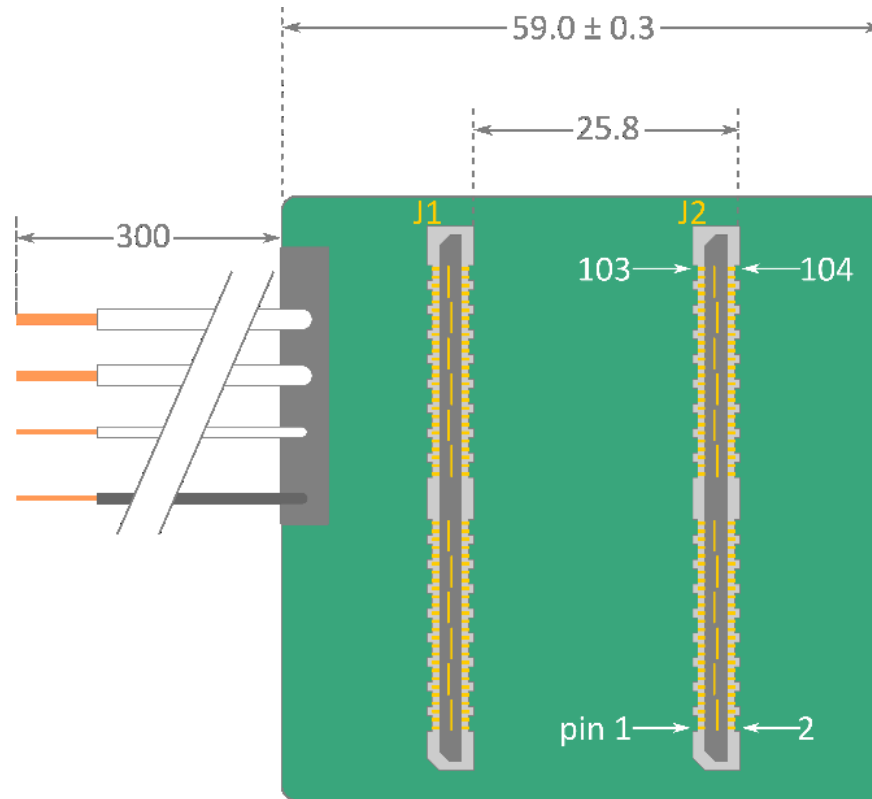


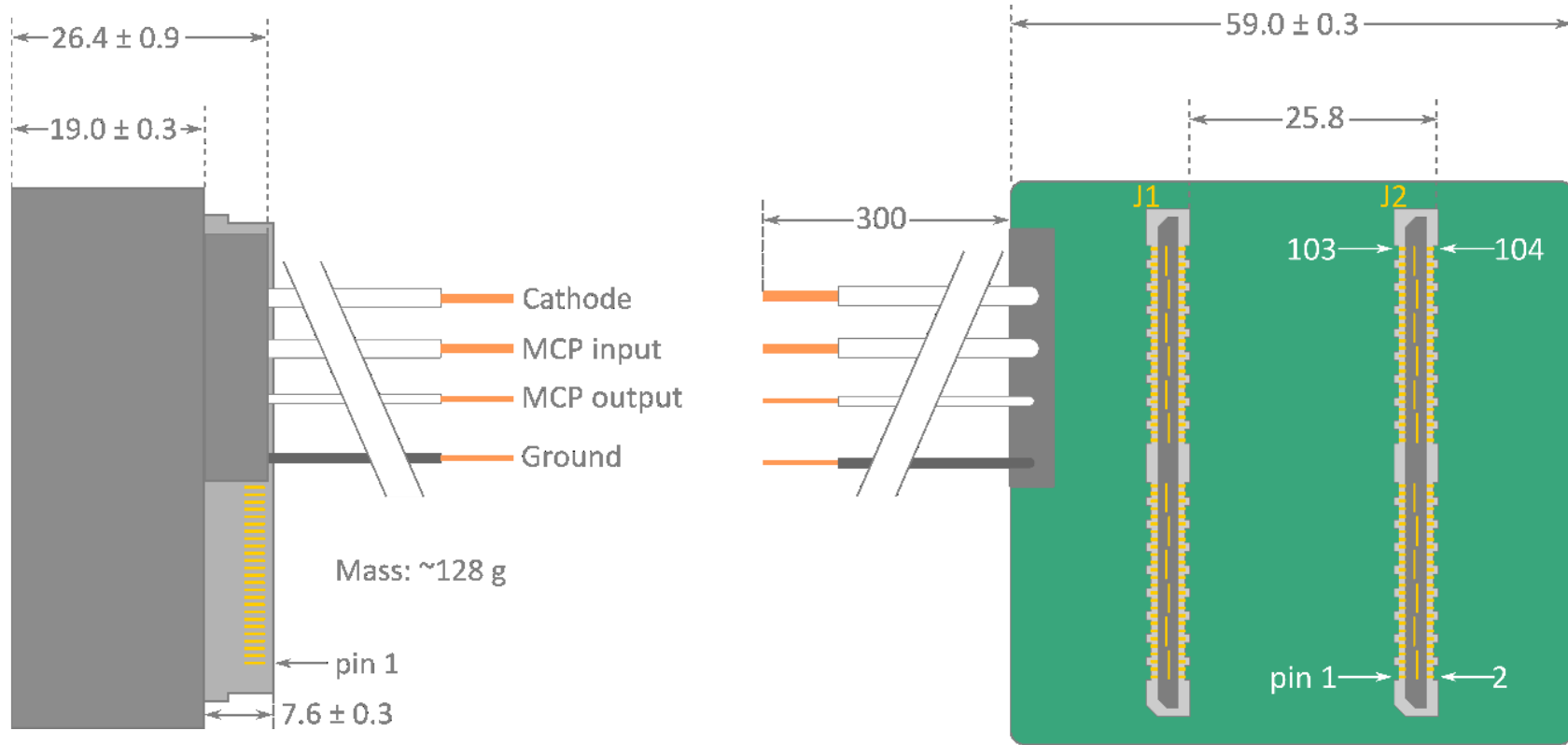
Status of the DiRICH Backplane



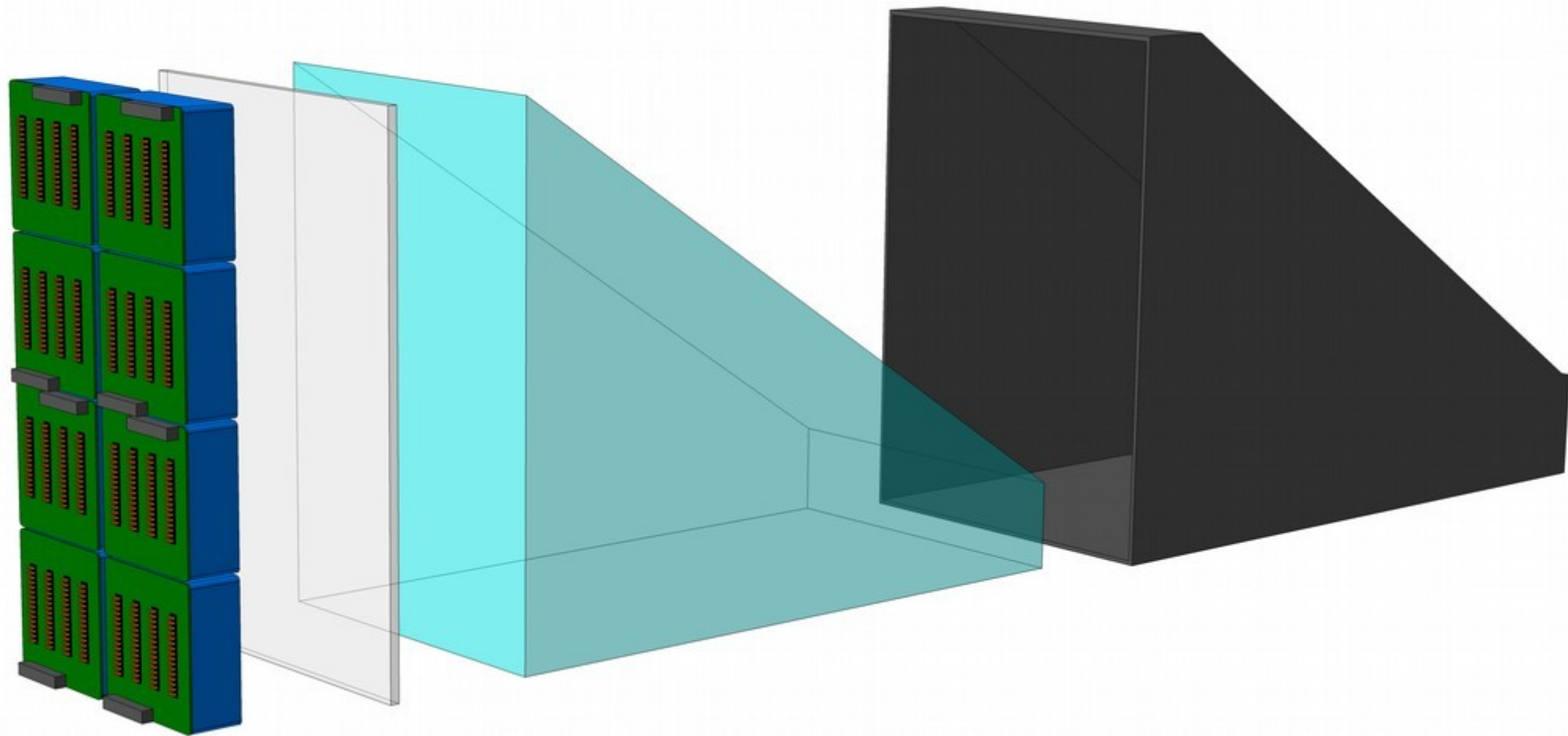
PHOTONIS
XP85112-S-BA

New configuration with SAMTEC plugs need a new backplane

<https://www.samtec.com/products/qrm8-052-05.0-l-d-a-k-tr>

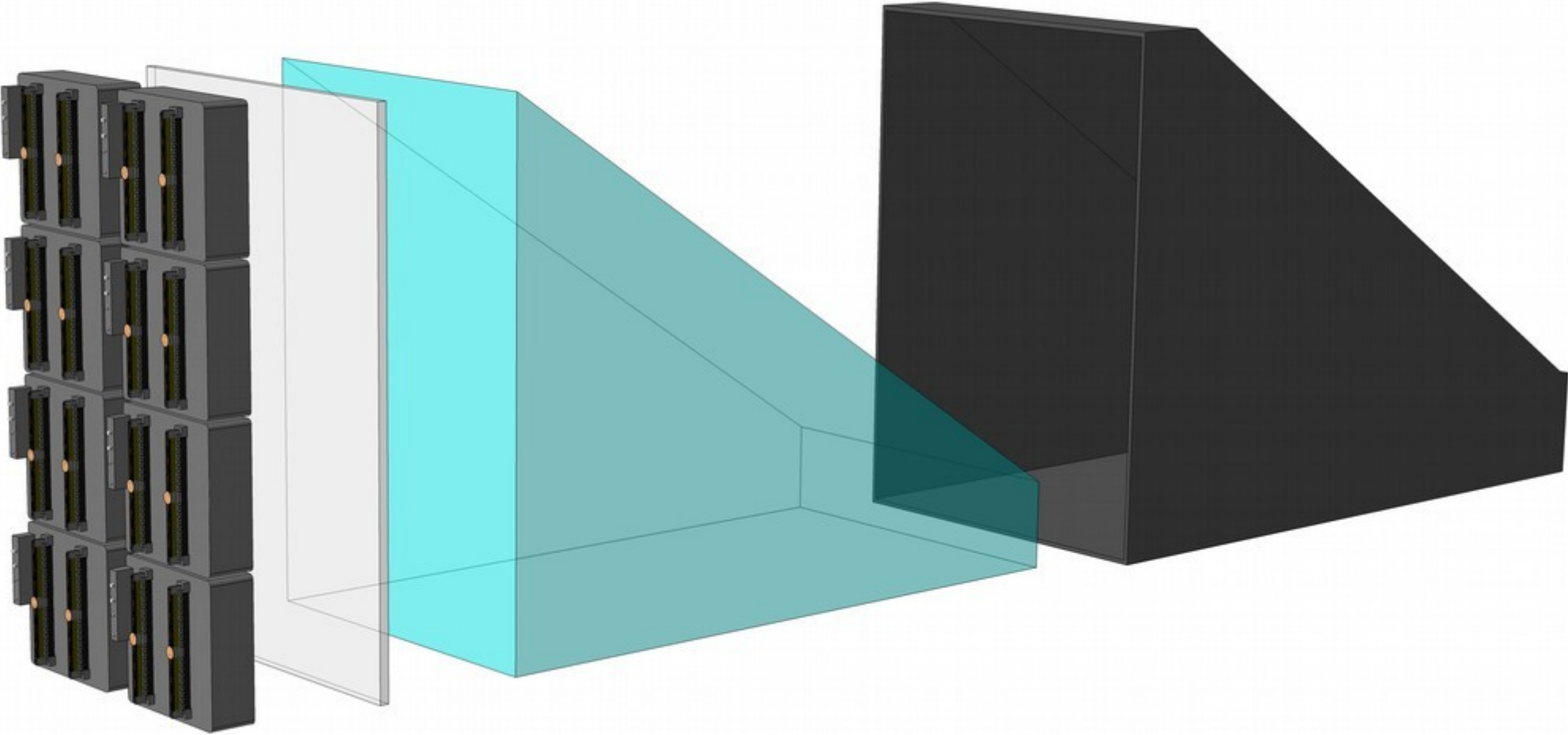


old



Technical drawings all from Andreas Gerhardt

new



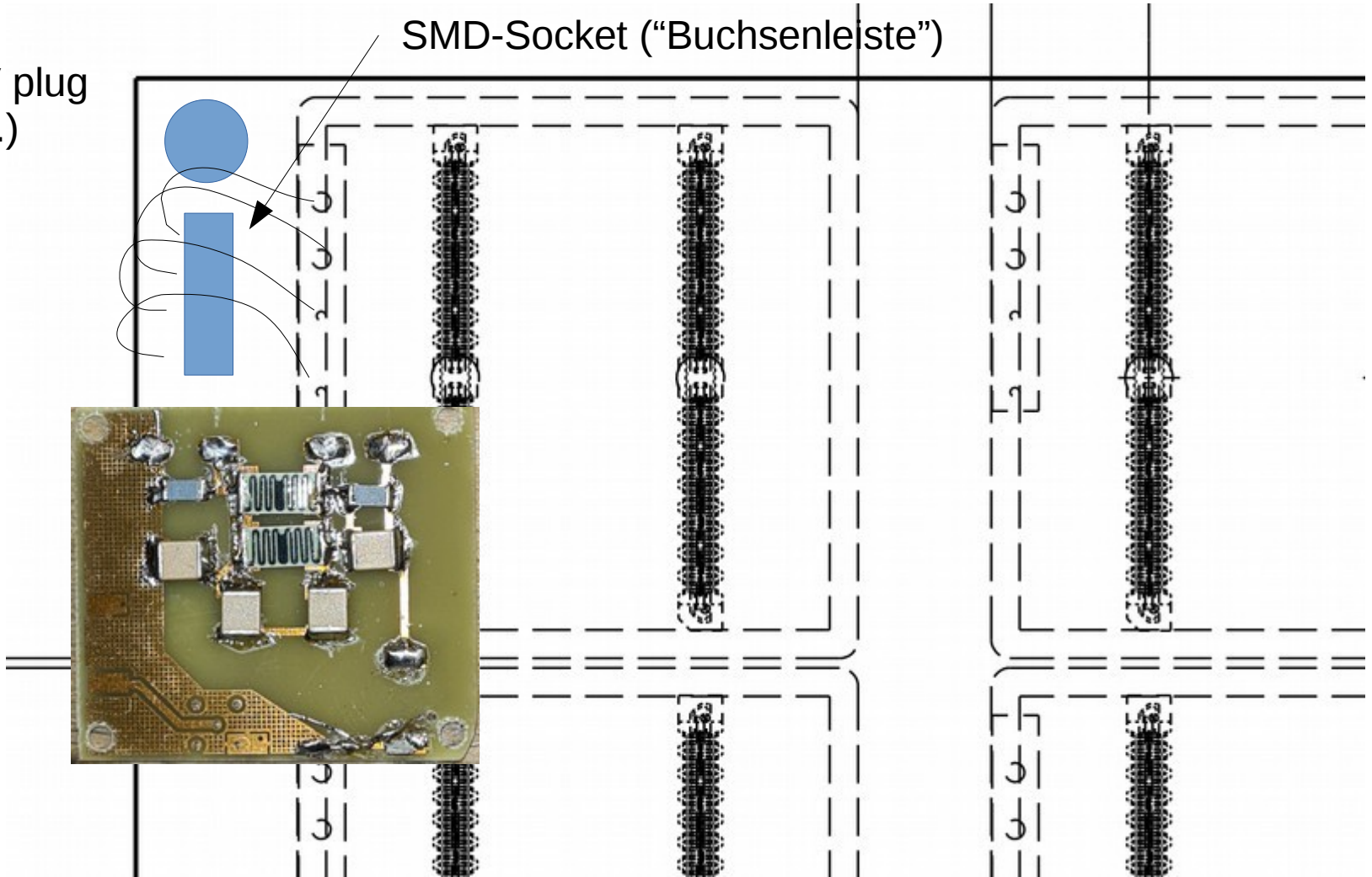
Hole for HV plug
(10 mm dia.)

SMD-Socket ("Buchsenleiste")

Dimensions

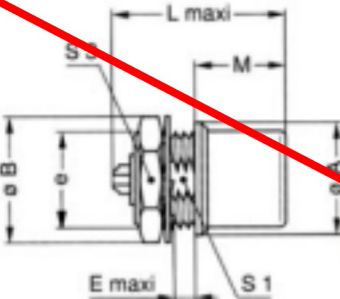
- HV-divider
- PMT
- plug hole

scale



Plug and socket from Lemo catalog 2007
→ found easily on web, but not to buy...

Candidate for socket



EHP Fixed socket, nut fixing, protruding shell

Reference		Dimensions (mm)								
Model	Series	A	B	e	E	L	L'	M	S1	S3
