

## iC-HG EVAL HG2D EVALUATION BOARD DESCRIPTION

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### ORDERING INFORMATION

Type	Order Designation	Description and Options
Evaluation Board	iC-HG EVAL HG2D	Host Adapter for HG2M type modules
Evaluation Board	iC-HG EVAL HG2D-HSK	Host Adapter for HG2M type modules with heat sink assembly kit

### BOARD HG2D

(size 113 mm x 100 mm)

### TERMINAL DESCRIPTION

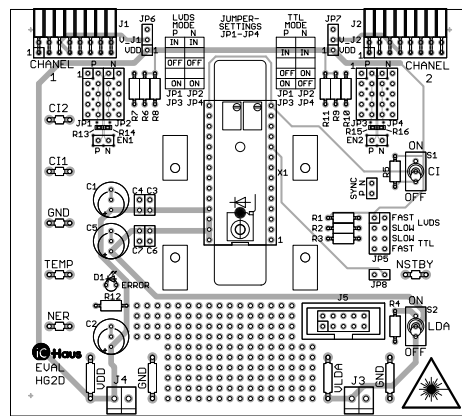


Figure 1: Component side

J1/J2 Interface to Pulse/Oscillator modules (e.g. iC149/iC213)

CI2 Control Voltage for Channel 2  
CI1 Control Voltage for Channel 1  
GND Ground  
TEMP Chip Temperature (if applicable)  
NER Error Output (low active)

VDD Power Supply iC\*  
GND Ground  
VLDA Power Supply laser diode\*  
GND Ground

NSTBY Standby input (if applicable)  
J5 SPI interace (if applicable)

\*Consult the relevant iC data sheet or module manual for a valid range.

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### RELATED DOCUMENTS

- iC-HG Data Sheet  
→ <http://www.ichaus.de/iC-HG>
- iC-HG2M High Speed Module  
→ <http://www.ichaus.de/iC-HG>
- iC149 Programmable Pulse Generator  
→ <http://www.ichaus.de/iC149>
- iC-HG Programmable Oscillator  
→ <http://www.ichaus.de/iC213>

