

## IC-HG EVAL HG2D EVALUATION BOARD DESCRIPTION

Rev A4, Page 1/12

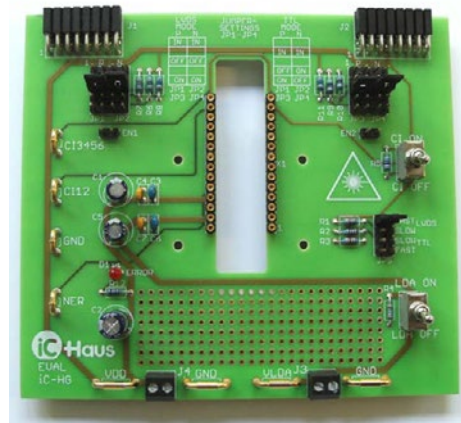
### ORDERING INFORMATION

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
Accessory	HSK-HG2D	Heat sink assembly kit

### BOARD HG2D

(size 113 mm x 100 mm)

#### TERMINAL DESCRIPTION



J1/J2	Interface to Pulse/Oscillator modules iC149/iC213
CI3456	Control Voltage for channels 3 to 6
C112	Control Voltage for channels 1 and 2
GND	Ground
NER	Error Output (low active)
VDD	Power Supply iC-HG (3 to 5.5 V)
GND	Ground
VLDA	Power Supply laser diode (up to 12 V)
GND	Ground

