

RoeTest - das Computer-Röhren-Messgerät -

professional tube-testing-system (c) Helmut Weigl www.roehrentest.de

Printing (Measurement Reports)

starting with Software Version 10.5.0.0

Preliminary Note:

The printer output has been completely redesigned. To begin with: If the present protocol printout suffices your needs you do not have to deal with the following details. The software as delivered will generate a printout according to the previous protocol when used with the printer job "default.pjp".

However if you want to make changes you now have plenty of possibilities. This may be minor details e.g. correcting for the printer/printer driver cutting off the borders, embedding your own Logo or even completely changed protocols also with pictures of the tube.

General:

With the new printer form designer the forms are assembled from single building blocks (printer objects) and stored as printer forms (file ending „pfo“).

The printer forms are then combined to a printer job (file ending „pfb“). A printer job can contain 1 to 10 printer forms.

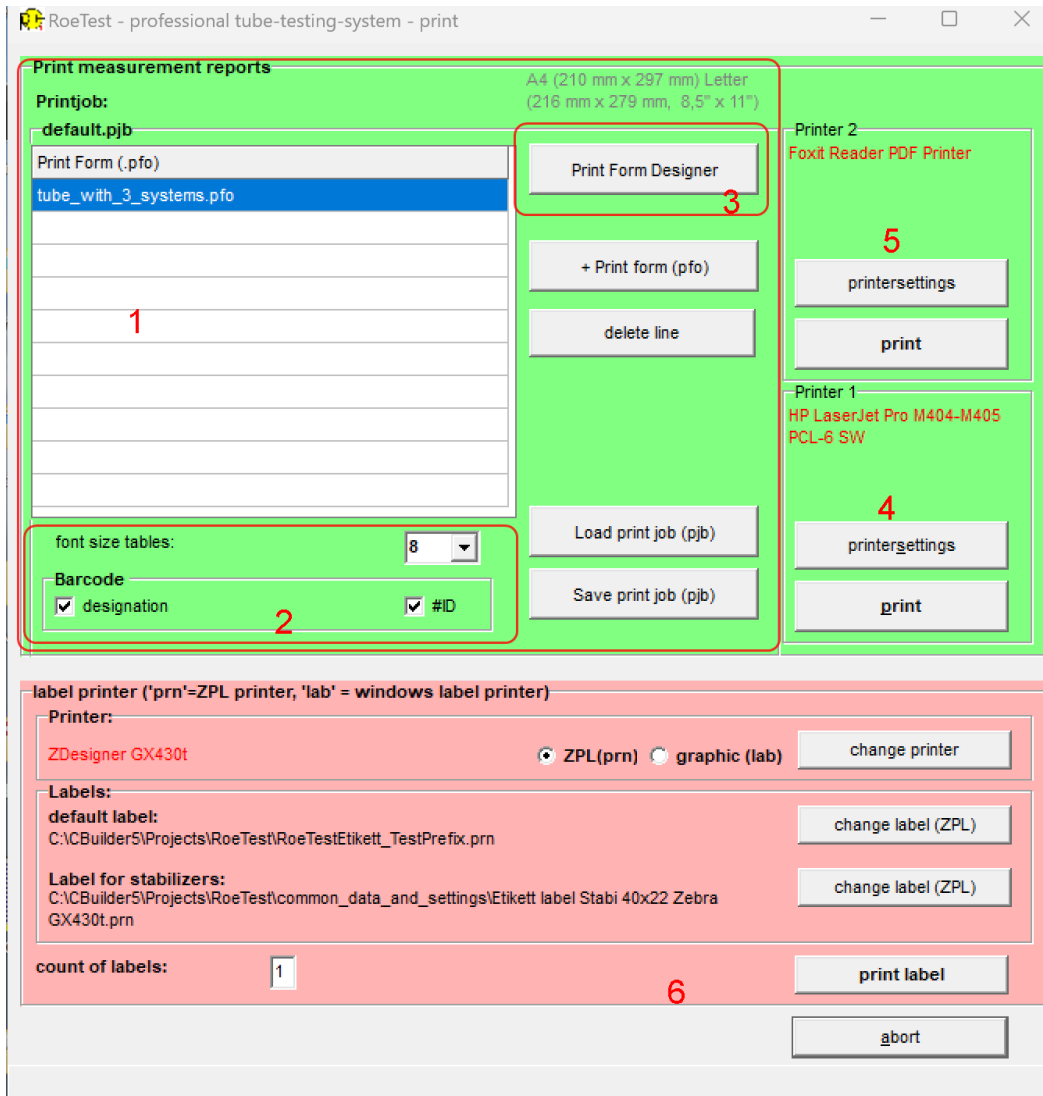
The printer jobs can be selected in the printing window („Drucken“/„Printing“) or within batch processing. Different batch processing jobs can be assigned different printer jobs. So you can generate individual printer outputs for different tasks and/or tube types.

