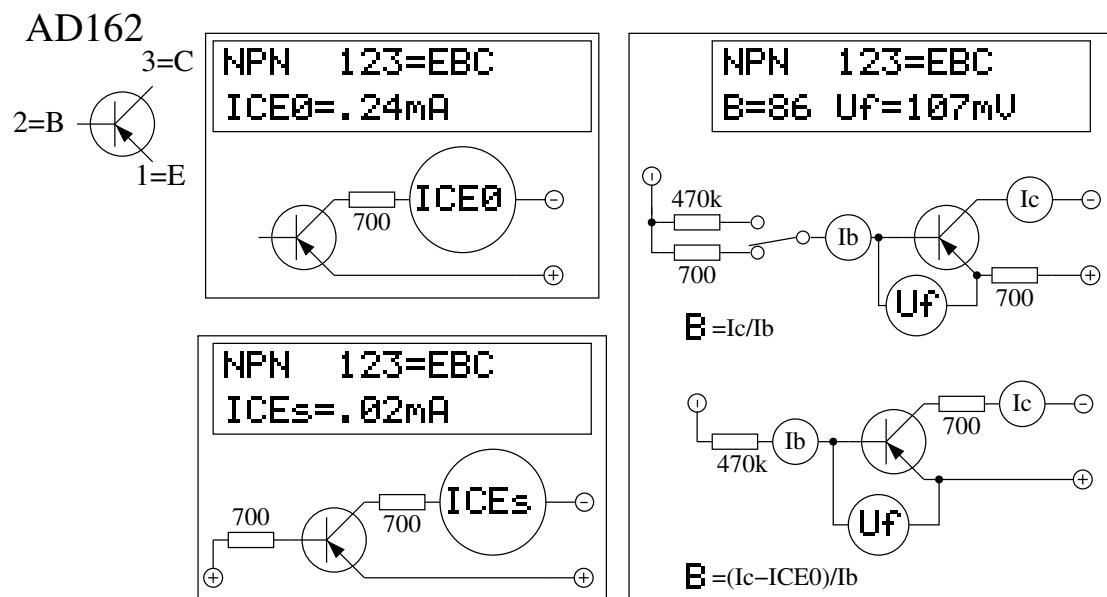
Figure 1.3. PNP-Germanium-Transistor

BC516

3=C

2=B

1=E

```
PNP   123=EBC
B=82.0k Uf=1.20V
```

470k

700

$\mathbf{B}$ =Ic/Ib

Ib

Ic

Uf

700

700

470k

Ib

Ic

Uf

(a) PNP

BC517

3=C

2=B

1=E

```
NPN   123=EBC
B=26.0k Uf=1.23V
```

470k

700

$\mathbf{B}$ =Ic/Ib

Ib

Ic

Uf

700

700

470k

Ib

Ic

Uf
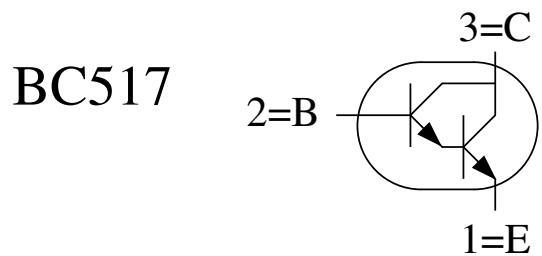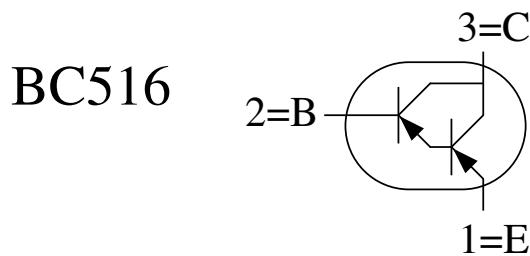