EHP	0S ✓	10	12.5	M9x0.6	2.5	17.5	18.5	12.5	8.2	11
EHP	1S ✓	14	16.0	M12x1.0	3.5	20.2	21.5	12.0	-	14
EHP	3S ✓	22	25.2	M18x1.0	4.0	29.0	30.0	18.7	-	22

Note: * unipole model

20

✓ Bei Lemo vorhanden | available at Lemo

5 kV

(HV within FR4 board 30 kV/mm → 16 planes: $1.5\text{mm}/32 = 47\mu\text{m} \rightarrow 1.4\text{ kV}$
→ 8 planes: $1.5\text{mm}/16 = 94\mu\text{m} \rightarrow 2.8\text{ kV}$)

Alternative for plug and socket:

1900



✓ RoHS-konform

#FFA.00.250.CTAC29, 1pol. Kabelstecker,
50 Ohm. Hersteller: Lemo

Preis 4,28 EUR / 1 ST

[Datenblatt \(PDF\)](#)

Lagerplatz:
P1-42-02-1

Status:
05

Warengruppe:
W605

Bestand:
1 ST



1901



✓ RoHS-konform

#ERA.00.250CTL, 1pol. Einbauapparatedose
50 Ohm. Hersteller: Lemo

Preis 3,17 EUR / 1 ST

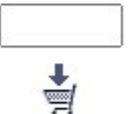
[Datenblatt \(PDF\)](#)