There is a special feature for the printer job „default.pjb“. This job is always loaded during program startup. So it can be useful to store your most often used printer form as „default.pfb“.

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The printing window „Drucken“(Printing) looks as follows, the upper green area is responsible for protocol printing:



1. Composing a Printer Job:

Existing printer jobs can be loaded/stored. To create a new printer job or change printer jobs: Mark line with the mouse and press button <Druckformular (pjb)>. A file selection window will be opened. Select the desired printer form from this window. For a printer job up to 10 printer forms can be selected. The printer job will be executed in a print order. So you can also use a double-sided printer or a printer driver that allows to print a number of pages on a single sheet. The printer may also be a PDF-printer (e.g. FreePdf).

2. Specific Settings for the Printout:

Schriftgröße Tabellen(Font size for tables): If the printout in tables is too small or too large you can change the printout size for the tables here.

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Barcode: If you embed a barcode into the protocol you can specify the data to be output in the barcode here. In all cases barcode type „code 93“ will be used as this type contains 'umlauts'.

3. Printer Form Designer

This button starts the printer form designer and opens the following window:

The screenshot shows the 'Print Form Designer' window. On the left, there are settings for paper format (A4 selected, marked with a red '1'), margins (Left: 10, marked with a red '2'; top: 10; bottom: 0), and a table for defining print objects (with a red '3' in the first row). Below the table are buttons for 'Load print form', 'Save print form', 'clear table' (marked with a red '5'), and 'Test print'. On the right, the preview area shows a test protocol for 'ECC83 (12AX7)' with a red '4' and a logo for 'RoeTest Röhren'.

1. Paper formats A4 or Letter are possible
2. The margins can be changed within certain limits
3. This table contains the print objects and their properties
4. Preview picture, can be zoomed with button <> to 3 different sizes (if the computer's screen resolution is high enough)
5. Buttons for loading and saving, etc.

Please store all printer forms and printer jobs in the folder \common_data_and_settings\ so that all users in a multi-user system can access these data.

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Example printer form „tube_with_3_systems.pfo“ (this corresponds to the printing protocol of the older software versions):

The screenshot shows the 'Druckformulardesigner' (Printer Form Designer) interface. On the left is a table of printer objects, and on the right is a preview of the test protocol for an ECC83 (12AX7) tube.

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
tubedata_complete	15	25	67	0			
results	87	25	79	0			
socket	169	62	27	41	p		
curve_Ua_Ug2	87	167	35	60			1
curve_Ua_Ug2	125	167	35	60			2
curve_Ua_Ug2	163	167	35	60			3
curve_Ug	87	106	35	60			1
curve_Ug	125	106	35	60			2
curve_Ug	163	106	35	60			3
barcode	195	41	15	0			
remarks	87	260	117	8		1677	ARIAL
shorttest	149	229	55	8		1677	ARIAL
gridcurrent	87	245	117	8		1677	ARIAL
remarks_to_tube	15	239	66	8		1677	ARIAL
date+time	137	7	13.12.2020 13:28:0	8		1677	ARIAL
heaterdata	15	20	116	8		1677	ARIAL
#ID	137	18	#999	10		1677	Arial Rounded
text	15	16	Vorgaben/Pre-setting	8		1677	Arial Rounded
text	87	16	Ergebnisse/Results:	8		1677	Arial Rounded
heater	87	229	60	8		1677	ARIAL
line	15	19	43	19		1	

The preview on the right shows a test protocol for an ECC83 (12AX7) tube. It includes a table of test results for three systems (System 1, System 2, System 3) and three graphs showing the characteristics of the tube. The graphs are labeled 'System 1', 'System 2', and 'System 3'.