### SCHEMATIC

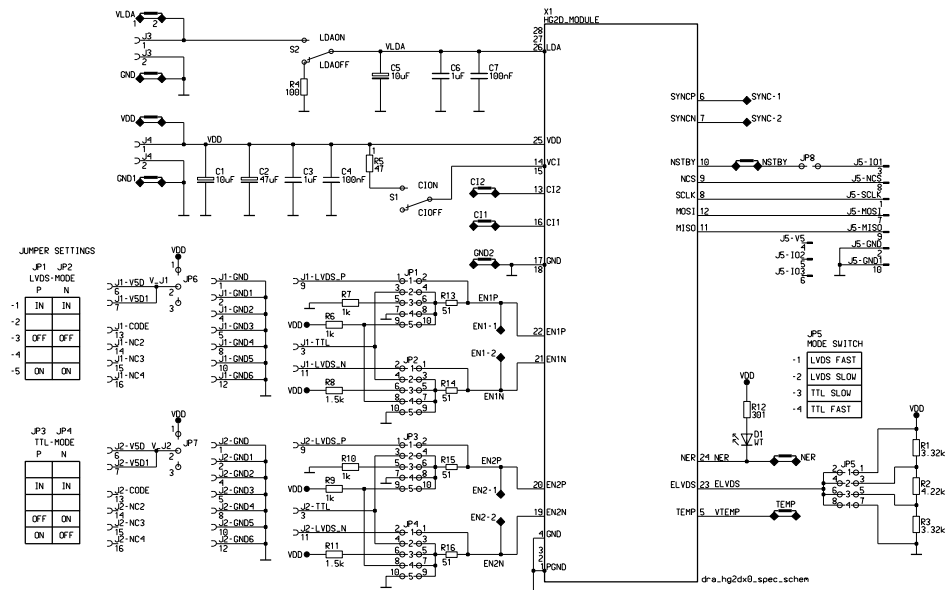


Figure 2: Circuit diagram HG2D

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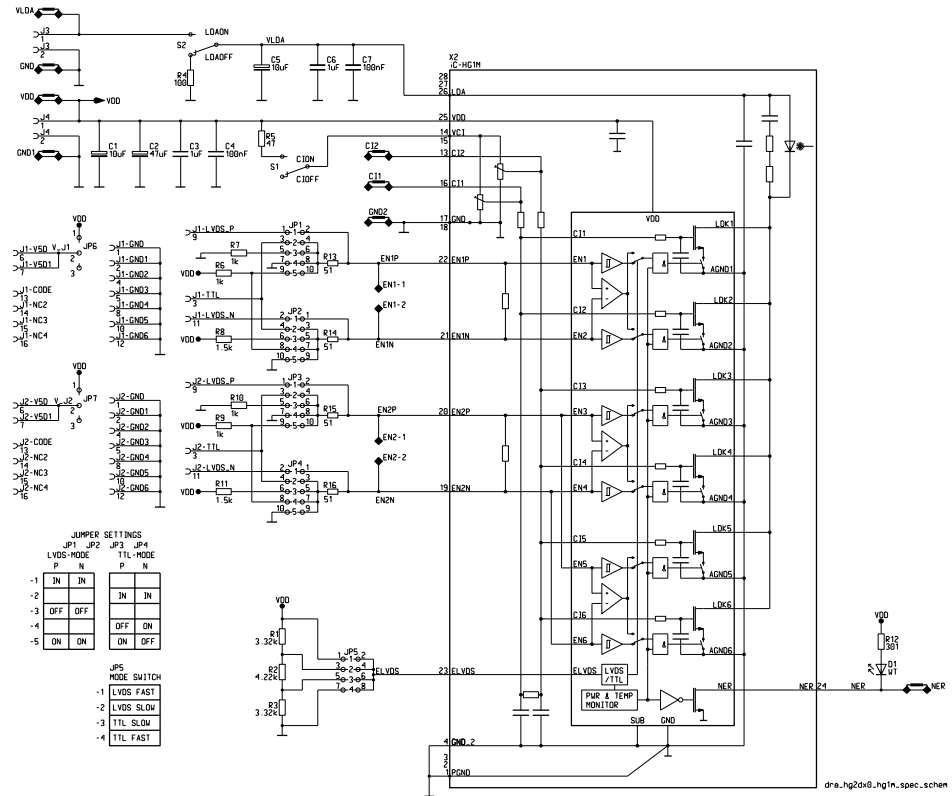


Figure 3: Circuit diagram with iC-HG module

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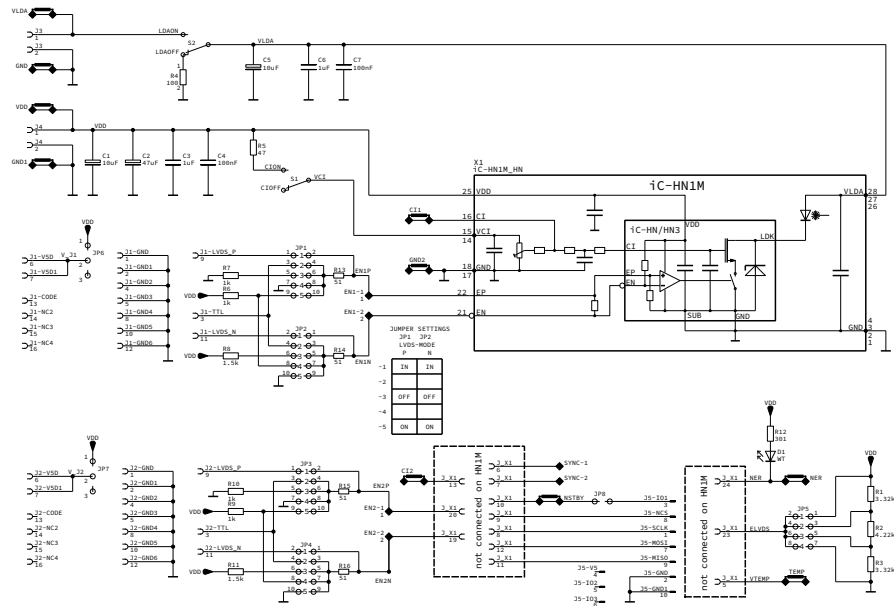


