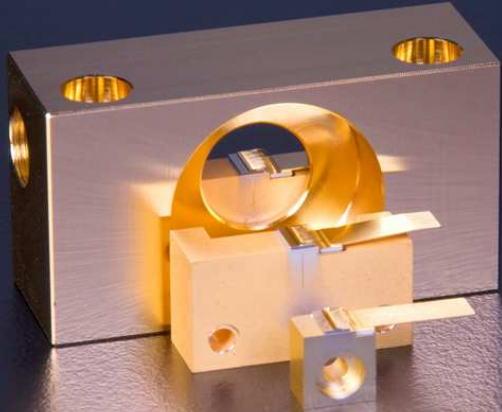


# m2k-TAL-1060-1000

## Tapered Amplifier for External Cavity Setups

m2k **Laser**

High-Brightness Diode-Lasers



Tuning range: 1040 – 1064 nm

Output power: 1000 mW

M<sup>2</sup>: < 1.5

Side mode suppression: > 40 dB

Rear coating: < 0.01%

Front coating: 1%

Packaging: C-mount / DHP-I / DHP-F

### General Description

GaAs based tapered amplifiers are used in external resonator configurations to combine nearly diffraction limited output powers up to 1000 mW with small spectral line widths and high side mode suppression ratios. Their rear facets are provided with a highly anti-reflection coating of less than 0.01% to guarantee good coupling to the grating. The front facets are provided with an anti-reflection coating to protect the chips from back reflections. Typical applications are high resolution absorption spectroscopy or non-linear frequency doubling.

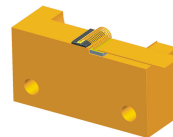
### Advantages

- tuning range between 1040 nm and 1064 nm
- suitable for ECL setups up to 1000 mW
- nearly diffraction limited with M<sup>2</sup> (1/e<sup>2</sup>) < 1.5
- side mode suppression of more than 40 dB
- highly anti-reflection facet coatings < 0.01%
- passive cooling
- different packages available

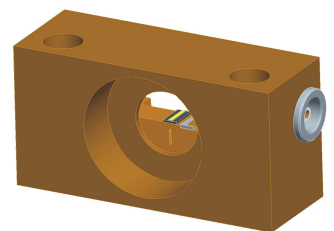
### C-Mount



### DHP-I



### DHP-F



### Options

- The m2k-TAL-1060-1000 can be mounted on a c-mount or optionally on a DHP inset or a DHP frame for better handling.
- The m2k-TAL-1060-1000 can be ordered with selected beam quality parameters M<sup>2</sup>.
- The m2k-TAL-1060-1000 is also available for external cavity configurations, see product data sheet m2k-TA-1060-1000.



m2k-laser GmbH  
Hermann Mitsch Str. 36a  
D-79108 Freiburg

Fon: +49 (0) 761 5158-7370  
Fax: +49 (0) 761 5158-7376

Email: info@m2k-laser.de  
Internet: www.m2k-laser.de

# m2k-TAL-1060-1000

## Specification Data

**m2k** *Laser*

High-Brightness Diode-Lasers

m2k-TAL-1060-1000		
<b>Spectral data</b>		
Wavelength tuning range (500mW)	nm	1035 - 1067
Wavelength tuning range (1000mW)	nm	1040 - 1064
ASE suppression	dB	> 40
<b>Beam parameter output facet</b>		
Output aperture at front side	µm	215x1
Divergence parallel (95%)	°	17
Divergence perpendicular (95%)	°	65
M <sup>2</sup> <sup>1</sup>		< 1.7
Astigmatism	µm	depends on operating conditions
<b>Electrical data</b>		
Typical operation current (500mW)	A	1.5
Typical operation current (1000mW)	A	2.1
Maximum operation current with feedback	A	2.5
Maximum operation current without feedback	A	2
Operation voltage	V	< 1.6
Polarization		TE
<b>Thermal data</b>		
Operating temperature	°C	15 ... 30
Recommended heat sink temperature	°C	20
Storage temperature <sup>2</sup>	°C	-20 ... 60
Operating conditions		non-condensing atmosphere
<b>Package</b>		
Heat sink type <sup>3</sup>		c-mount
Cavity length	µm	2000
Cathode (-)		wire flag
Anode (+)		base plate
<b>Other specifications</b>		
RoHS 2002/95EC compliant		yes

Optional	
<b>Packaging</b>	
Heat sink type	DHP-inset (DHP-I), DHP-frame (DHP-F)
Connector	customized connector cables
<b>Related products</b>	
For Master Oscillator Power Amplifier configurations	m2k-TA-1060-1000

<sup>1</sup> measured in accordance to ISO 11146

<sup>2</sup> in a non condensing atmosphere

<sup>3</sup> other heat sinks on request

### Safety

This is a laser class IV product according to IEC - Standard International Commission (Publication 825, 1993). The laser light emitted from this laser diode is invisible and/or visible and is harmful to the human eye. The safety regulations for eye and personell protection included in the IEC Standard must be observed to avoid any harm to operating personell. Avoid direct exposure and looking into the laser diode, into the collimated beam or into the fiber when it is linked to the module.