Figure 1: Component side

Copyright © 2013 iC-Haus

## iC-HG EVAL HG2D EVALUATION BOARD DESCRIPTION

Rev A4, Page 2/12

### 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

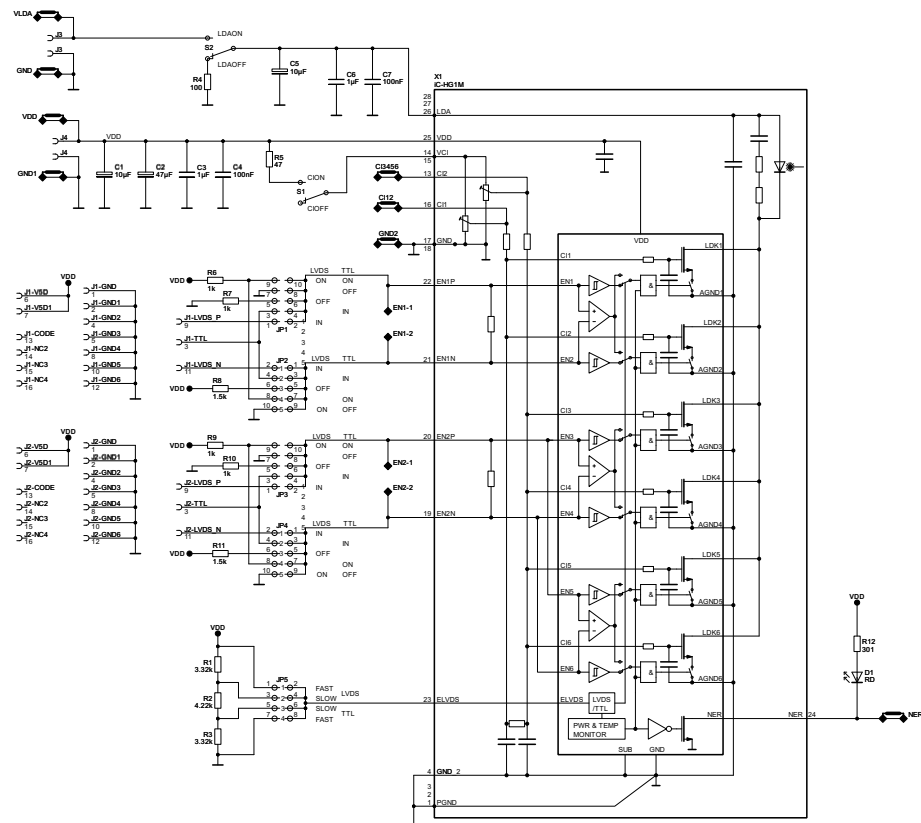


Figure 2: Circuit diagram

## IC-HG EVAL HG2D

### EVALUATION BOARD DESCRIPTION

Rev A4, Page 3/12

#### 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

## iC-HG EVAL HG2D EVALUATION BOARD DESCRIPTION

Rev A4, Page 4/12

### 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		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

### V5D DECOUPLER

The pulse and oscillator modules, iC149 and iC213, are usually supplied from VDD via the HG2D board. This voltage is also the supply voltage for the iC-HG itself. In case where e.g. the iC-HG should be operated from only 3V, to reduce the power dissipation, the *V5D Decoupler* can be used, by simply inserting it between the HG2D board and the module. Thus the modules supply voltage becomes independent of the iC-HG supply. The required supply voltage for the modules (4.5 to 5.5 V) is now to be fed directly to the modules (pins V5/GND).

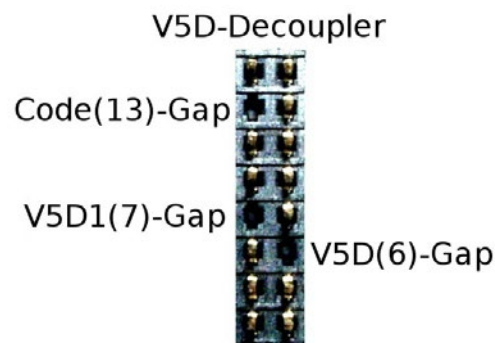


Figure 3: V5D Decoupler

## IC-HG EVAL HG2D EVALUATION BOARD DESCRIPTION

Rev A4, Page 5/12

### HEAT SINK ASSEMBLY KIT (OPTIONAL)

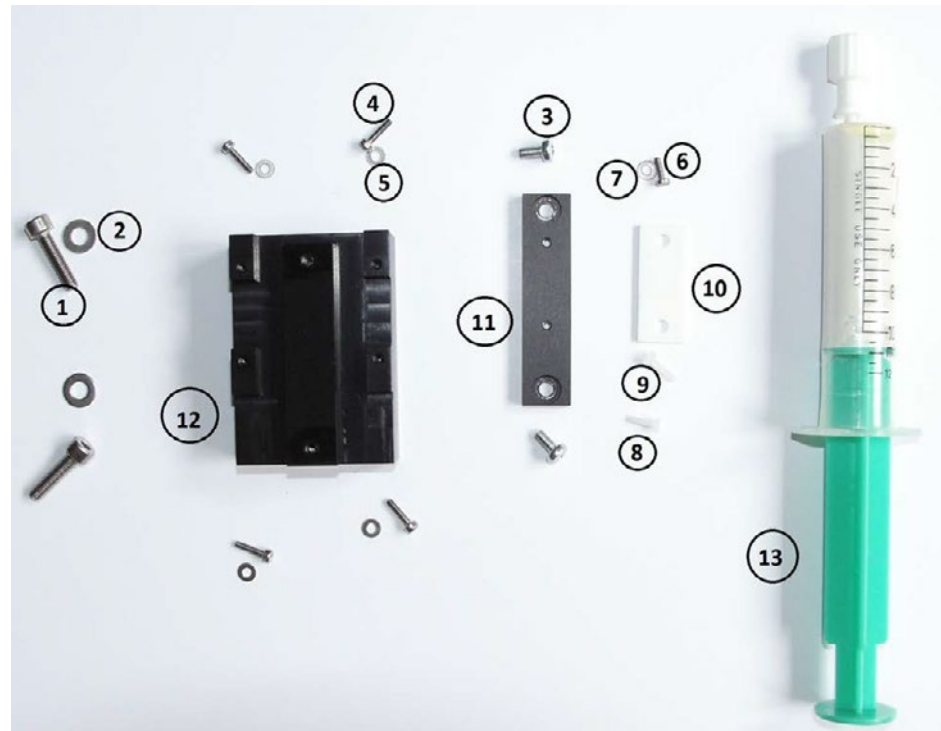


Figure 4: Heat Sink Kit overview

Item	Quantity	Material	Description
1	2	steel	M4x16, hex socket screw
2	2	steel	$\varnothing_A \sim 8.8$ mm, washer for M4x16 screw
3	2	steel	M3x6, Phillips screw
4	4	steel	M2x8, hex socket screw
5	4	steel	$\varnothing_A \sim 5$ mm, washer for M2x8 screw
6	1	steel	M2x6, slot screw
7	1	steel	$\varnothing_A \sim 5$ 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 1: Heat Sink Kit material