The table contains all printer objects that are displayed symbolically in the preview. The current selected object is marked in the table with light blue color. In the preview it is also marked in light blue color at its upper left corner. Objects can be moved with the mouse in the preview when clicked at the upper left corner (light blue or gray) and moved. Objects can be changed in size with the mouse when clicked at the lower right corner and then dragged. Change of size depends on the object type and is only possible for specific objects. Changing object properties is also possible in the properties table by changing the values. Depending on the object type, x- and y-position, width, font size, font type, foreground- and background color for text, etc can be changed.

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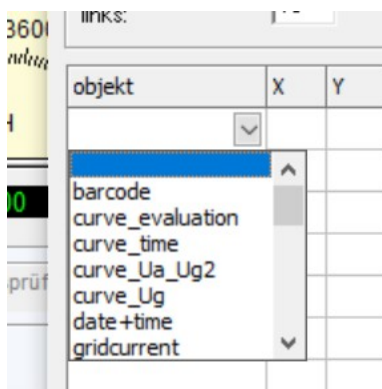
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Empty Sheet (after startup of program or press of button <Tabelle löschen[Erase Table]>):

Always contains header line with logo and reference to the RoeTest.

New Object:

Click on the table's first column (double click) will open a combo box for selection of the printer object:



Selecting the first entry (empty) will remove the object from the table. The follow up columns in the table contain the object's properties depending on the object type.

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Objects and their Properties:

The following printer objects can be used:

leer ('empty', removes object from table)
barcode
curve_evaluation
curve_time
curve_Ua_Ug2
curve_Ug
date+time
gridcurrent
heater
heaterdata
#ID
line
picture_1
picture_2
prefix
remarks
remarks_to_tube
results
results_1system
results_2systems
shorttest
socket
text
tubedata
tubedata_1system
tubedata_2systems
tubedata_complete
tubepicture
tubepicture_stock

barcode

Prints a barcode (code 93). The barcode can contain the tube's name and/or the #ID.



objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
barcode	97	55	15	0			

X,Y: Position in mm

width: Barcode width

size: Barcode height, 0 = keep automatic aspect ratio

curve_evaluation

Prints graphics from the window "Kennlinien auswerten" (characteristic curve evaluation).

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
curve_evaluation	32	64	66	0	p		

X,Y: Position in mm

width: Graphics width

size: Graphics height, 0 = keep automatic aspect ratio

p = proportional, fit graphics to frame and keep aspect ratio (is ignored for size 0)

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curve_time

Prints graphics from window "Kennlinien nach Zeitverlauf" (characteristic curves over time).

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
curve_time	45	64	82	0	p		

X,Y: Position in mm

width: Graphics width

size: Graphics height, 0 = keep automatic aspect ratio

p = proportional, fit graphics to frame and keep aspect ratio (is ignored for size 0)

curve_Ua_Ug2

curve_Ug

Output characteristics or Input characteristics of a tube system.

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
curve_Ua_Ug2	52	87	32	60	p		1

X,Y: Position in mm

width: Graphics width

size: Graphics height, 0 = keep automatic aspect ratio

p = proportional, fit graphics to frame and keep aspect ratio (is ignored for size 0)

syst = curves for tube system 1, 2 or 3

date+time

Date and time for the printout.

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
date+time	115	13	13.12.2020 13:28:00	9		1677	ARIAL

X,Y: Position in mm

Text: Date/Time (symbolic)

size: Text height

col/p: Text color (mouse click opens color dialog)

col/e: Text background color (mouse click opens color dialog)

font: Font type (mouse click opens font dialog)

Note: Text styles (bold, underline, etc. are not supported)

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gridcurrent

Text block for grid current/vacuum (from main window).

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
gridcurrent	8	48	67	8	0	1677	ARIAL

X,Y: Position in mm

width: Text width (total height always depends on text to be printed)

size: Text height

col/p: Text color (mouse click opens color dialog)

col/e: Text background color (mouse click opens color dialog)

font: Font type (mouse click opens font dialog)

Note: Text styles (bold, underline, etc. are not supported)

heater

Text block for heating (from main window).

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
heater	14	48	79	8	0	1677	ARIAL

X,Y: Position in mm

width: Text width (total height always depends on text to be printed)

size: Text height

col/p: Text color (mouse click opens color dialog)

col/e: Text background color (mouse click opens color dialog)

font: Font type (mouse click opens font dialog)

Note: Text styles (bold, underline, etc. are not supported)

heaterdata

Text block for nominal heater voltage and heater current.