### Storage and shipping

Store and ship the diode laser with shortened electrical contacts, in a clean and dry atmosphere and in a tempertaure range of 0°C to 60°C.

### Operation and handling

Diode lasers are extremely sensitive to over-voltage. Take extreme precaution to avoid electrostatic charges. Precautions against spiking during switching on and off the power supply must be assured. Correct polarity of power supply must be assured. During handling personell has to wear wrist straps. Grounded work surfaces and additional antistatic techniques are mandatory during handling.

Device failure and safety hazard are caused by operation in excess of maximum ratings. Exceeding output power and temperature specification will result in accelerated device ageing.

Do not mount via any paste-like media!



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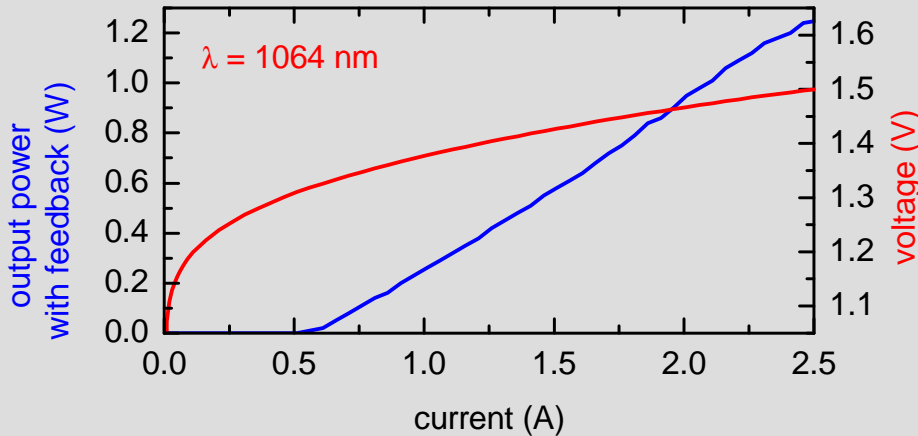
Email: info@m2k-laser.de  
 Internet: www.m2k-laser.de

# m2k-TAL-1060-1000

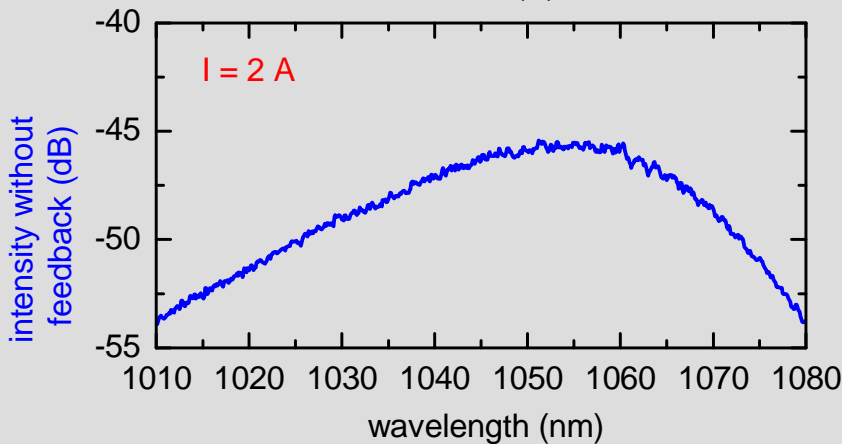
## Example Measurement Data

The charts presented only describe typical examples. All modules are characterised individually, the results being contained in the documentation included.

The display options are subject to alteration by m2k-laser.