Lagerplatz:
EG-99-99-9

Status:
05

Warengruppe:
W605

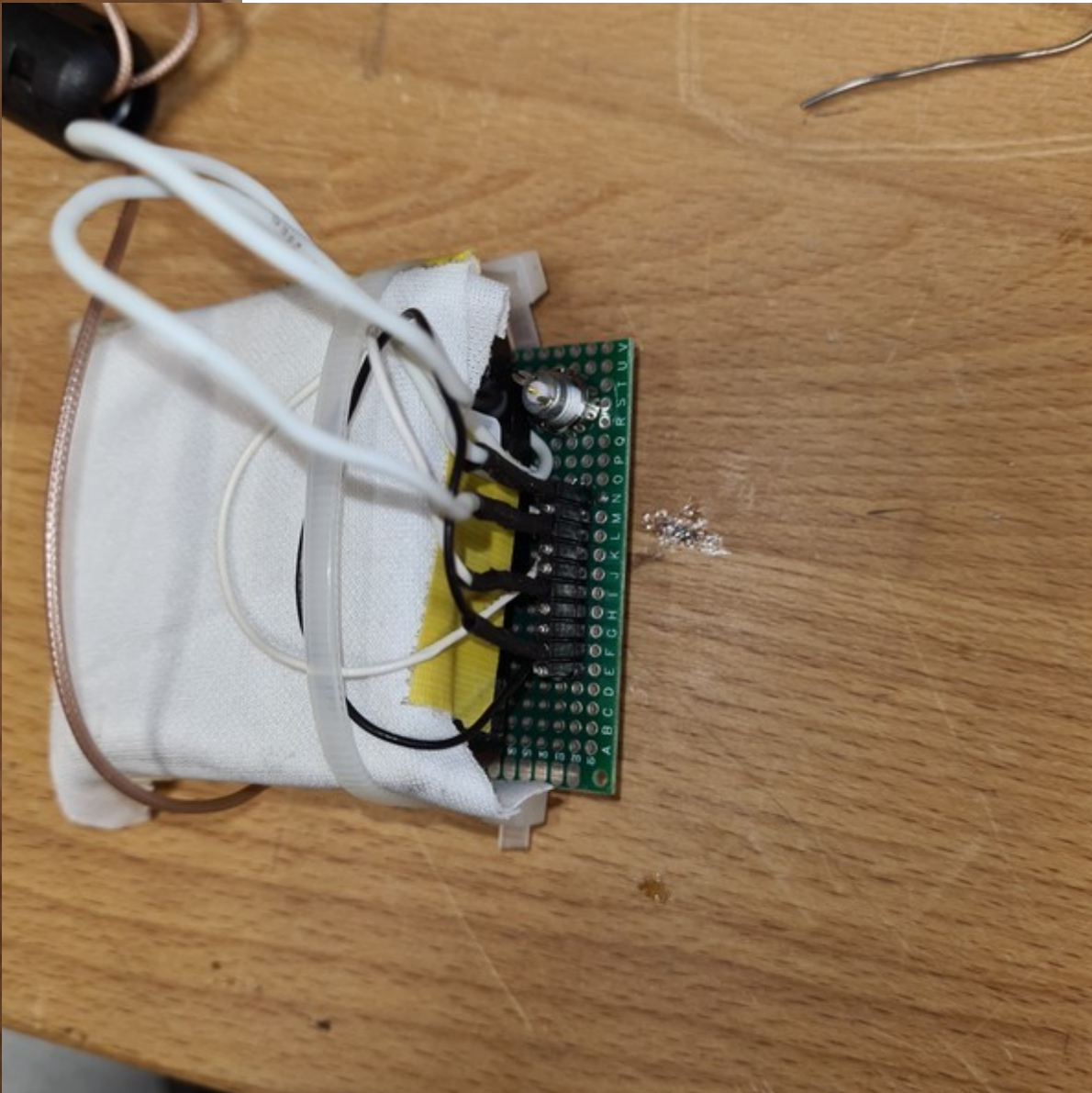
Bestand:
0 ST

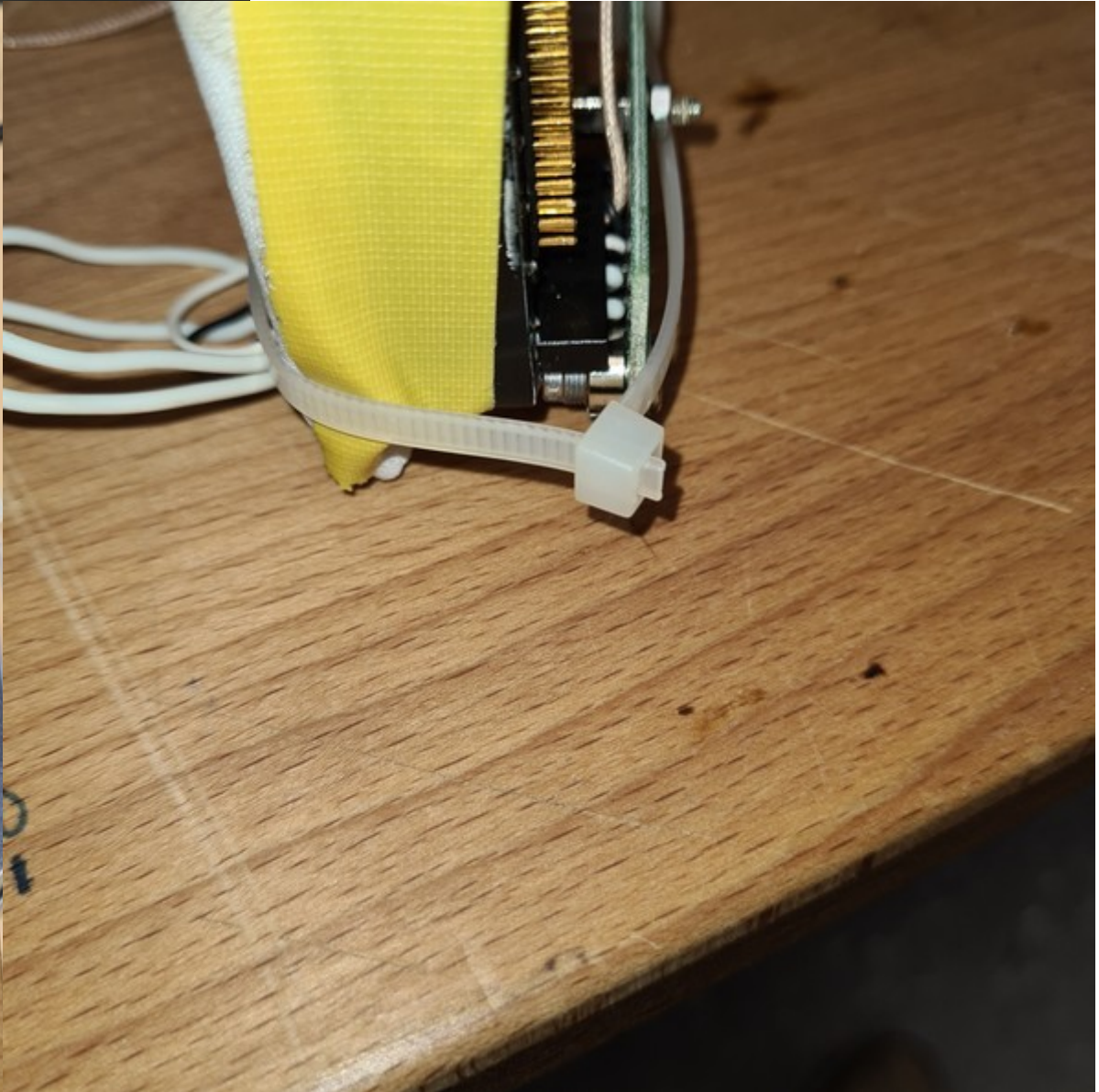
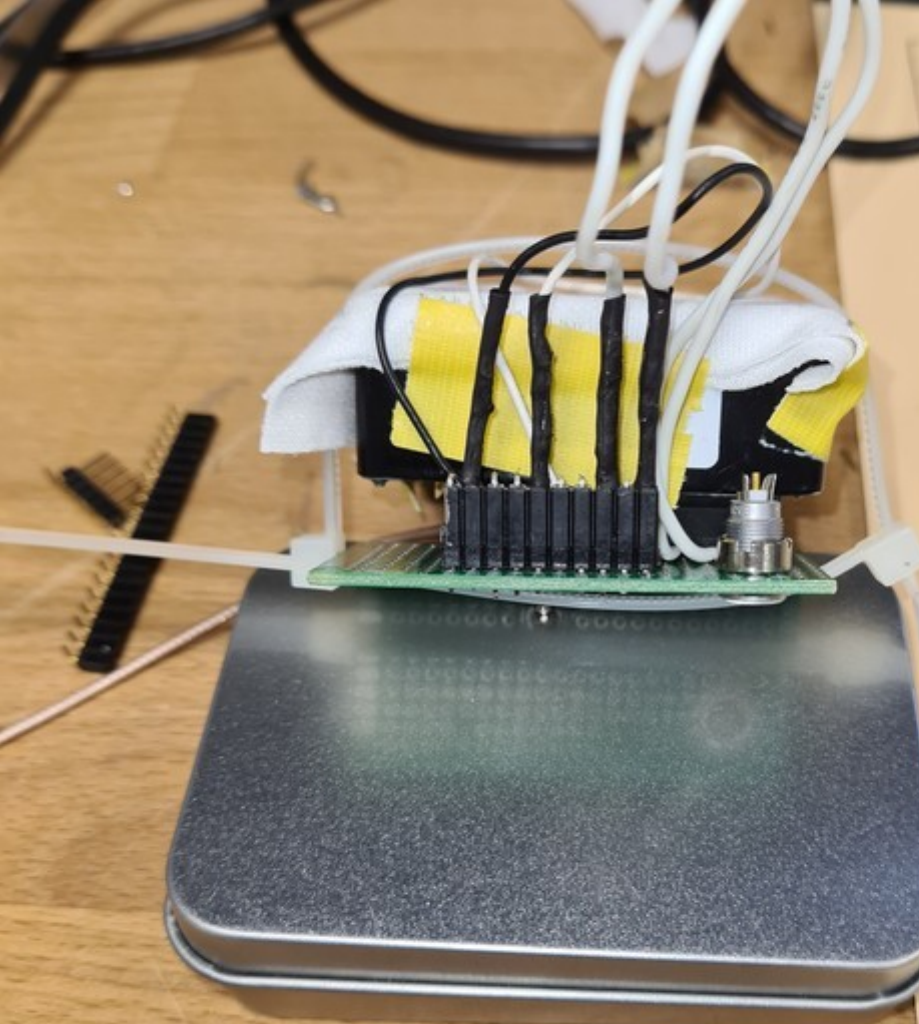