Figure 4: Circuit diagram with iC-HN module

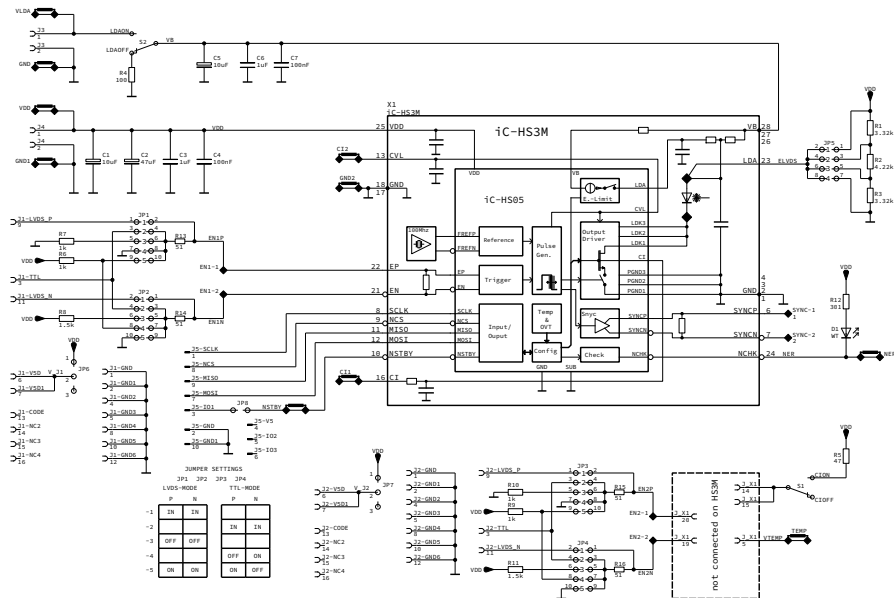


Figure 5: Circuit diagram with iC-HS module

Caution! Make sure, no jumper is set on JP5 before applying the supply voltages.

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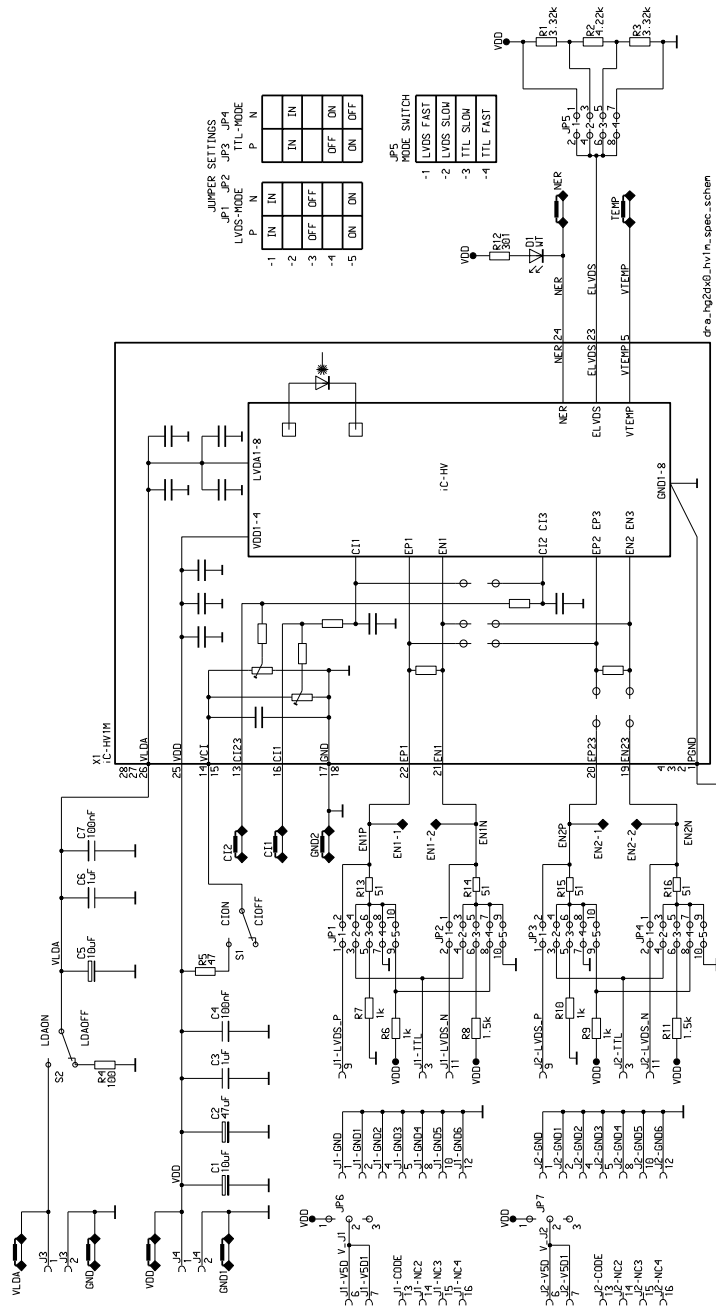