## iC-HG EVAL HG2D EVALUATION BOARD DESCRIPTION

Rev A4, Page 6/12

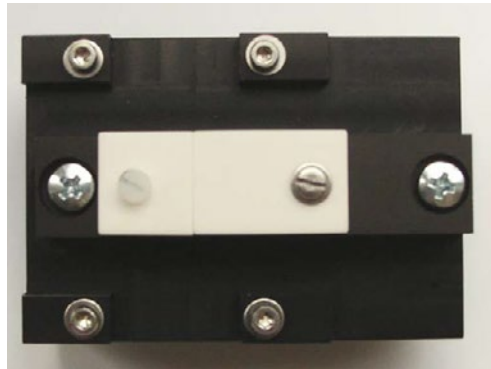


Figure 5: Pre-assembled Heat Sink Kit, top view



Figure 6: Pre-assembled Heat Sink Kit, side view



Figure 7: Pre-assembled Heat Sink Kit, bottom view

## IC-HG EVAL HG2D EVALUATION BOARD DESCRIPTION

Rev A4, Page 7/12

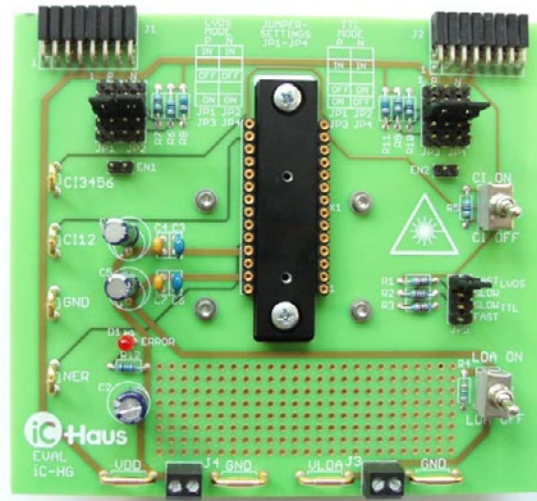


Figure 8: HG2D with assembled heat sink

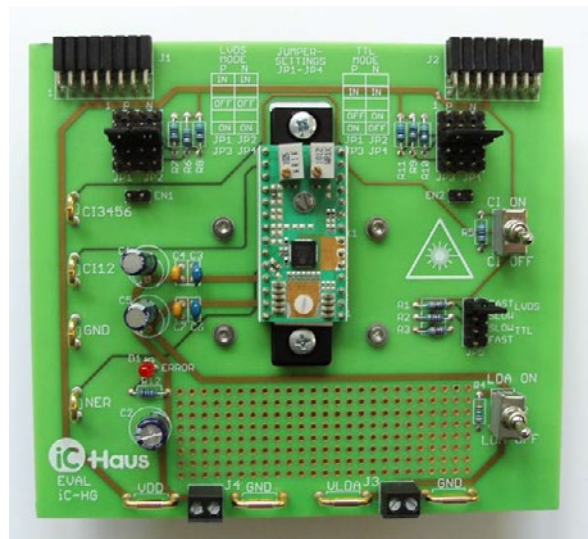


Figure 9: HG2D with heat sink and HG2M

## IC-HG EVAL HG2D EVALUATION BOARD DESCRIPTION

Rev A4, Page 8/12

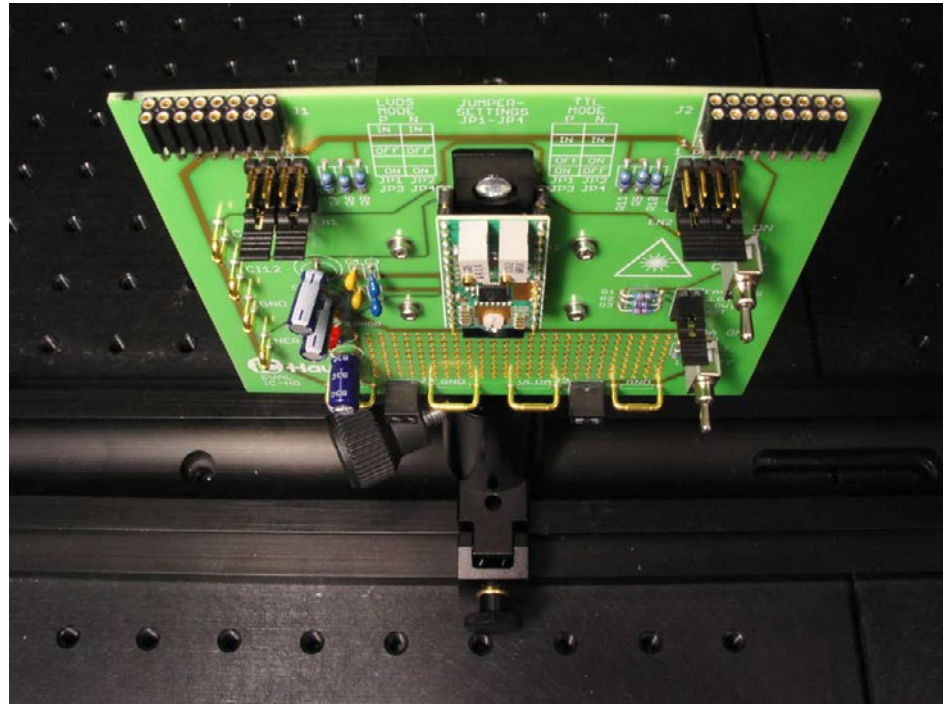


Figure 10: HG2D assembled to an optical bench