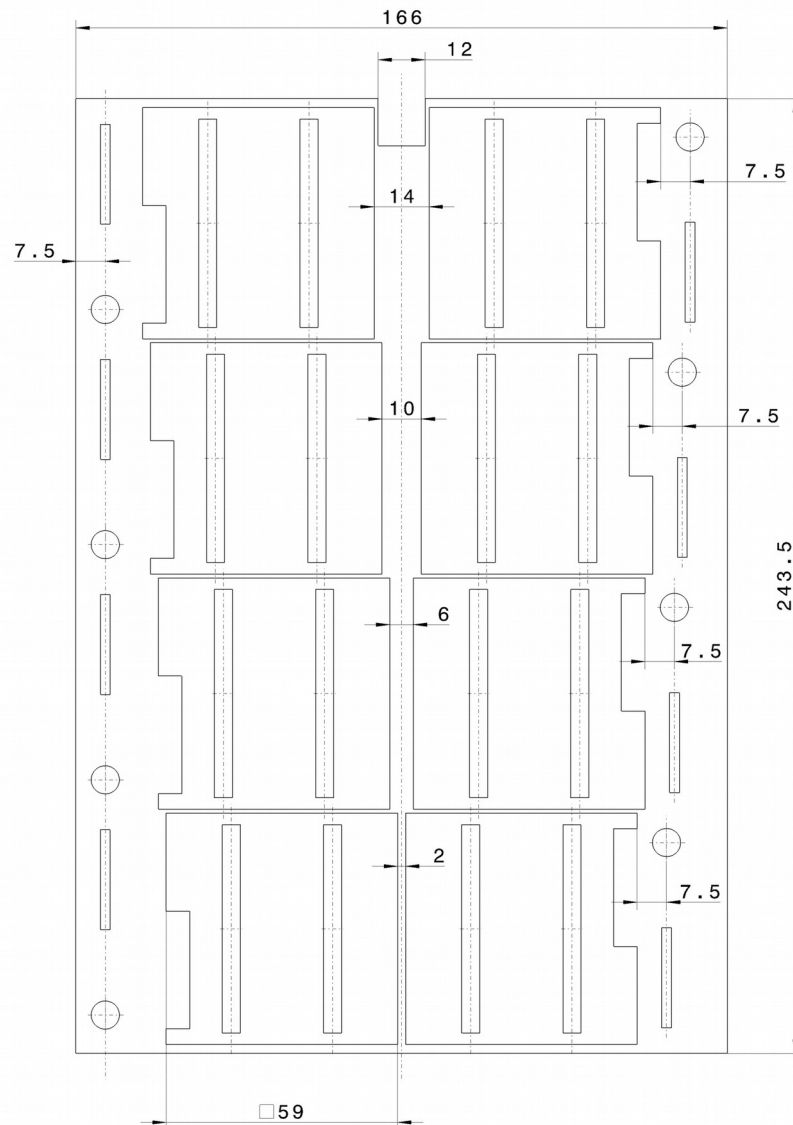
Specifications

Contact Type: Coaxial 50 Ohm (Solder)
Max. Matings: 5000
Contact Dia.: 0.7 mm (0.028in)
Bucket Dia.: 0.6 mm (0.024in)
Test voltage: 2.1 kV (rms)
R (max): 6.1 mOhm
Vtest: 2100 V (AC), 3000 V (DC)

GSI stockroom







Andreas Gerhardt produced a
mock-up to play with.