Figure 6: Circuit diagram with iC-HV module

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### JUMPER DESCRIPTION

JP1 JP3	JP2 JP4	Function	Comments
00	00	LVDS	LVDS control via J1/J2
00	00	TTL	
00	00	LVDS off	
00	00	TTL off/on	
00	00	LVDS/TTL on/off	
00	00	LVDS	TTL control via J1/J2
00	00	TTL	
00	00	LVDS off	
00	00	TTL off/on	
00	00	LVDS/TTL on/off	
00	00	LVDS	TTL control ON (static)
00	00	TTL	
00	00	LVDS off	
00	00	TTL off/on	
00	00	LVDS/TTL on/off	
00	00	LVDS	TTL control OFF (static)
00	00	TTL	
00	00	LVDS off	
00	00	TTL off/on	
00	00	LVDS/TTL on/off	
00	00	LVDS	LVDS control ON (static)
00	00	TTL	
00	00	LVDS off	
00	00	TTL off/on	
00	00	LVDS/TTL on/off	
00	00	LVDS	LVDS control OFF (static)
00	00	TTL	
00	00	LVDS off	
00	00	TTL off/on	
00	00	LVDS/TTL on/off	

JP5	TTL SLOW/FAST, LVDS SLOW/FAST	Transient control
JP6	V_J1	Connects/disconnects VDD to/from J1
JP7	V_J2	Connects/disconnects VDD to/from J2
JP8	NSTBY	Connects/disconnects NSTBY to/from J5

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#### SPI CONNECTOR PINOUT

J1: SPI Connector		
10-pin Connector - male		
PIN	Name	Function
1	SCLK	SPI Clock
2	GND	Ground
3	NSTBY	Standby (low active, requires JP8 to be set
4		
5		
6		
7	MOSI	SPI Data Input
8	NCS	Chip Selct (low active)
9	MISO	SPI Data Output
10	GND	Ground

Table 1: SPI Connector.

#### ASSEMBLY PART LIST

Device	Value (typical)	Comment
C1, C5	10 $\mu$ F	Blocking capacitor
C2	47 $\mu$ F	Blocking capacitor
C3, C6	1 $\mu$ F	Blocking capacitor
C4, C7	100 nF	Blocking capacitor
D1	LED	Error indicator
EN1, EN2		Measurement terminals
J1, J2		Pulse/Oscillator module interface
JP1, JP2, JP3, JP4		See jumper configuration
JP5, JP6, JP7		See jumper configuration
R1, R3	3.32 k $\Omega$	TTL/LVDS fast/slow settings
R2	4.22 k $\Omega$	TTL/LVDS fast/slow settings
R4	100 $\Omega$	Discharge resistor
R5	47 $\Omega$	Current limitation
R6, R7, R9, R10	1 k $\Omega$	Pull Up/Down resistors
R8, R11	1.5 k $\Omega$	Pull Up/Down resistors
R12	301 $\Omega$	Current limitation
S1	switch	CI on/off
S2	switch	LDA on/off

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### HEAT SINK ASSEMBLY KIT (OPTIONAL)