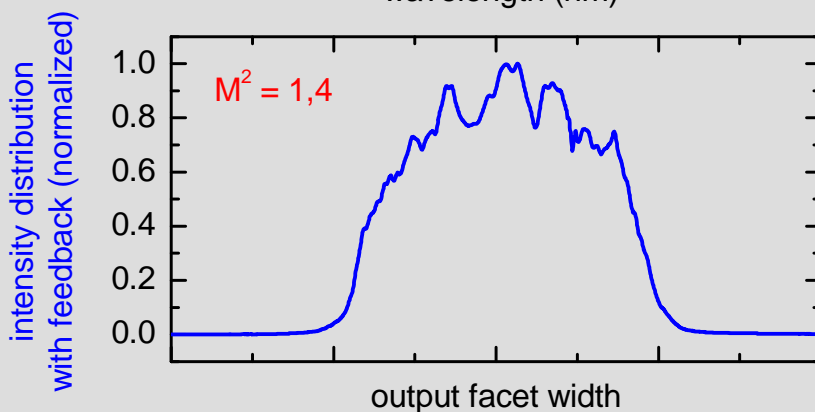


P(I) and U(I) characteristics. All measurements have been done for 20 mW seed power and at 20 °C in cw operation



Amplifier output spectrum without external feedback.

Operation beyond the central tuning range and power specified may induce increased thermal stress to the modules and thereby reduce its service life.



Intensity distribution at the amplifier output facet in the slow axis with seed power.

$M^2$  has been measured using a commercial BeamScope in accordance to ISO 11146.



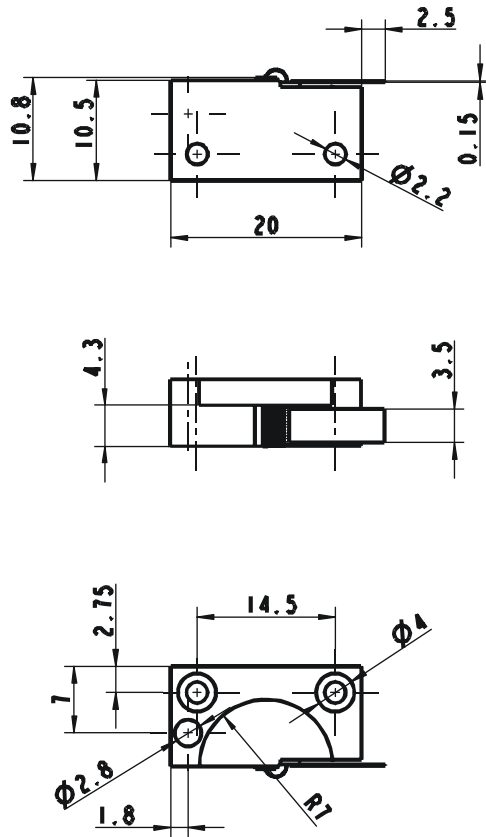
# m2k-TAL-1060-1000

## Package Drawings

**m2k** Laser

High-Brightness Diode-Lasers

**DHP-Inset**

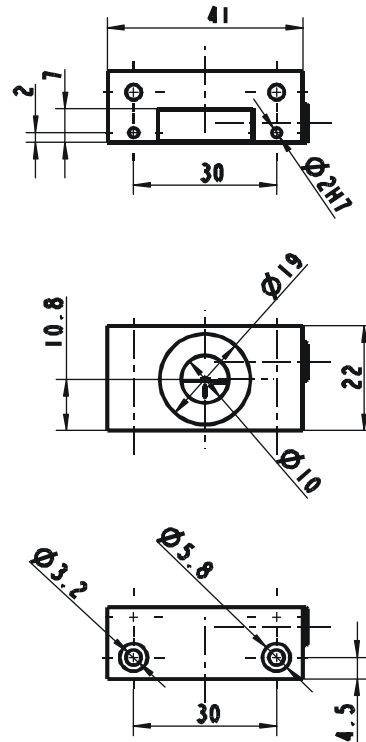


Front

Top

Back

**DHP-Frame**



Bottom

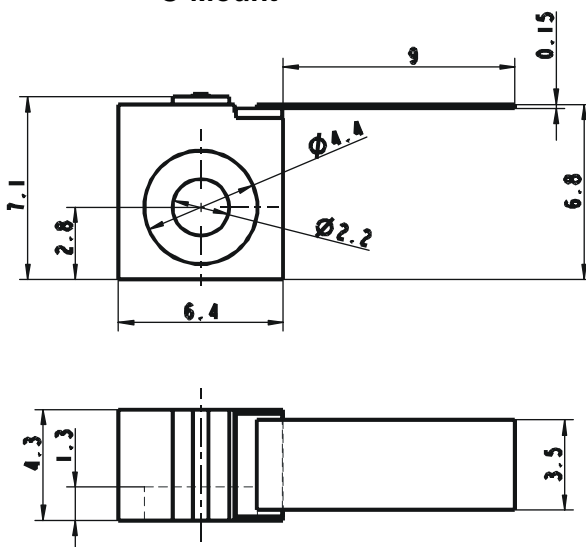
Front

Top

Back

Right

**C-Mount**



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