Playboard will be printed in plastic

Tight config

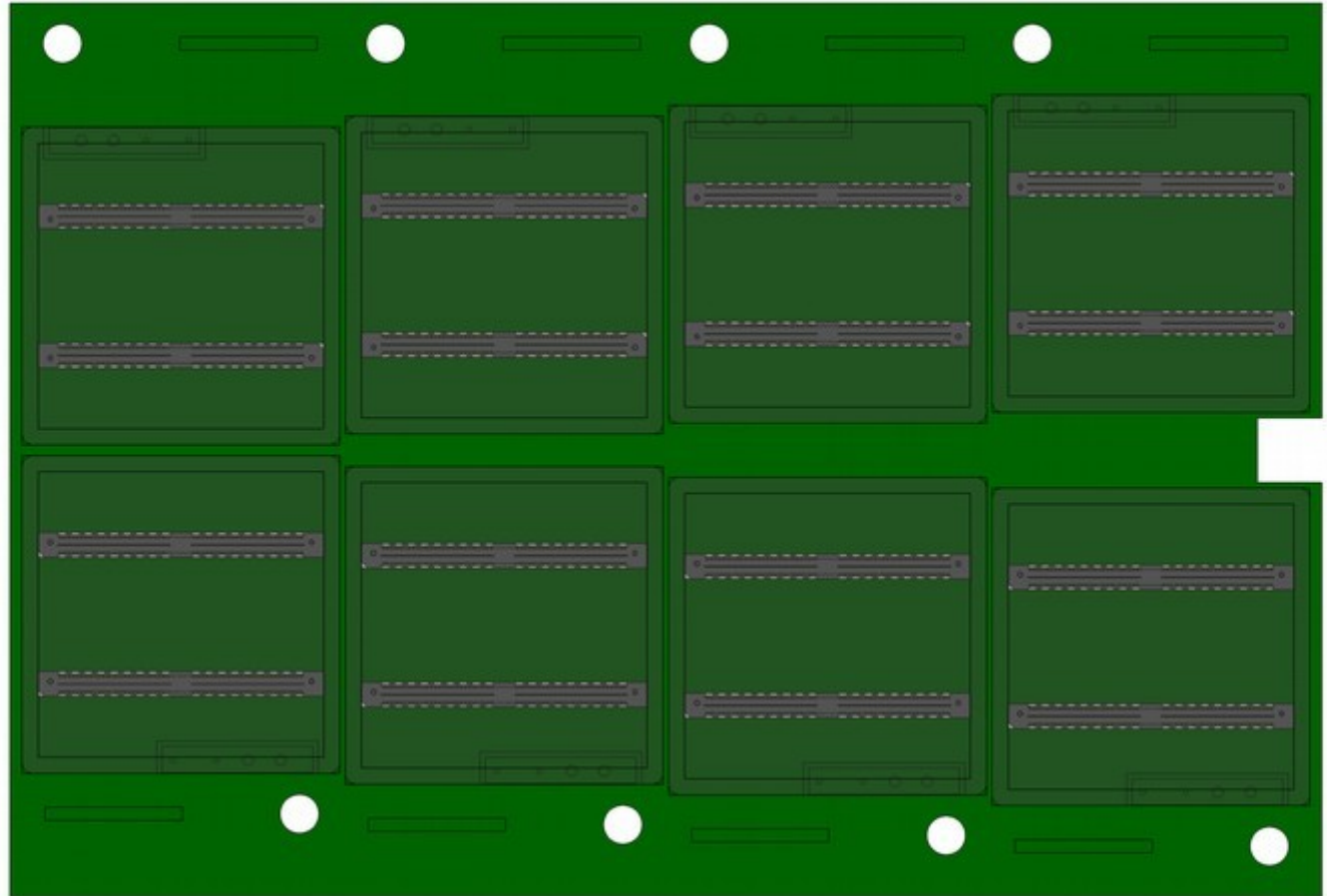
Good

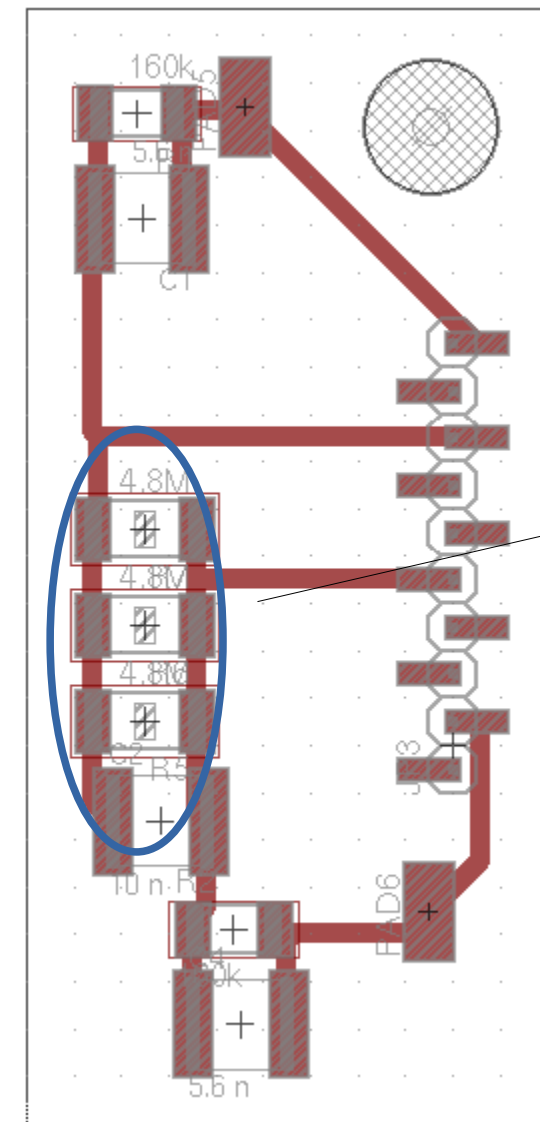
- HV-divider space

- illumination with pulser

Bad

- in case camera goes through backplane



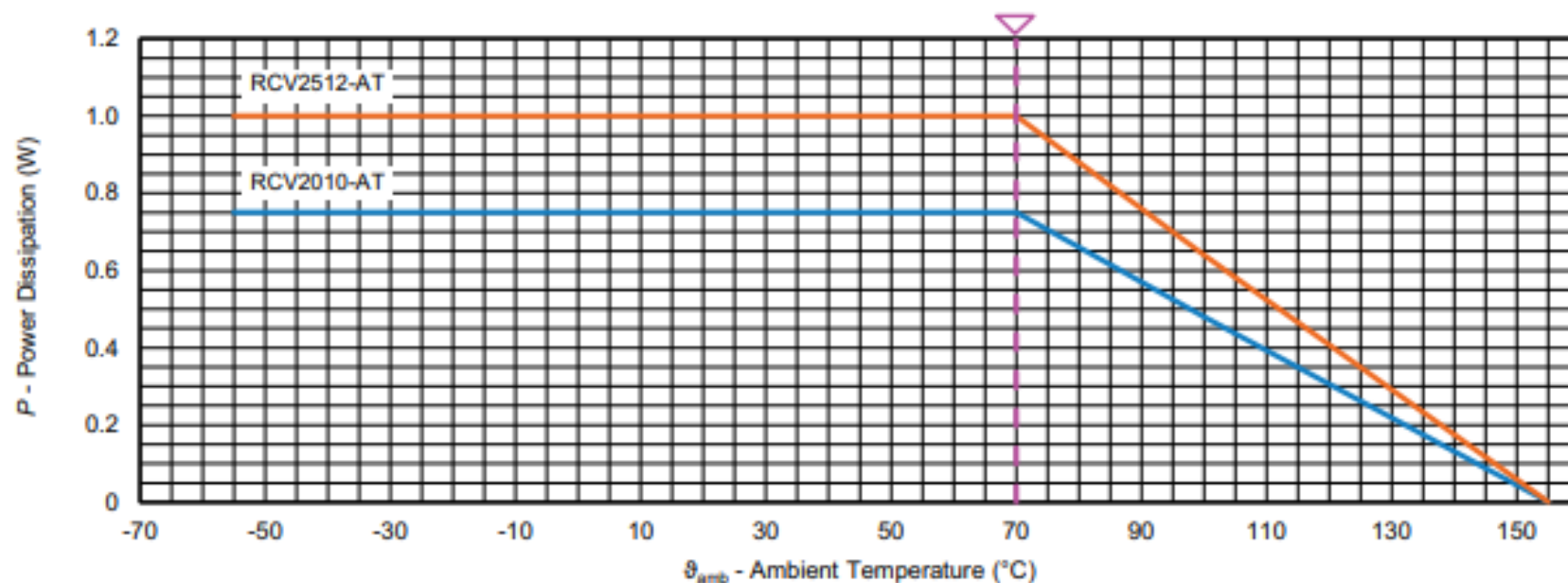