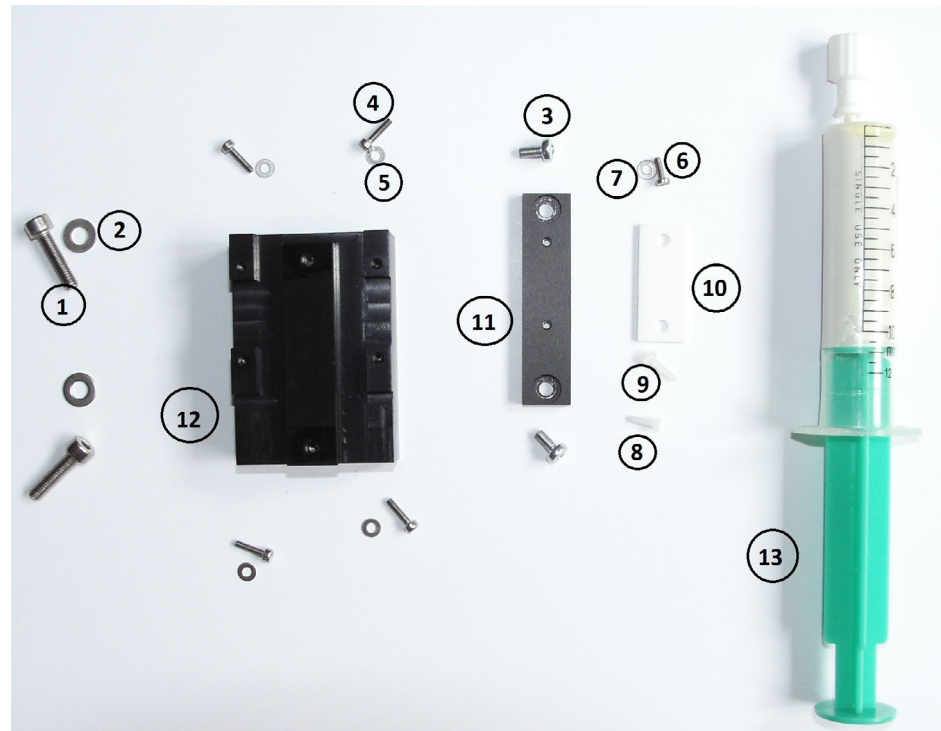


Figure 7: Heat Sink Kit overview

Item	Quantity	Material	Description
1	2	steel	M4x16, hex socket screw
2	2	steel	Ø <sub>A</sub> ~ 8.8 mm, washer for M4x16 screw
3	2	steel	M3x6, Phillips screw
4	4	steel	M2x8, hex socket screw
5	4	steel	Ø <sub>A</sub> ~ 5 mm, washer for M2x8 screw
6	1	steel	M2x6, slot screw
7	1	steel	Ø <sub>A</sub> ~ 5 mm, washer for M2x6 screw
8	1	polyamide	M2x6, slot screw
9	1	polyamide	M2x8, slot screw
10	1	aluminium oxide	disc 28.3 mm x 12 mm x 1.5 mm
11	1	aluminium	HG1M heat sink 52 mm x 12 mm x 4 mm
12	1	aluminium	HG2DZ heat sink 54.8 mm x 38 mm x 21 mm
13	1	metal oxide	thermal grease 10 ml

Table 2: Heat Sink Kit material



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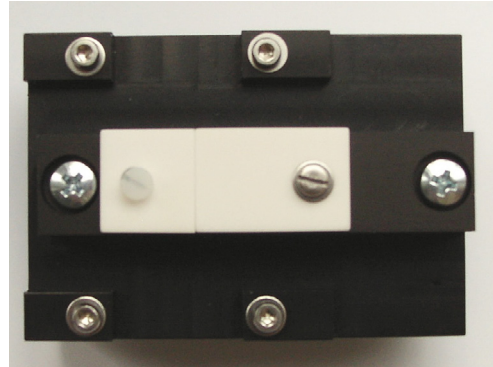


Figure 8: Pre-assembled Heat Sink Kit, top view

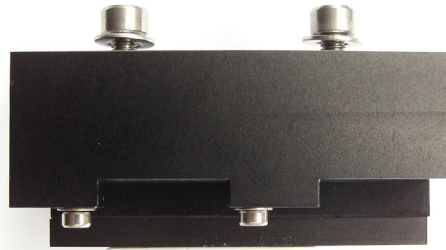


Figure 9: Pre-assembled Heat Sink Kit, side view



Figure 10: Pre-assembled Heat Sink Kit, bottom view

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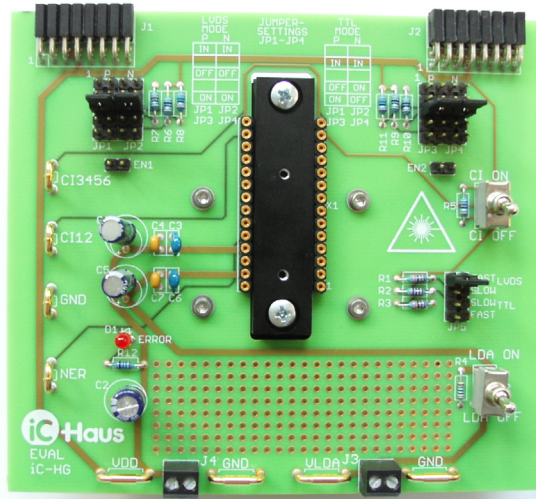


