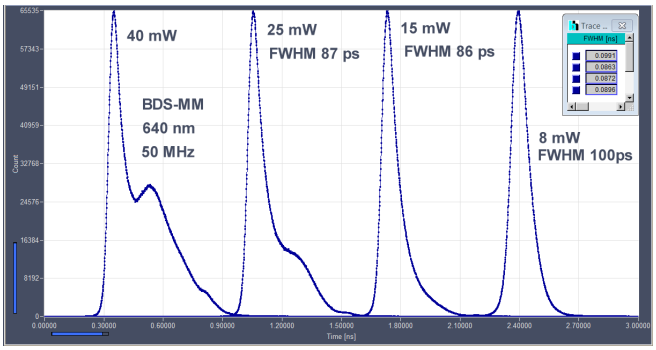
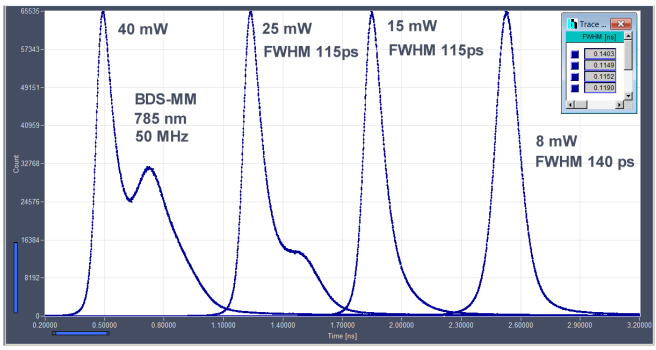
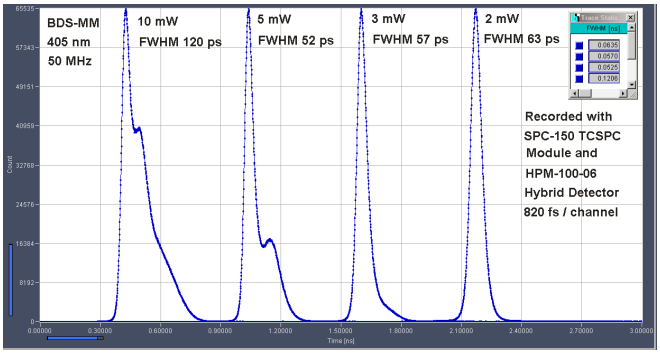
BDS-MM Family Picosecond Diode Lasers

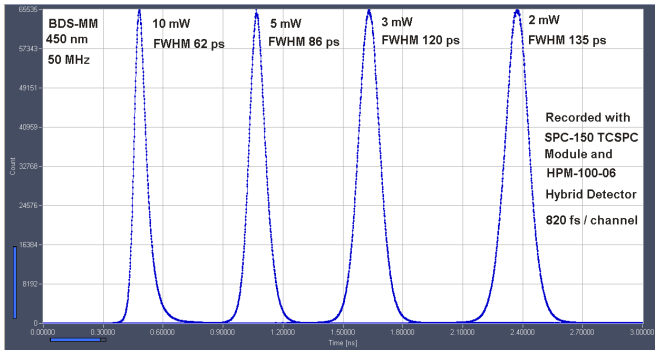
Optical power up to 60 mW at 50 MHz

Wavelengths 405, 450, 525, 640, 685, 785, 915 nm
Power up to 60mW, multi-mode
Small-size laser module, 40 mm x 40 mm x 120 mm
Free-beam or multi-mode fibre output
Pulse repetition rate 20 MHz and 50 MHz, selectable
Fast on / off / multiplexing capability
Internal power regulation loop
All electronics integrated
No external driver unit
Simple +12 V power supply
Compatible with all bh TCSPC devices









Pulse shapes may change due to development in laser diode performance. Power measured in free beam. Coupling efficiency into optical fibres is 60 to 90%, depending on fibre diameter

Designed and manufactured by

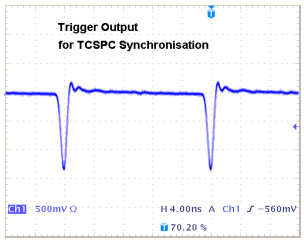
Becker & Hickl GmbH
Nahmitzer Damm 30
12277 Berlin, Berlin
Tel. +49 / 30 / 787 56 32
Fax. +49 / 30 / 787 57 34
email: info@becker-hickl.com
www.becker-hickl.com

LASOS Lasertechnik GmbH
Carl-Zeiss-Promenade 10
07745 Jena, Germany
Tel. +49 3641 2944-0
Fax +49 3641 2944-17
info@lasos.com
www.lasos.com