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
heaterdata	5	5	79	8	0	1677	ARIAL

X,Y: Position in mm

width: Text width (total height always depends on text to be printed)

size: Text height

col/p: Text color (mouse click opens color dialog)

col/e: Text background color (mouse click opens color dialog)

font: Font type (mouse click opens font dialog)

Note: Text styles (bold, underline, etc. are not supported)

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#ID

Tube ident number for the measured tube.

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
#ID	37	66	#ID	9		1677	ARIAL

X,Y: Position in mm

width: -

size: Text height

col/p: Text color (mouse click opens color dialog)

col/e: Text background color (mouse click opens color dialog)

font: Font type (mouse click opens font dialog)

Note: Text styles (bold, underline, etc. are not supported)

line

Lines (for underlining, frames, arrows).

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
line	18	56	127	95		1	

X, Y: Position in mm

X2,Y2: End position in mm

col/p: Line color (mouse click opens color dialog)

col/e: Line width in pixel

picture_1

picture_2

Static pictures (jpg or bmp). The pictures should be stored in the folder ...\
common_data_and_settings\. This may e.g. be your Logo.

Two pictures are possible (picture_1 and picture_2).

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
picture_1	39	80	123	0	p		C:\Röhrendat

X,Y: Position in mm

width: Picture width in mm

size: Picture height in mm, 0 = keep automatic aspect ratio

p = proportional, fit graphics to frame and keep aspect ratio (is ignored for size 0)

file: File name of picture, a file selection window will open for selection of the
picture file to be printed.

prefix

Free text/numbers can be entered in the main window and in batch processing. The text can be printed on labels and protocols. This can be used, for example, for order numbers.

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remarks

Text block for remarks (from tube data base for the tube).

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
remarks	36	82	79	8	0	1677	ARIAL

X,Y: Position in mm

width: Text width (total height always depends on text to be printed)

size: Text height

col/p: Text color (mouse click opens color dialog)

col/e: Text background color (mouse click opens color dialog)

font: Font type (mouse click opens font dialog)

Note: Text styles (bold, underline, etc. are not supported)

remarks_to_tube

Text block for remarks (from main window).

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
remarks_to_tube	31	84	79	8	0	1677	ARIAL

X,Y: Position in mm

width: Text width (total height always depends on text to be printed)

size: Text height

col/p: Text color (mouse click opens color dialog)

col/e: Text background color (mouse click opens color dialog)

font: Font type (mouse click opens font dialog)

Note: Text styles (bold, underline, etc. are not supported)

results

results_1system

results_2systems

Table with measurement results (static data from main window).

Results_1system only 1st column (for tubes with 1 system),

results_2systems = 2 columns for tubes with two systems.

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
results	12	64	75	0			

X,Y: Position in mm

width: Table width (the height depends on the text to be printed)

size: 0, height is always proportional to width

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shorttest

Text block for short circuit test results(from main window).

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
shorttest	20	96	79	8	0	1677	ARIAL

X,Y: Position in mm

width: Text width (total height depends on the text to be printed)

size: Text size

col/p: Text color (mouse click opens color dialog)

col/e: Text background color (mouse click opens color dialog)

font: Font type (mouse click opens font dialog)

Note: Text styles (bold, underline, etc. are not supported)

socket

Socket picture with socket name.

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
socket	73	90	25	0	p		

X,Y: Position in mm

width: Picture width

size: Picture height, 0 = keep automatic aspect ratio

p = proportional, fit graphics to frame and keep aspect ratio (is ignored for size 0)

text

Static text (for labeling, header lines).

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
text	42	70	text	9		1677	ARIAL

X,Y: Position in mm

text: Text to be printed

size: Text height

col/p: Text color (mouse click opens color dialog)

col/e: Text background color (mouse click opens color dialog)

font: Font type (mouse click opens font dialog)

Note: Text styles (bold, underline, etc. are not supported)

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tubedata

tubedata_1system

tubedata_2systems

tubedata_complete

Tube data for measurement (socket pin assignement, limiting values, typical values).

Tubedata_complete contains the complete table including the specified values for curve recording.