Figure 11: HG2D with assembled heat sink

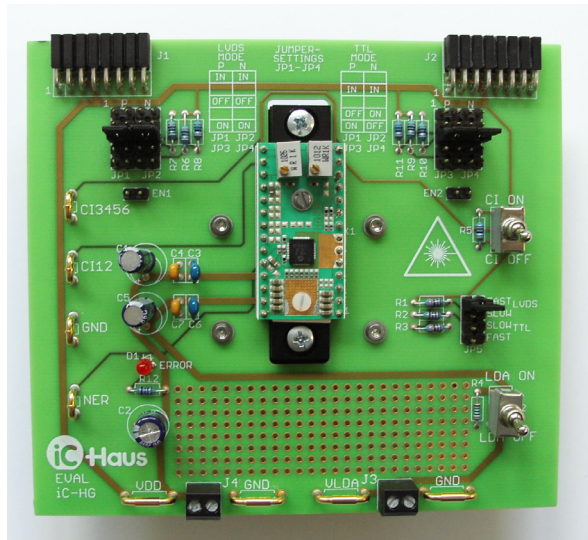


Figure 12: HG2D with heat sink and HG2M

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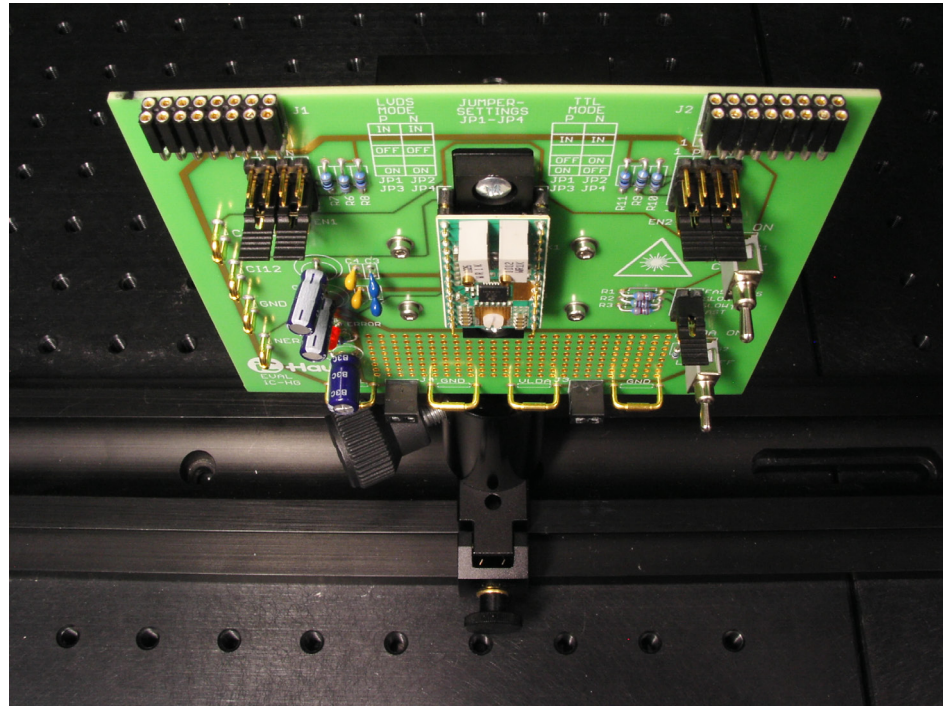