BDS-MM

Optical

Repetition Rate, switchabel by TTL signal	20 MHz and 50 MHz, other combinations on request
Wavelengths	405, 445, 525, 640, 685, 785, 915 nm, other on request
Coupling efficiency into fibres (multi-mode, typical values)	100µm: 60% 200µm: 80% 500µm: 90%
Max. optical power	10 to 60 mW at 50 MHz, depends on wavelength version
Pulse width (FWHM, at medium power)	65 to 120 ps
Pulse width (FWHM, at maximum power)	120 to 300 ps
Warm-up time for power and pulse shape stabilisation after power on	1 min [1]

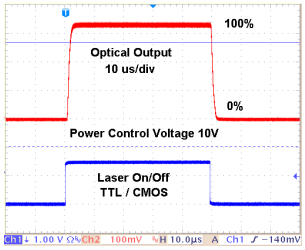


Trigger Output, to TCSPC Modules

Pulse Amplitude	-1V (peak) into 50 Ω
Pulse Width	5 ns
Leading edge fall time	1 ns, see figure right
Output Impedance	50 Ω
Connector	SMA
Jitter between Trigger and Optical Pulse	< 10 ps

Synchronisation Input

Input amplitude	+3.3 to +5V into 50 Ω
Duty cycle	10 to 30 %. DC equivalent must be < 2.5V
Input frequency	20 to 60 MHz
Connector	SMA
Switch between internal clock and sync input	automatic, by average voltage at trigger connector

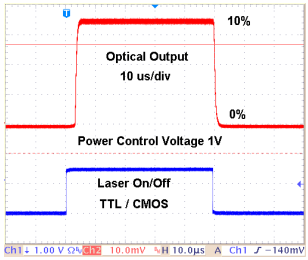


Control Inputs

Laser ON / Off	TTL / CMOS, 'low' means 'off', internal pull-up
Response of optical output to on/off signal	<4 us for power 10 to 100%, see figures right
External Power Control	analog input, 0 to + 10V
Response time of optical output to power control	<4 us for power 10 to 100%, see figure right
Frequency 50 MHz	active H, internal pull-up resistor
Frequency 20 MHz	active H, internal pull-down resistor
	Laser runs at 50 MHz with Frequency inputs unconnected

Power Supply

Power Supply Voltage	+ 9 V to +15 V
Power Supply Current at 12V	200 mA to 500 mA 2)

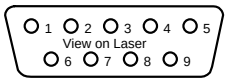


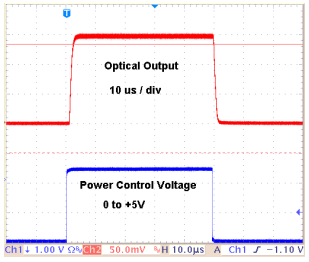
Mechanical Data

Dimensions	40 mm x 44 mm x 120 mm
Mounting holes	four holes for M3 screws
Heat sink requirements	< 2°C / W 3)

Connector Pin Assignment

Connector version	Mini Sub-D
Power supply +12V	1, 2
GND	4, 5, 9, and case
Power control voltage	8
Laser On/OFF (active H)	6
Frequency 50 MHz (active H, internal pull-up resistor)	7
Frequency 20 MHz (active H, internal pull-down resistor)	3





Maximum Values

Power Supply Voltage	0 V to +15 V
Voltage at 'Laser On/Off' and 'Frequency' inputs	-2 V to +7 V
Voltage at 'Laser Power' input	-12 V to + 12 V
Ambient Temperature	0 °C to 40 °C 3)

1) Operation below 13 °C ambient temperature may result in extended warm-up time.
2) Depends on case temperature due to laser diode cooling. Cooling current changes with case temperature
3) Laser must be mounted on heat sink. Case temperature must remain below 40°C

Related Products

BDS-SM picosecond diode lasers, BDL-SMN picosecond and CW diode lasers, 375nm, 405nm, 445nm, 473nm, 488nm, 515nm, 640nm, 685nm, 785nm

Caution: Class 3B laser product. Avoid direct eye exposure. Light emitted by the device may be harmful to the human eye. Please obey laser safety rules when operating the devices. Complies with US federal laser product performance standards.

International Sales Representatives

US:
Boston Electronics Corp
tcspc@boselec.com
www.boselec.com

UK:
Photonic Solutions PLC
sales@psplc.com
www.psplc.com

Japan:
Tokyo Instruments Inc.
sales@tokyoinst.co. jp
www.tokyoinst.co.jp

China:
DynaSense Photonics Co. Ltd.
info@dyna-sense.com
www.dyna-sense.com