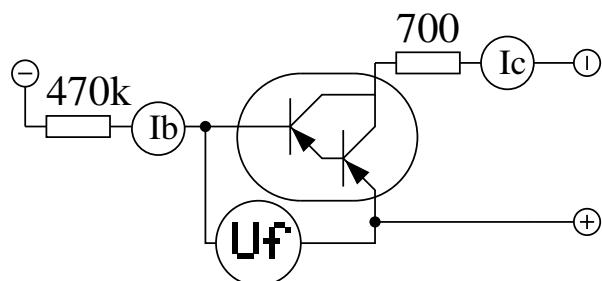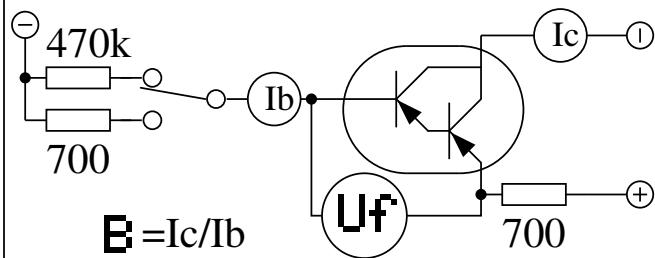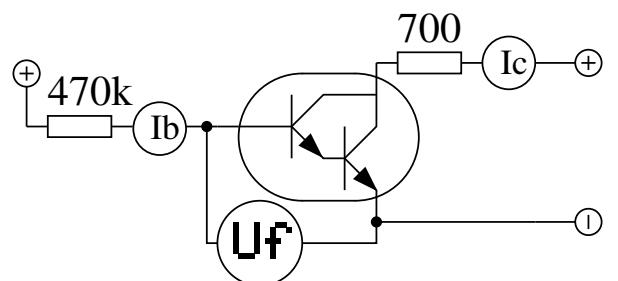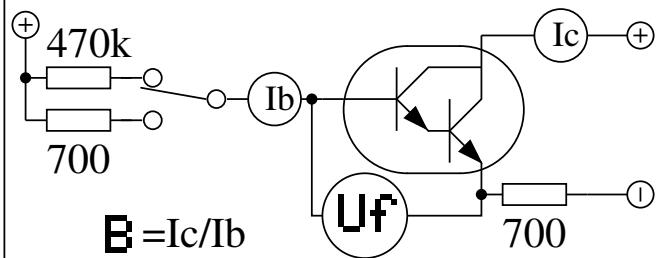
(b) NPN

Figure 1.4. Silizium Darlington transistors

BU508D

3

2

1

```
2*N   1-N-3-N-2  ▯
Uf=653mV 574mV
```

Uf

700

U₂

700
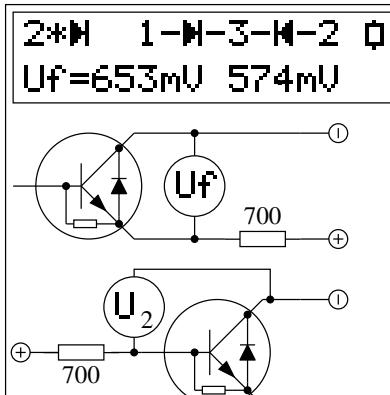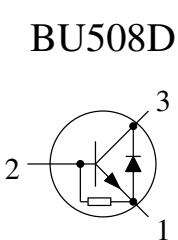
```
2*N   1-c=-2
41.5Ω
```