Figure 13: HG2D assembled to an optical bench

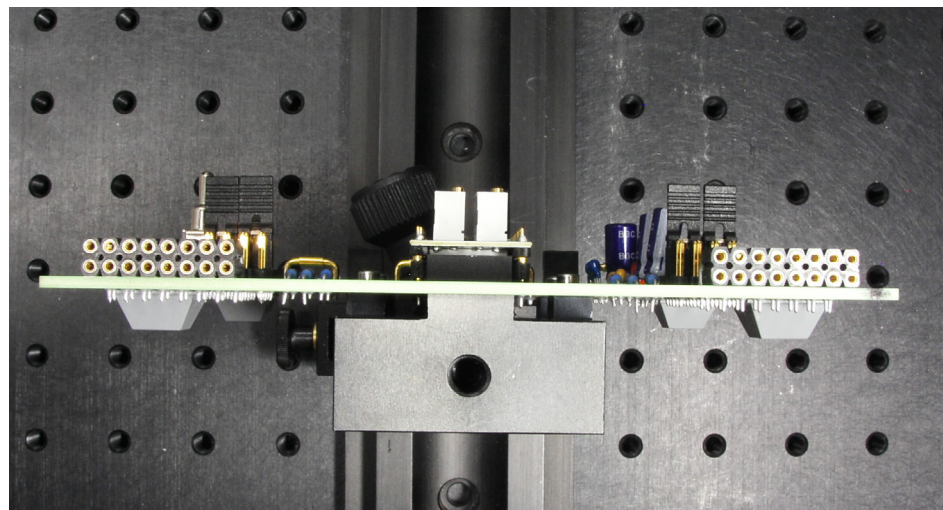


Figure 14: Top view



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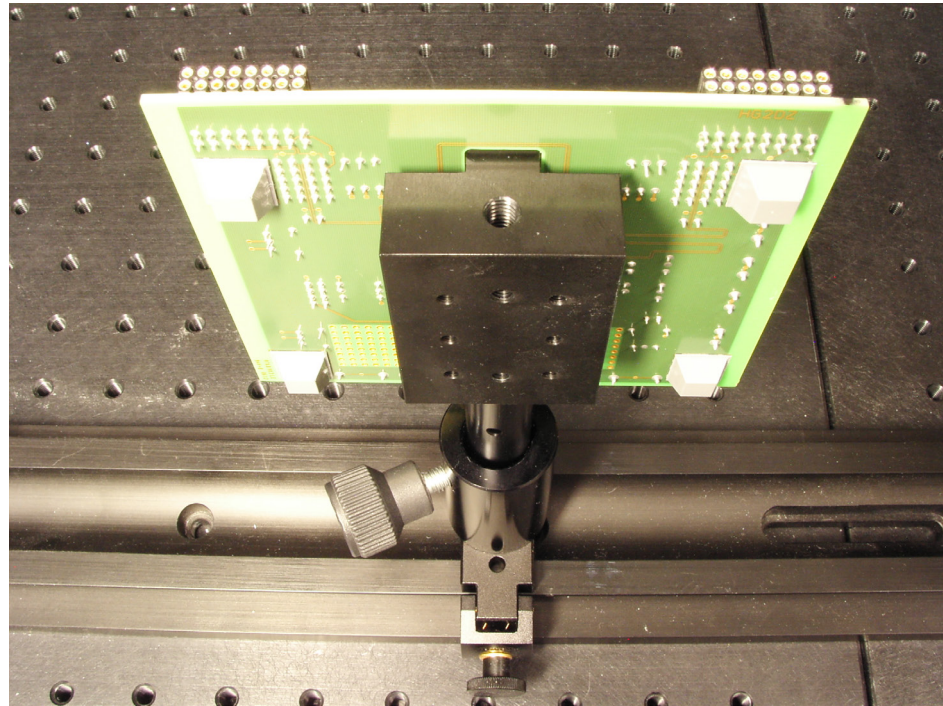


Figure 15: Rear view

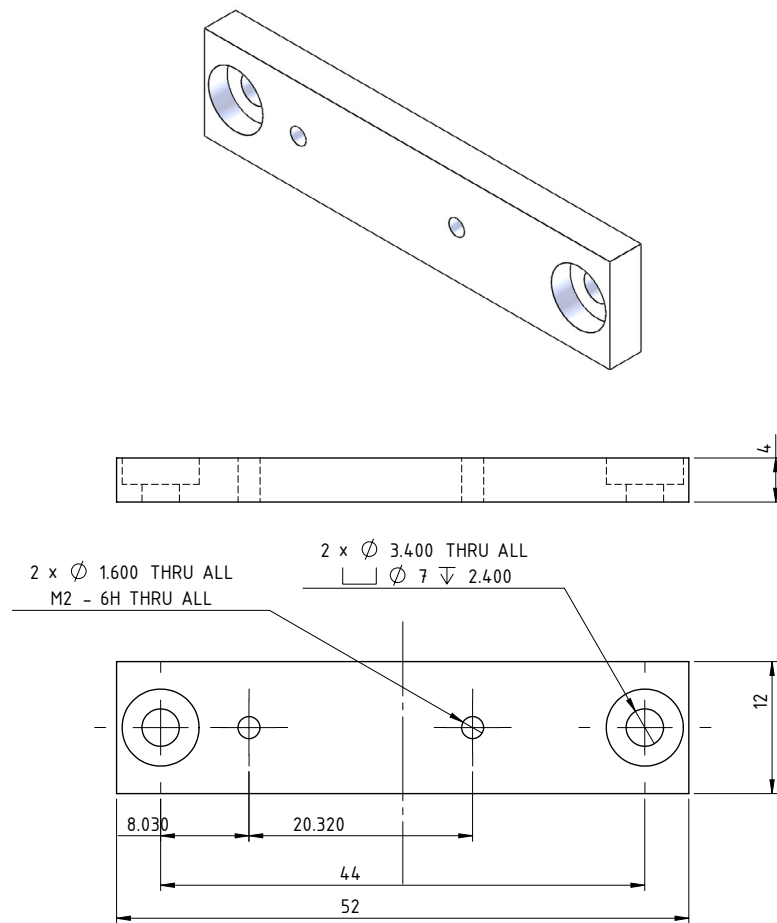
### Use of the thermal grease

1. Apply thermal grease extensively but thinly
2. Apply thermal grease to top side of the HG1M heat sink (11) but only where the ceramic disc is supposed to be attached (10)
3. Apply thermal grease to the metal area of the bottom side of the HG2M module and attach ceramic disc (10)
4. Apply thermal grease to the whole bottom side of the HG1M heat sink (11)
5. Pre-assemble the whole heat sink kit
6. Tighten all screws
7. Unfasten the polyamide screw (8 resp. 9) and apply thermal grease to the metal area on the HG2M module, where the C-mount laser diode is supposed to be attached
8. Mount the C-mount laser diode, carefully tightening the screw (choose the appropriate screw length)
9. Solder the metal band to the cathode area on the HG2M module

The HG2DZ heat sink features numerous screw threads on the back side for mounting a larger standard heat sink. To that end the complete back side needs to be covered with thermal grease.