HV - divider

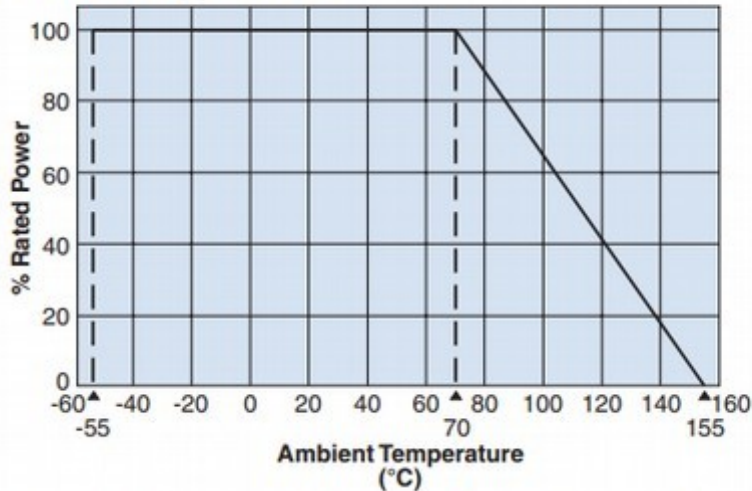
Specs:
derating at high temperatures



DERATING

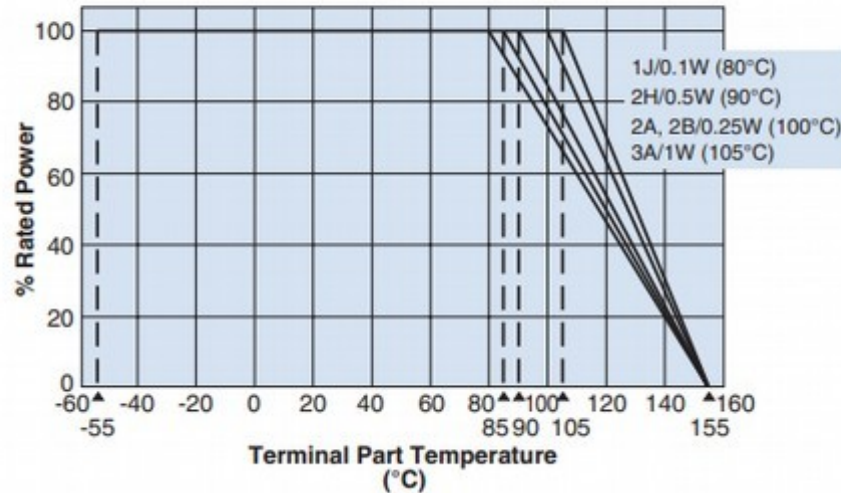


Derating Curve



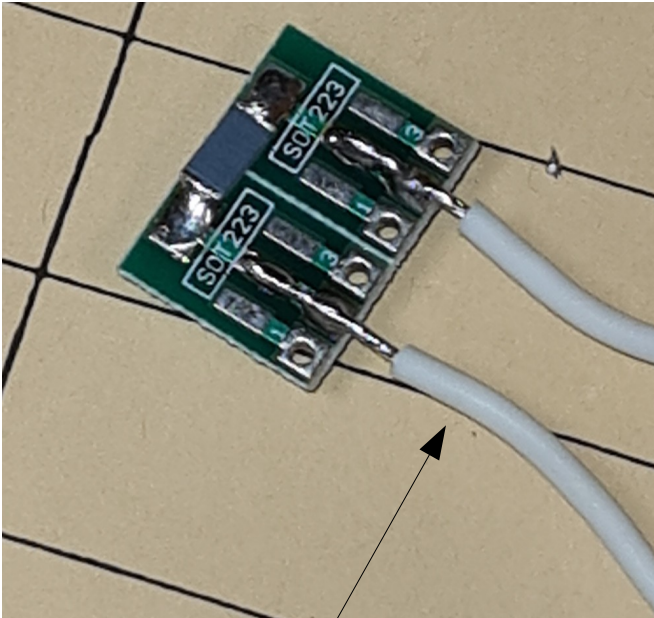
For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.