The other tables are without the specified values for curve recording or for tubes with one or two systems.

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
tubedata	5	5	64	0			

X,Y: Position in mm

width: Table width (the heigth always depends on the text to be printed)

size: 0, heigth always proportional to width

tubepicture

Tube picture from folder .. roetest\tubepictures\. The filename for the picture must correspond to the tube name and the file must be stored as .jpg file. If there is no appropriate picture present nothing will be printed. This feature is e.g. useful for tube dealers that sell new tubes. They only have to store a picture of the tube in the folder \tubepictures\.

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
tubepicture	31	60	66	0	p	e	

X,Y: Position in mm

width: Picture width in mm

size: Picture height, 0 = keep automatic aspect ratio

p = proportional, fit graphics to frame and keep aspect ratio (is ignored for size 0)

e = when specifying an 'e' in this column, an external editor for the picture will be called before printing the picture (e.g. IrvanView) so that additional changes can be made

tubepicture_stock

Tube picture from the tube stock database. A search is done for a picture in the appendix to the tube database for the tube that has the same #ID as the tube to be printed. If more than one picture is present the first one found is printed. If no picture is found nothing is printed.

objekt	X	Y	width/X2/Text	Y2/size	col/p	col/e	font/syst/file
tubepicture	31	60	66	0	p	e	

X,Y: Position in mm

width: Picture width in mm

size: Picture height, 0 = keep automatic aspect ratio

p = proportional, fit graphics to frame and keep aspect ratio (is ignored for size 0)

e = when specifying an 'e' in this column, an external editor for the picture will be called before printing the picture (e.g. IrvanView) so that additional changes can be made

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The best way to create own printer forms is to start with loading an already existent one as a template. The following printer forms and printer jobs are included in the software:

curve_evaluation.pfo	29.12.2020 10:17	PFO-Datei
curveUaUg2_system1.pfo	29.12.2020 09:48	PFO-Datei
curveUaUg2_system2.pfo	29.12.2020 09:48	PFO-Datei
curveUaUg2_system3.pfo	29.12.2020 09:48	PFO-Datei
curveUg_system1.pfo	29.12.2020 09:46	PFO-Datei
curveUg_system2.pfo	29.12.2020 09:46	PFO-Datei
curveUg_system3.pfo	29.12.2020 09:46	PFO-Datei
doubletriode.pfo	26.12.2020 11:15	PFO-Datei
short_protocol.pfo	05.01.2021 08:19	PFO-Datei
short_protocol_with_tubepicture.pfo	05.01.2021 08:19	PFO-Datei
short_protocol_with_tubepicture_from_stock.pfo	05.01.2021 08:20	PFO-Datei
tube_with_2_systems.pfo	26.12.2020 11:09	PFO-Datei
tube_with_3_systems.pfo	27.12.2020 09:44	PFO-Datei
tube_with_one_system.pfo	05.01.2021 08:22	PFO-Datei
default.pjb	28.12.2020 15:38	PJB-Datei
doubletriode.pjb	31.12.2020 09:36	PJB-Datei
printjob 1 system in tube.pjb	28.12.2020 15:39	PJB-Datei
printjob evaluation curves.pjb	29.12.2020 16:03	PJB-Datei

Please use different names for your own printer forms and jobs as later software updates might destroy changes you made when using the names of the supplied files!

Automatization with Printer Jobs

Example double triode: After measuring the static data and recording the characteristic curves you want to compare both systems **and want the comparison also to be printed with the protocol.**

For this purpose create a batch job with the following items (eventually use further items):

- new (delete data)
- filament test
- testing for shorts
- static measurement, complete
- writing curves, complete
- compare system1 and 2, e.g. Ug1-curve
- load print job (.pjb): C:\RoeTest\common_data_and_settings\doubletriode.pjb
- print protocol

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as a result the printed protocol might look as follows:

ECC802S - Prüfprotokoll

05.01.2021 14:16:24

Vorgaben/Pre-settings:

Heizspannung: 12,6 V, Heizstrom: 0,15 A, Heizart: indirekt

System	1	2
Röhrenart	Triode	Triode
Sockelbelegung:		
Pin 1		A
Pin 2		G1
Pin 3		K
Pin 4	F1	F1
Pin 5	F2	F2
Pin 6	A	
Pin 7	G1	
Pin 8	K	
Pin 9	FM	FM
Pin 10/extern		
Grenzwerte:		
UA [V]	330,0	330,0
UG2 [V]	0	0
IK [mA]	22,0	22,0
NA [W]	3,000	3,000
NG2 [W]	0,000	0,000
typische Werte:		
UA [V]	250,0	250,0
UG1 [V]	-8,00	-8,00
UG2 [V]	0,0	0,0
UG3 [V]	0,0	0,0
IA [mA]	10,00	10,00
IG2 [mA]	0,00	0,00
S [mA/V]	2,20	2,20
μ	0,0	0,0
D [%]	0,0	0,0
Ri [kOhm]	0,0	0,0

Ergebnisse/Results:

#876

System	1	2
Röhrenart	Triode	Triode
Sollwert IA [mA]	10	10
Messwert IA [mA]	13,659	13,834
= % vom Sollwert	137	138
Sollwert IG2 [mA]		
Messwert IG2 [mA]		
= % vom Sollwert		
S [mA/V]	2,56	2,58
bei Delta UG1 [V]	1,2	1,2
Messwert IA[mA] bei +1/2 dUG1	15,209	15,434
Messwert IA[mA] bei -1/2 dUG1	12,134	12,334
μ	15	15
D Anode [%]	6,67	6,67
Messwert IA [mA]	10,213	10,338
bei UA [V]	227,1	226,8
D G2 [%]		
Messwert IA [mA]		
bei UG2[V]		
Ri [kOhm]	7	6,9
Ig [µA]		



Socket: Noval B9A



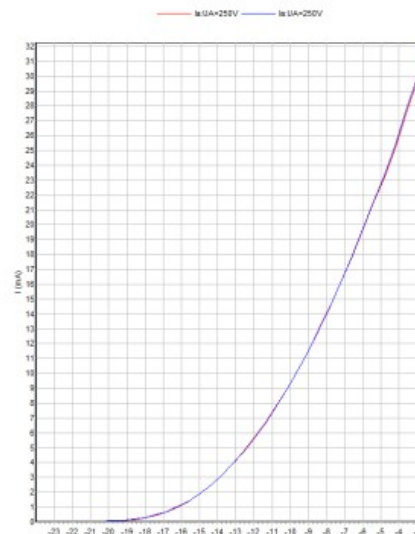
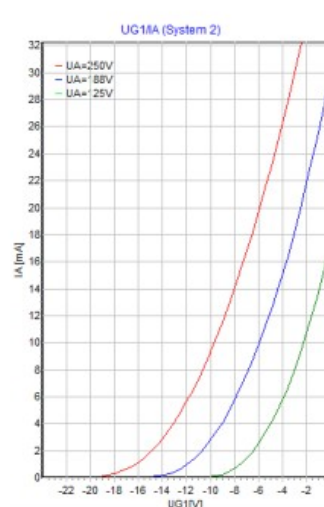
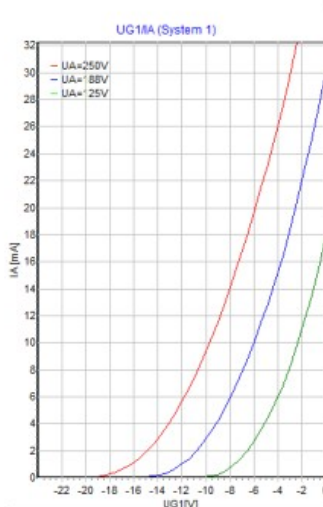
8 x 36° 1.02φ
PC ø: 11.9 mm B9A

verwendete Heizung: int. Gleichstrom
gemessene Heizspannung: 12,64 V
gemessener Heizstrom: 164,5 mA

Anodenstrom ohne Widerstand vor G1: 13,609 mA
Anodenstrom mit Widerstand vor G1: 13,759 mA
Anodenstromänderung: 1,1 [%]

= CC82E, E82CC, ECC82, V: Doppeltriode für allgemeine Schaltaufgaben. Langlebeausführung der ECC 82

Kurzschlussstest o.k.
Kathodenschlussprüfung: o.k.



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4.+5.

You can define 2 printers. E.g. a physical printer and a pdf printer. You can use it then without changing the printer.

6. Label printers

As third printer a label printer can be used → see into "labelprinter.pdf".