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drc\_hg1m\_heatsink, 2:1  
standard tolerances ISO 2768-mK  
aluminum, black anodized

Figure 16: Dimensions of the HG1M heat sink

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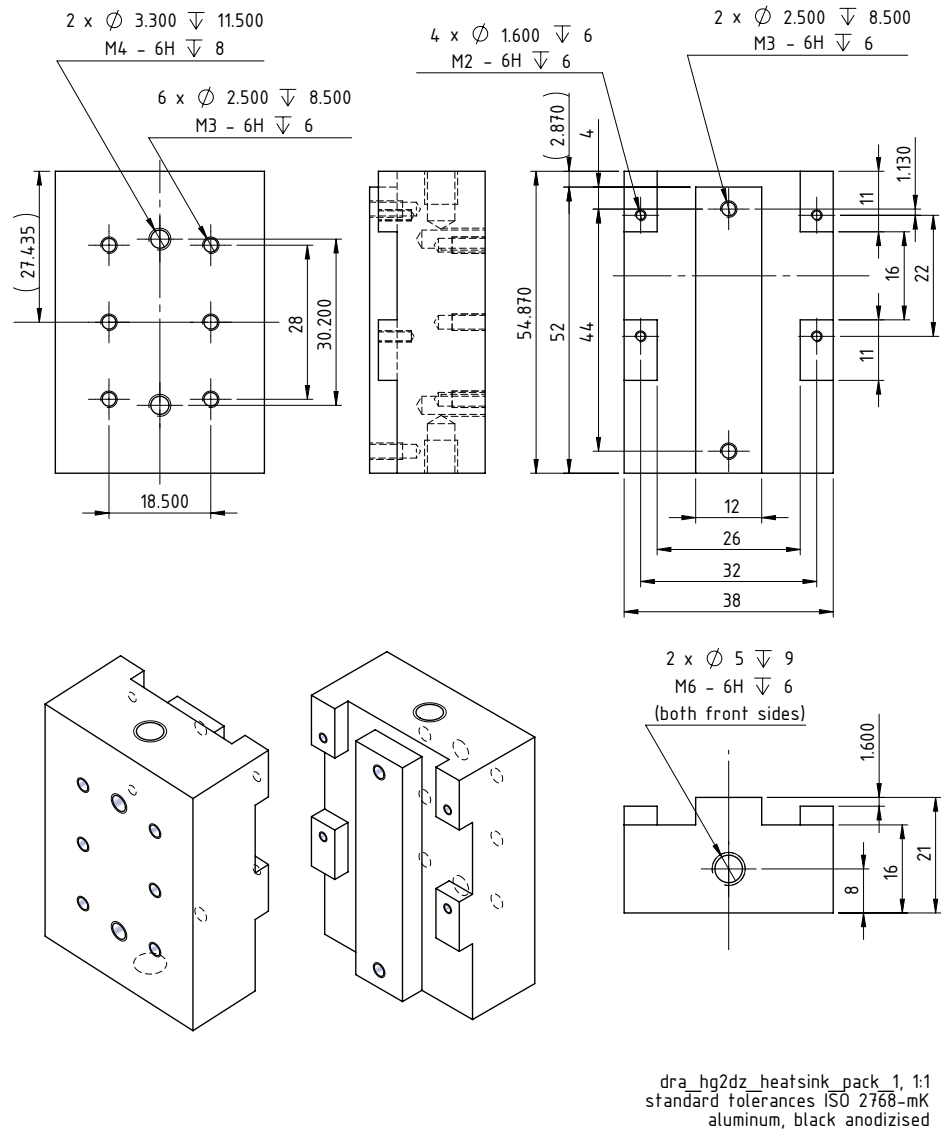


Figure 17: Dimensions of the HG2DZ heat sink

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#### REVISION HISTORY

Rev	Notes	Pages affected
A1	Initial version	
A2	Screen print for jumpers updated	1
A3	V5D Decoupler and Heat Sink Assembly Kit added	4–11
A4	Typo corrected	1
A5	Board update for iC-HV modules, V5D Decoupler removed, jumpers JP6, JP7 added	1–5
A6	Voltage ranges for VDD and VLDA removed, reference to data sheets added	1
A7	Board update for iC-HS modules, jumper JP8 and connector J5 added	1–6
A8	Terminal Description corrected: C11/C12	1
A9	Diagrams with HN1M and HS3M added	4
	Description of JP8 added	6

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