(2512)	(0.5±0.2)	(3.1±0.2)	(0.5±0.5)	(0.4 ^{+0.4} _{-0.1})
--------	-----------	-----------	-----------	--

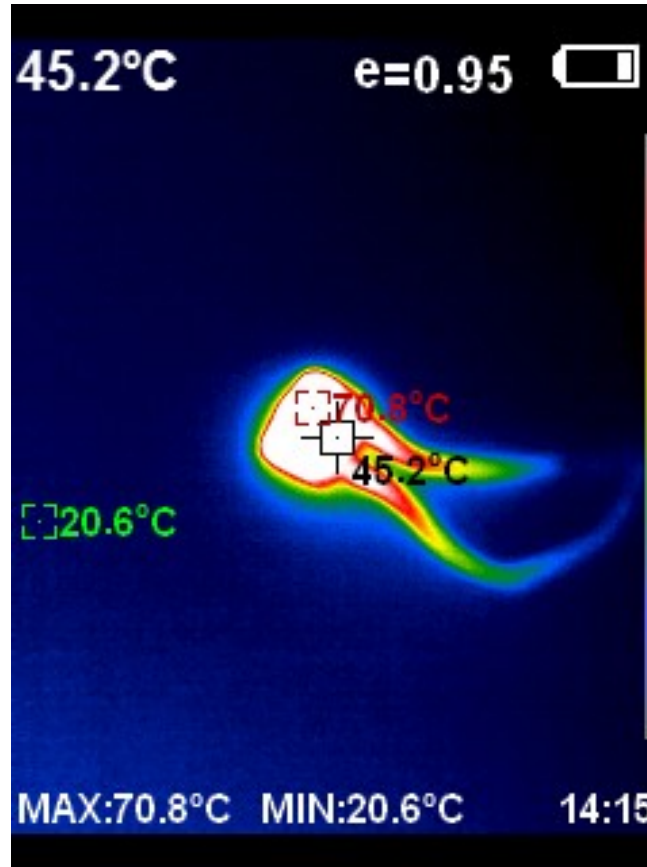


For resistors operated at a terminal part temperature of described for each size or above, a power rating shall be derated in accordance with the above derating curve. Please refer to "Introduction of the derating curve based on the terminal part temperature" in the beginning of our catalog before use.

SMD 2010 =
5x2.5 mm²
0.5 Watt
(500 V 1 mA)



No PTFE



$\Delta T = 50$ degree

HV-Divider

$$2\text{kV}^2 / 1.6 \text{ M}\Omega = 2.5 \text{ Watt}$$

Tells this nice
picture the truth???



Neue Infrarot-Wärmebildkamera mit einer höheren Auflösung von 320 x 240 IR. Modell HT-19 mit verbesserten 300.000 Pixeln, scharfem 3,2-Zoll-Farbdisplay, Batterie im Lieferumfang enthalten.

[Besuche den Hti-Xintai-Store](#)



380 Sternebewertungen | 33 beantwortete Fragen

556⁶⁶ €

& [KOSTENLOSE Rücksendungen](#) ▾

Preisangaben inkl. USt. Abhängig von der Lieferadresse kann die USt. an der Kasse variieren. [Weitere Informationen.](#)

Oder Finanzierung: 25,03 € x 24 Monatsraten (7,69% effekt. Jahreszins mit dem Finanzierungsrahmen von Barclays). [Mehr Informationen](#)

Marke	Hti-Xintai
Farbe	Black
Stromquelle	Batteriebetrieben

Anzahl der Batterien 1 Lithium-Polymer Batterien erforderlich (enthalten).

Artikelmaße L x B x H 22.4 x 9.1 x 8.4 cm

556⁶⁶ €

&

[KOSTENLOSE Rücksendungen](#) ▾

[KOSTENLOSE Lieferung](#)

Donnerstag, 2. Juni

Oder schnellste Lieferung
Morgen bis 13:00. Bestellung innerhalb **7 Std. 43 Min.**

📍 [Lieferrn an Carsten - 64331 Weiterstadt](#)

Auf Lager.

Menge: 1 ▾

In den Einkaufswagen

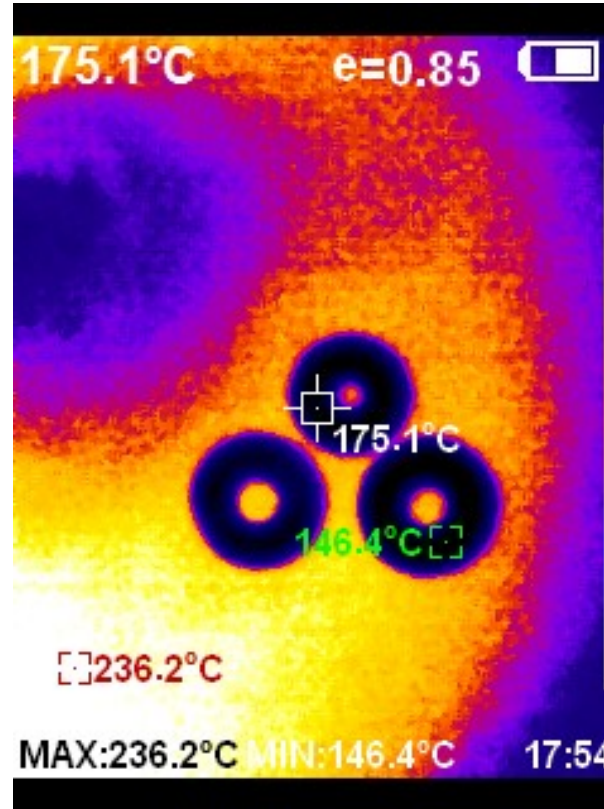
Jetzt kaufen

🔒 [Sichere Transaktion](#)

Verkauf durch [XinTai Instrument](#)

Für eine größere Ansicht klicken Sie auf das Bild

Emissivity of washers



By hand:

Black 183 deg

Brass 165 deg

Steel 145 deg

Emissivity important

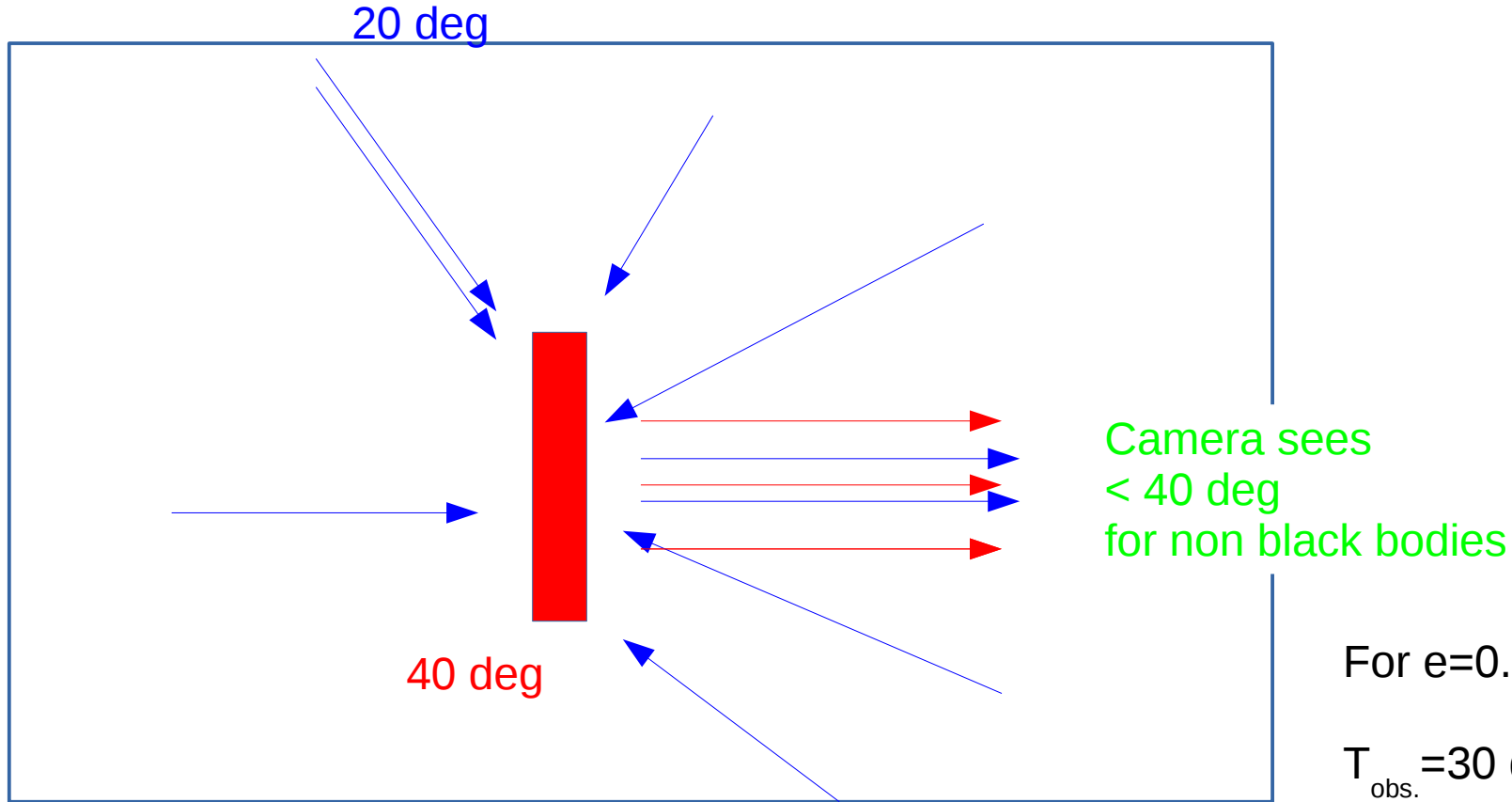
Dull $e=0.95$

Half dull $e=0.85$

Half shiny $e=0.6$

Shiny $e=0.3$

$$T(K) = T_{vis} / e$$

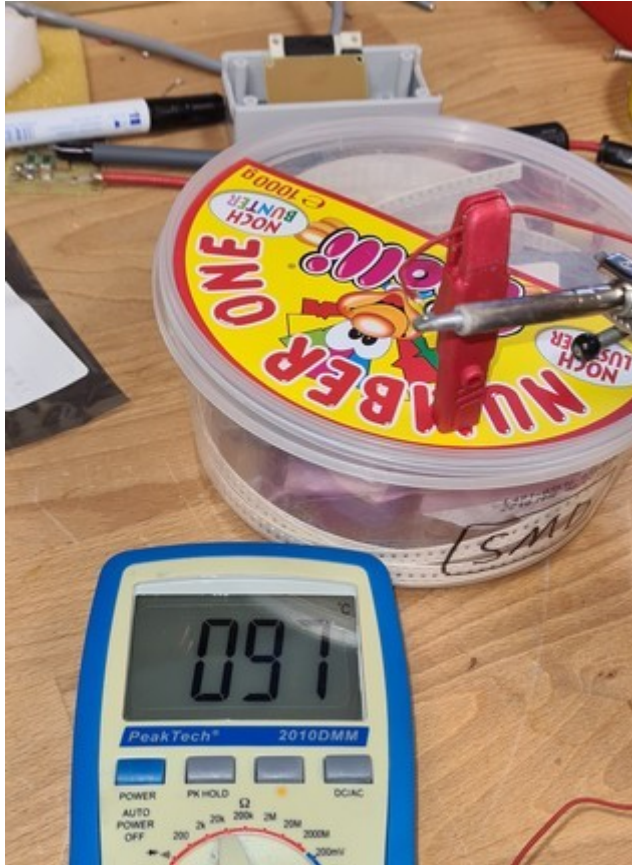


For $e=0.5$

$$T_{\text{obs.}} = 30 \text{ deg}$$

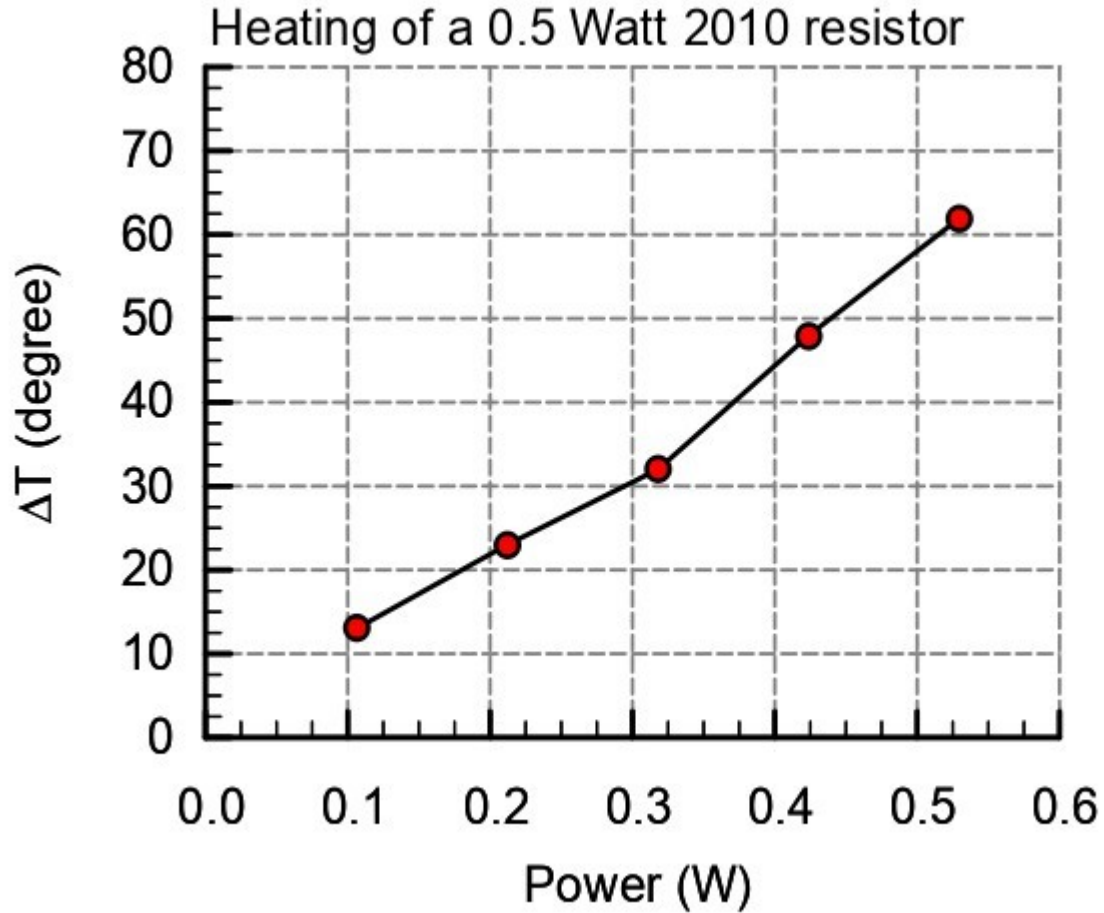
$$T_{\text{true}} = (30 - 20) / 0.5 + 20 \text{ deg}$$

Calibration of emissivity



Soldered 2010 0.5 Watt resistor on soldering tip
and measure at ~ 100 degree

Emissivity = 0.85 (DMM and camera show same T)



To get $dT=30$ deg at ambient $T=50$ deg one should use

→ 60% of max power specs.

$2.5 \text{ Watts} / 0.6 = 4.2 \text{ Watts}$

Better use 5 resistors (2512/1Watt)

Summary

Details of mechanical layout take more time than anticipated

The HV-divider resistors (1.6 Mohm over the plate)
have to withstand 5 Watts