



STFG Series High-power Diode Lasers



- High brightness laser for pump applications
- Hermetically sealed laser head in potential-free housing
- Compact dimensions
- Passively cooled
- Dual temperature sensor (NTC/PT100)
- External radiation filter

Optical data ¹					
CW – nominal output power (W)	35	35(CMF)	45	50	60
Centre wavelength λ (nm)	790-795, 805-810, 880, 888, 915, 940, 975-981 ¹				9xx
Tolerance of λ (nm)	$\pm 3 (\pm 2)^3$				
Spectral width (FWHM) (nm)	<4				
Temperature drift of λ^4 (nm/K)	~0.3, ~0.35, ~0.4				
Fibre data					
Fibre core diameter (μm)	100	200	200	400	200 / 400
Numerical aperture	0.22				
Fibre-optic connector	SMA905				
Electrical data					
Typical operation current (start of lifetime) (A)	50	50	55	60	85
Max. Operation current (start of lifetime) (A)	53	53	58	63	90
Max. Operation current (end of lifetime) (A)	64	64	70	76	108
Typical threshold current (A)	5 – 9				
Typical efficiency (%)	39	39	45	46	39
Typical slope efficiency (W/A)	0.7 - 0.9				
Operation voltage (V)	< 2				
Reverse voltage	0				
Thermal conditions					
Base plate operation temperature ⁵ (°C)	+15...+25				
Storage temperature (°C)	-20...+60				
Recommended heat sink capacity (W)	> 80	> 80	> 85	> 90	> 135
Recommended heat sink thermal resistance (K/W)	< 0.1				
Other specifications					
Expected lifetime ⁶ (hours)	20,000				
RoHS 2002/95/EC and CE compliant	YES				
Dimensions of laser head (connectors not included) (mm)	110x56x34				
Weight laser head (g)	<850				
External radiation filter	Filter 1600.014, HR @ 1050-1130nm >99.0% (s+p pol.) or Filter 1600.036, HR @ 1025-1080nm >99.0% (s+p pol.) Other filters on request				
The 35W 200 μm module is a cladding mode free fibre coupled diode laser (CMF). >99% power out of the CMF-fibre core; the laser has to be used in combination with a ST-CMF-fibre.					

¹Optical data @ 20°C module base plate temperature, ²Other wavelength on request, ³optional, ⁴Depending on wavelength, ⁵Measured by NTC/PT100 at temperature measurement hole defined in drawing, ⁶According to ISO 17526:2003(E);

Considerations in Safety and Operation

This is a laser class IV product regarding CDRH regulations and a Laserklasse 4 product regarding DIN:EN60825-1. The laser light emitted from this laser diode is invisible and/or visible and may be harmful to the human eye. Avoid looking directly into the laser diode, into the collimated beam along its optical axis, or directly into the fibre when the device is in operation.

ESD PROTECTION – Electrostatic discharge is the primary cause of unexpected laser diode failure. Take extreme precaution to prevent ESD. Use wrist straps, grounded work surfaces and rigorous antistatic techniques when handling laser diodes.

Operating the laser diode outside of its maximum ratings may cause device failure or a safety hazard. Power supplies used with the component must be employed such that the maximum peak optical power cannot be exceeded. Output powers in excess of specification will accelerate device aging. Operation at higher temperatures will accelerate device aging. Do not use thermal contact paste! We provide appropriate carbon foil.

All data provided are typically measured with a diode heat sink temperature of 25 °C. All measurements, except for CMF-laser, are made with a reference fibre 100/140, 200/280 µm or 400/480 µm, length 1.5 m, and non AR coated. Subject to change without notice.

Product name identification:

ST -**F** -**DL** - **(pump)**

Power	Fibre core diameter	Wavelength	Wavelength tolerance	Feature filter
35	100	790,791,792, 793,794,795	T2=±2nm	F0 = no filter
35(CMF)	200	805,806,807, 808,809,810	T3=±3nm	F14 = filter 1600.014
45	400	880, 888		F36 = filter 1600.036
50		915,940		
60		975,976,977, 978,979,980, 981		

Example: ST35-F100-DL915-T3F14 (pump)

Accessories

- Fibre ST-SMA905-F100, 1.5m or 3m
- LDD100-3 diode driver with TEC-cooler
- Integrated Volume Holographic Grating for wavelength stabilization
- Different beam shaping optics (focussing, collimating, fibre-fibre) available
- Installation service and personal introduction on request
- Turn-key systems available
- Customized laser modules and fibres on request

