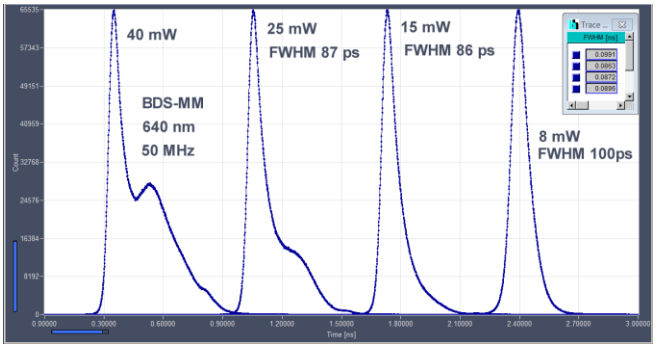
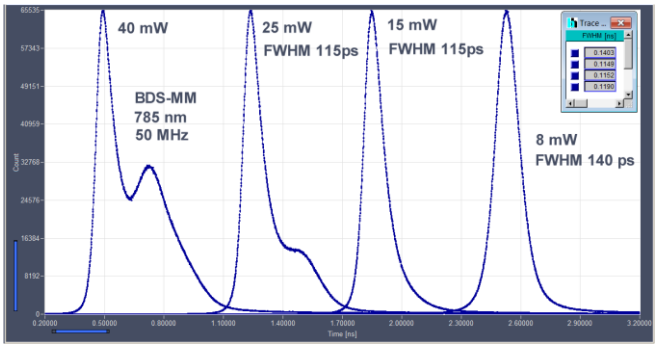
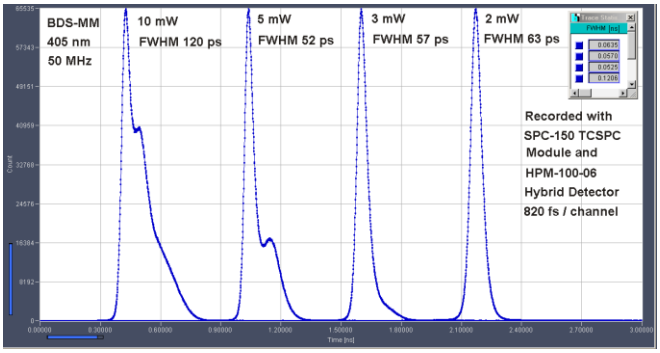
BDS-MM Family Picosecond Diode Lasers

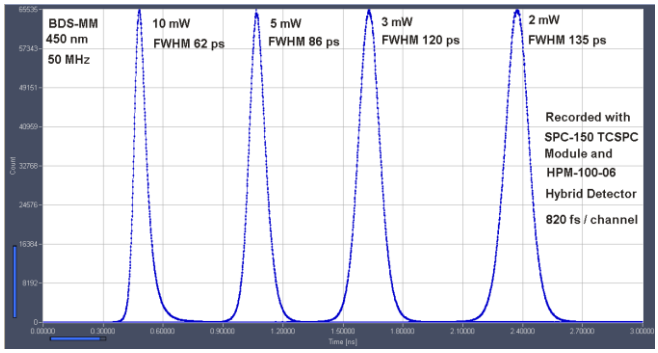
Optical power up to 60 mW @ 50 MHz

Small-size module, 40 x 40 x 120 mm³ or 40 x 70 x 120 mm³
Wavelengths 405, 445, 525, 640, 685, 785, 915 nm
Power up to 60 mW, multi-mode @ 50 MHz
Free-beam or multi-mode fibre output
Pulse repetition rate 20 MHz and 50 MHz, others on request
Ext. trigger via sync. input: 20 to 50 MHz, others on request
Fast ON/OFF and multiplexing capability
High power stability
All electronics integrated, no external driver unit required
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

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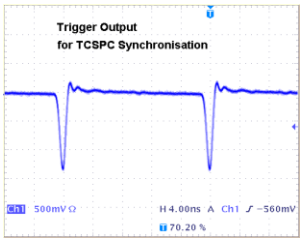
BDS-MM

Optical

Repetition Rate, switchabel by TTL signal	20 MHz and 50 MHz, other combinations on request
Wavelengths	405, 450, 525, 640, 685, 785, 915 nm, others on request
Max. optical power	10 to 60 mW at 50 MHz, depends on wavelength version
Coupling efficiency into fibres (multi-mode, typical values)	100 µm: 60% 200 µm: 80 % 500 µm: 90 %
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	-1 V (peak) into 50 Ω
Pulse Width	1 ns, see figure right
Output Impedance	50 Ω
Connector	SMA
Jitter between Trigger and Optical Pulse	< 10 ps

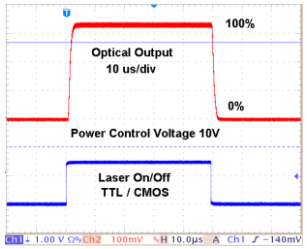


Synchronisation Input

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

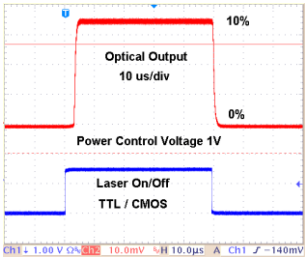
Control Inputs

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 + 10 V
Response time of optical output to power control	< 4 us for power 10 to 100 %, see figure right
F1: 50 MHz	active H, internal pull-up resistor
F2: 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]

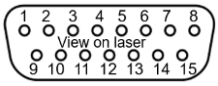


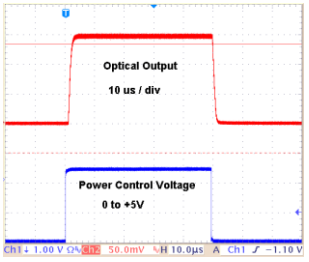
Mechanical Data

Dimensions (OEM)	40 mm x 40 mm x 120 mm
Dimensions (w/ cooling)	40 mm x 70 mm x 120 mm
Mounting holes	four holes for M3 screws
Heat sink requirements	< 2°C / W [3]

Connector Pin Assignment

Connector version	Micro Sub-D
Power supply +12V	1, 2
GND	4, 5, 9, and case
Power control voltage	8
Laser ON/OFF (active H)	6
F1: 50 MHz (active H, internal pull-up resistor)	7
F2: 20 MHz (active H, internal pull-down resistor)	3
Do not connect:	9 to 15





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	15 °C to +35 °C [3]

1) Operation below 15 °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) OEM version without active cooling must be mounted on heat sink. Case temperature must remain below 40 °C.

Related Products

BDS-SM picosecond diode lasers, BDS-SMN picosecond and CW diode lasers, 375, 405, 445, 473, 488, 515, 640, 685, 785, 1064 nm

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.

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