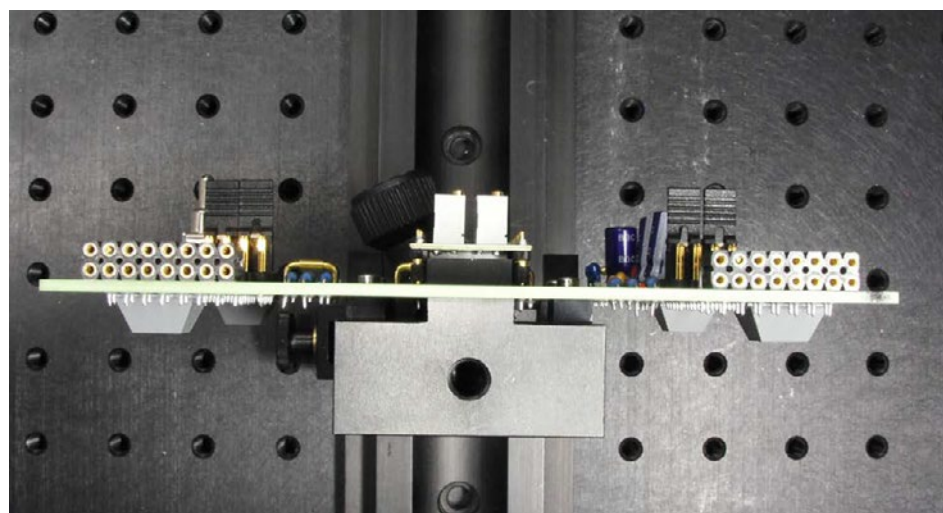


Figure 11: Top view



## IC-HG EVAL HG2D

### EVALUATION BOARD DESCRIPTION

Rev A4, Page 9/12

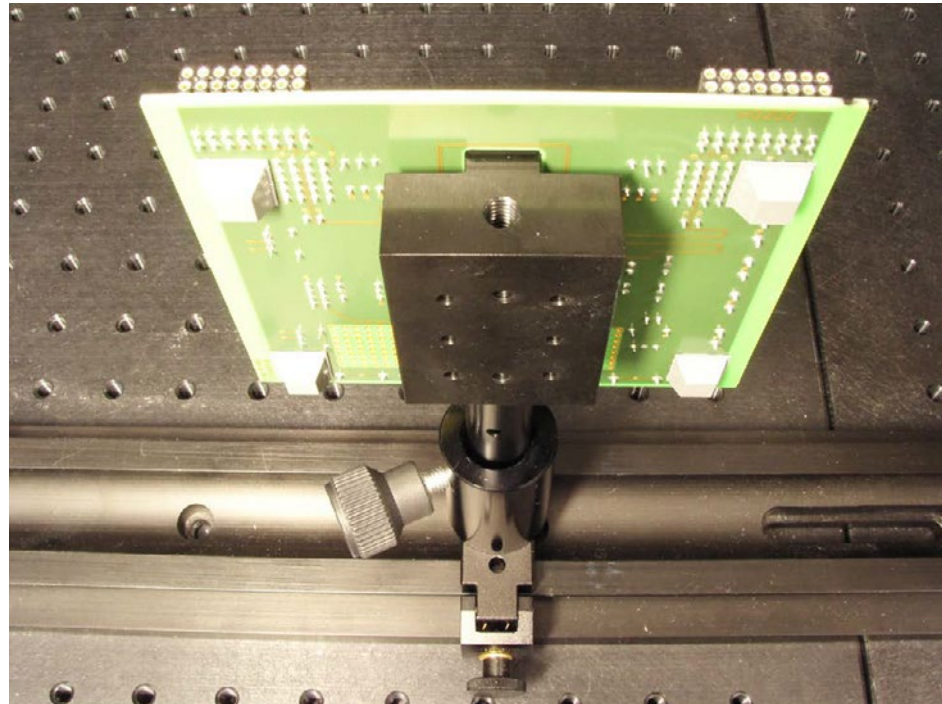


Figure 12: Rear view

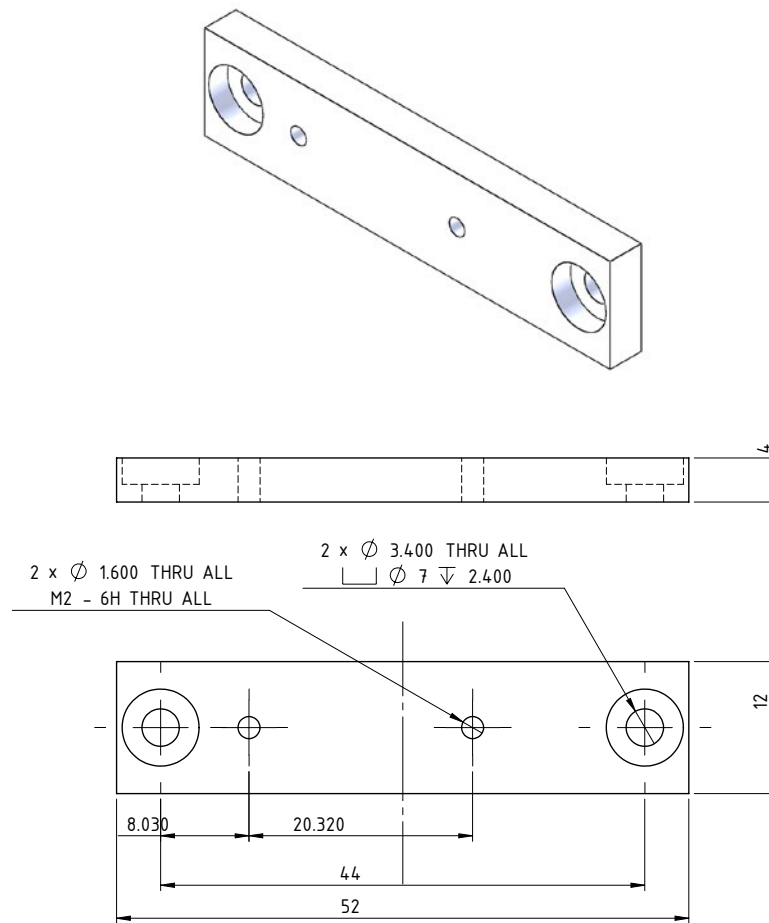
#### Use of the thermal grease

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.