Figure 1.5. NPN-Transistor with diode and resistor

BDV64C

PNP -⬤- 123=EBC
B=35 Uf=1.11V

470k
700

B =Ic/Ib

Ib   Ic

Uf

700

470k

Ib   Ic   700

Uf

(a) PNP

BDV65C

NPN -⬤- 123=EBC
B=12 Uf=1.11V

470k
700

B =Ic/Ib

Ib   Ic

Uf

700

470k

Ib   Ic   700

Uf
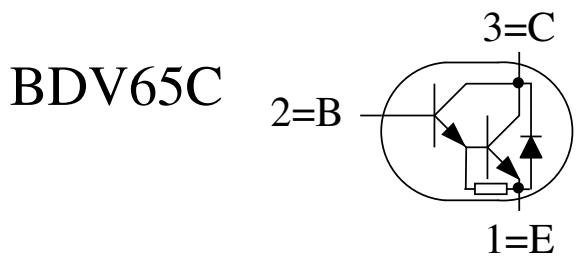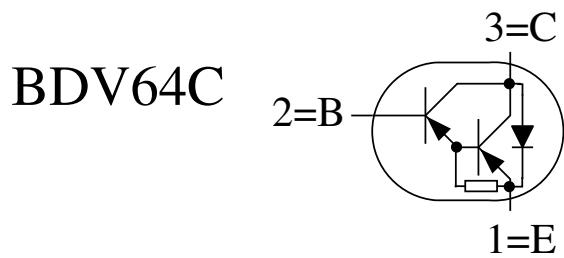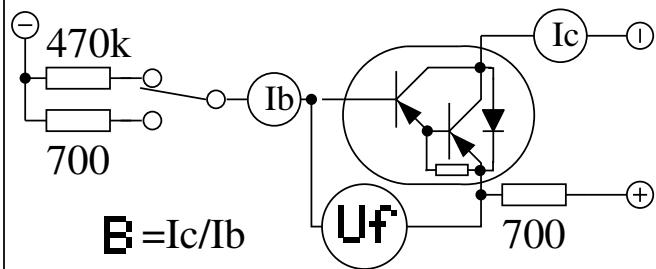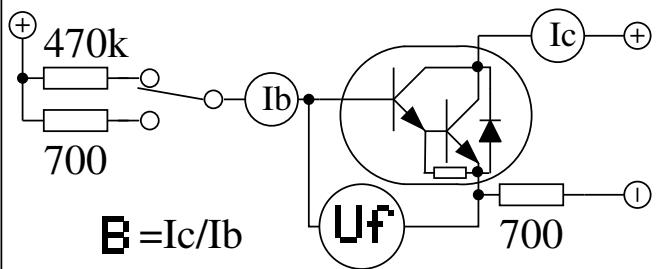
(b) NPN