**iC-HG EVAL HG2D**  
EVALUATION BOARD DESCRIPTION

Rev A4, Page 10/12



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

Figure 13: Dimensions of the HG1M heat sink

## IC-HG EVAL HG2D EVALUATION BOARD DESCRIPTION

Rev A4, Page 11/12

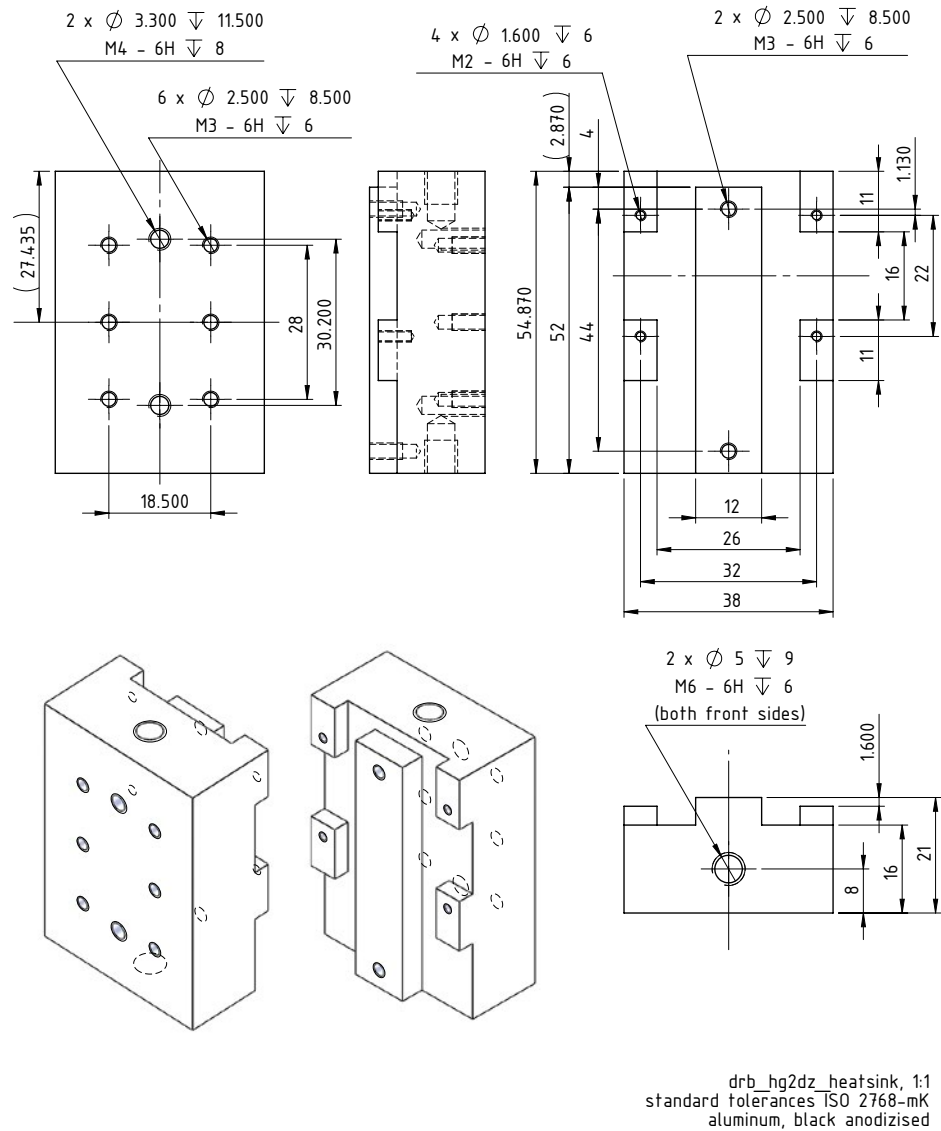


Figure 14: Dimensions of the HG2DZ heat sink

## iC-HG EVAL HG2D EVALUATION BOARD DESCRIPTION

Rev A4, Page 12/12

### 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

iC-Haus expressly reserves the right to change its products and/or specifications. An info letter gives details as to any amendments and additions made to the relevant current specifications on our internet website [www.ichaus.de/infoletter](http://www.ichaus.de/infoletter); this letter is generated automatically and shall be sent to registered users by email.

Copying – even as an excerpt – is only permitted with iC-Haus' approval in writing and precise reference to source.

iC-Haus does not warrant the accuracy, completeness or timeliness of the specification and does not assume liability for any errors or omissions in these materials.

The data specified is intended solely for the purpose of product description. No representations or warranties, either express or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to information/specification or the products to which information refers and no guarantee with respect to compliance to the intended use is given. In particular, this also applies to the stated possible applications or areas of applications of the product.

iC-Haus conveys no patent, copyright, mask work right or other trade mark right to this product. iC-Haus assumes no liability for any patent and/or other trade mark rights of a third party resulting from processing or handling of the product and/or any other use of the product.