Figure 1.6. Silizium Darlington transistors

Chapter 2

Description of MOSFET measurements

BUZ71

3=D

2=G

1=S

```
N-E-MOS 123=SGDW
1-M-3 Uf=640mV
```

470k

Uf
700

```
N-E-MOS 123=SGDW
C=700pF Vt=3.2V
```

470k
<2V
700
Vt

IRF5305

3=D

2=G

1=S

```
P-E-MOS 123=SGDW
1-M-3 Uf=603mV
```

470k

Uf
700

```
P-E-MOS 123=SGDW
C=2.22nF Vt=3.6V
```

470k
700
>2.5V
Vt

(a) N-E-MOSFET

(b) P-E-MOSFET
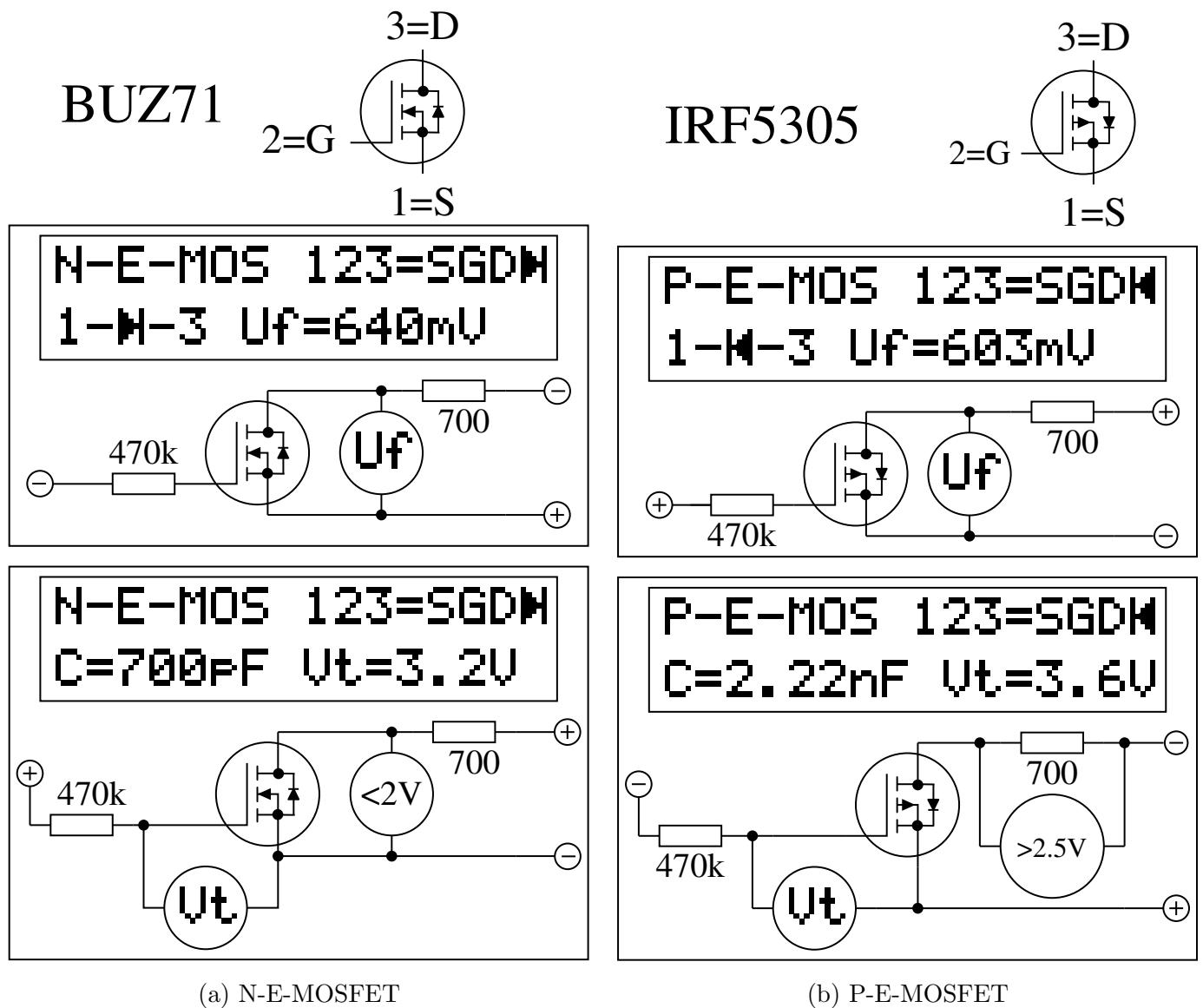
Figure 2.1. Enhancement MOSFET transistors

BSS169


```
N-D-MOS 123=SGDM
1-M-3 Uf=572mV
```

3=D

2=G

1=S

470k

Uf

700

```
N-D-MOS 123=SGDM
I=2.6mV@Vg=1.8V
```

470k

Vg

700

I
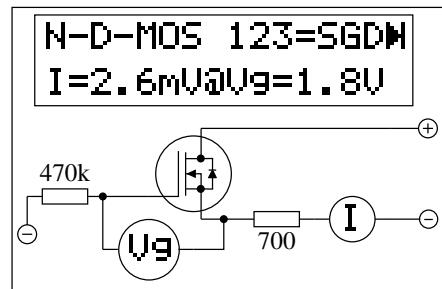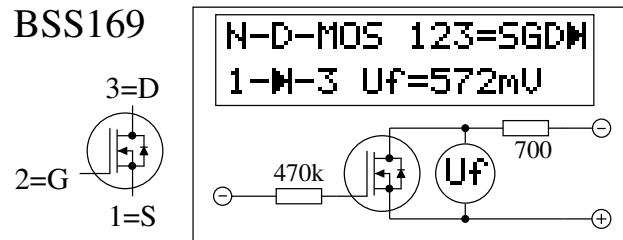
Figure 2.2. N-D-MOSFET

BF245

3=?

2=G

1=?

J175

3=?

2=G

1=?
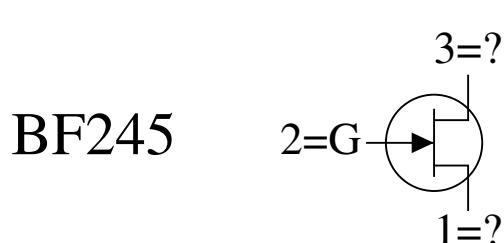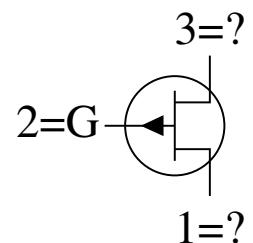
```
N-JFET 123=DGS
I=2.5mA@Vg=1.7V
```

470k

Vg

700

I
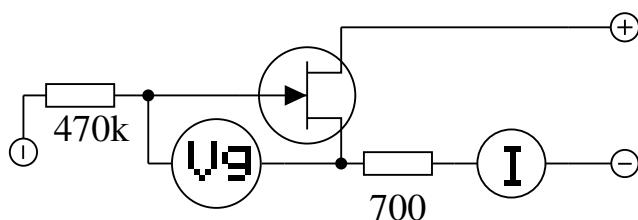
```
P-JFET 123=SGD
I=3.2mA@Vg=2.2V
```

Vg

700

I

470k

(a) N-JFET
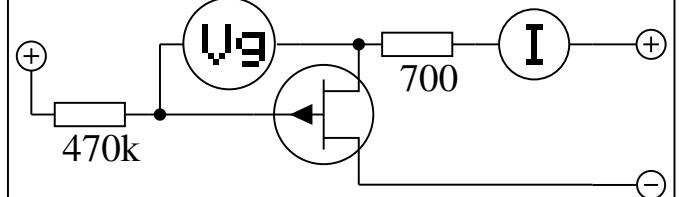
(b) P-JFET

Figure 2.3. JFET transistors

Bibliography

[1] Markus Frejek *AVR-Transistortester,*. Embedded Projects Journal, 11. Ausgabe, 2011

[2] Atmel Corporation *8-bit AVR with 8KBytes In-System Programmable Flash - ATmega8(L),*. Manual, 2486Z-AVR-02/11, 2011

[3] Atmel Corporation *8-bit AVR with 4/8/16/32KBytes In-System Programmable Flash - ATmega48 - ATmega328,*. Manual, 8271D-AVR-05/11, 2011

[4] `http://en.wikibooks.org/wiki/LaTeX` *LaTeX documentation,*. Guide to the LaTeX markup language, 2012

[5] Wikipedia `http://de.wikipedia.org/wiki/Equivalent_Series_Resistance` *Erluterung zum ESR*. Normung und Ersatzschaltbild eines Kondensators, 2012

[6] `http://www.xfig.org/userman` *Xfig documentation,*. Documentation of the interactive drawing tool xfig, 2009

[7] `http://docs.gimp.org/2.6/de` *gimp documentation*. Documentation of the GNU Image Manipolation Program, 2010

[8] `http://www.mikrocontroller.net/articles/AVR-Transistortester` *Online documentation of the Transistor Tester,* Online Article, 2009-2011

[9] `http://www.mikrocontroller.net/articles/AVRDUDE` *Online documentation of the avrdude programmer interface,* Online Article, 2004-2011

[10] `http://www.mikrocontroller.net/topic/131804` *Thread von Markus F.,* Forum thread, 2009

[11] `http://www.mikrocontroller.net/articles/AVR_Transistortester` *Short decription of the TransistorTester von Karl-Heinz K.,* Online Article, 2012

[12] `http://www.mikrocontroller.net/topic/248078` *Thread von Karl-Heinz K.,* Thread and early Software versions, 2012