



High Power Narrow Linewidth External Cavity Laser

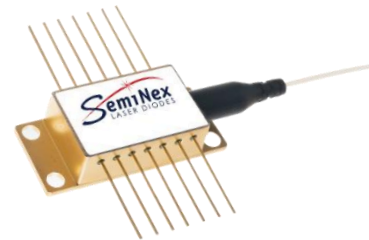
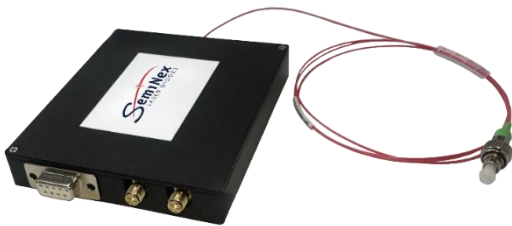
SemiNex proudly introduces its latest high-power External Cavity Laser (ECL) series for precision applications including optical networks, aerospace, and industrial sensing. The series features <math><3\text{ kHz}</math> and 15 kHz Lorentzian linewidth models with over 200 mW output in C or O-band, built on SemiNex's Gain Chip and high-power SOA integrated with a Photonic Integrated Circuit. Available in a 14-pin butterfly package, these lasers deliver exceptional wavelength stability, ultra-low RIN, and excellent SMSR.

SemiNex also offers Wavelength-Swept ECL modules with 10 GHz (0.8 nm) and 600 GHz (4.8 nm) sweep ranges at 1550nm. The module includes a built-in driver, controller, and butterfly-packaged ECL for a complete, high-performance laser solution for OCT, OFDR, and FMCW LiDAR.



Key Benefits

- Narrow linewidth of 3kHz and 15kHz
- High output optical power (up to 200mw)
- Complete turn-key system, C & O-band available
- Ultra-low RIN, excellent SMSR
- Low power dissipation with high efficiency
- SemiNex ROSA and SOA chip inside



Applications

- Fiber optical sensing
- LiDAR and industrial metrology
- Optical measurements and instrumentation
- Optical networks



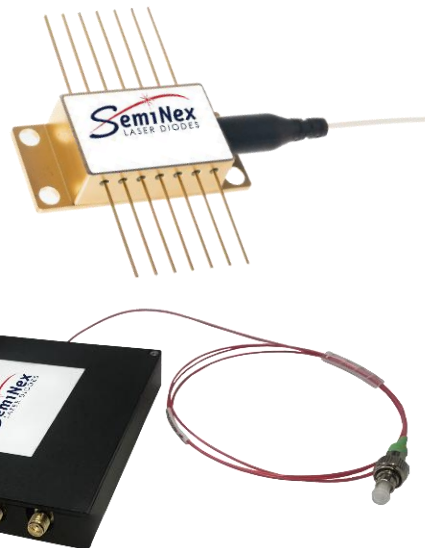
ECL Butterfly - Narrow linewidth of <3kHz and 15kHz

Optical	Symbol	14BF-310 14BF-312			14BF-310-200 14BF-312-200			14BF-313 14BF-314			14BF-313-200 14BF-314-200			Units
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Center Wavelength	λ_c	C or O band			C or O band			C or O Band			C or O Band			nm
Linewidth (Lorentzian)	FWHM	10	15		10	15			3			3		kHz
Fiber Output Power*	Pf	10			200				10			200		mW
Side Mode Suppression	SMSR	55			60				55			60		dB
Polarization Extinction Ratio	PER	20			20			20			20			dB
Random Intensity Noise	RIN			-145			-145			-145			-145	dB/Hz
Optical Isolation	ISO	50			50			50			50			dB
Operating Temperature	T0	-20		60	-20		60	-20		60	-20		60	°C
Storage Temperature	Ts	-40		85	-40		85	-40		85	-40		85	°C
Operating Humidity	%	5		85	5		85	5		85	5		85	
Parameter	Symbol	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
LD Voltage	VLD		1.6	1.8		1.6	1.8		1.6	1.8		1.6	1.8	V
LD Current	ILD		150	300		150	300		150	300		150	300	mA
TEC Voltage	VTEC		1.8	2.5		1.8	2.5		1.8	2.5		1.8	2.5	V
TEC Current	ITEC		1	1.5		1	1.5		1	1.5		1	1.5	A
TEC Temp.	TTEC		25	50		25	50		25	50		25	50	°C
SOA Voltage	VSOA					2						2		V
SOA Current	ISOA					1000						1000		mA

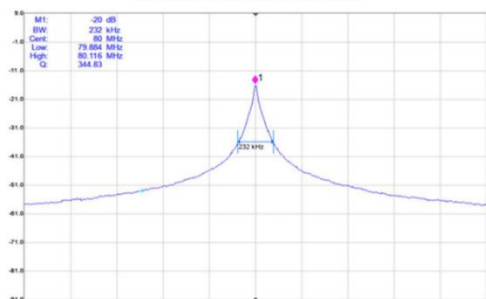
ECL – Wavelength-Swept Module

Optical	Symbol	ECL-310-S1	ECL-310-S3	Units
Center Wavelength	λ_c	1550 or C band	1550 or C band	nm (± 20)
Wavelength Tuning Range	$\Delta\lambda$	1 (min), 10 (Max)	100 (Min), 600 (Max)	GHz
Swept Rate	F	0 (Min), 300 (Max)	2 (Min), 20 (Max)	kHz
Sweep Linearity		99.9999	99.9999	%
Linewidth (Lorentzian)	FWHM	10	100	kHz
Fiber Output Power	Pf	200	200	mW
Side Mode Suppression	SMSR	55	55	dB
Random Intensity Noise	RIN	-145	-145	dB/Hz
Operating Temperature	T ₀	-10 (Min), 85 (Max)	-10 (Min), 60 (Max)	°C
Storage Temperature	T _s	-40 (Min), 85 (Max)	-40 (Min), 60 (Max)	°C
Operating Humidity	%	5 (Min), 85 (Max)	5 (Min), 85 (Max)	

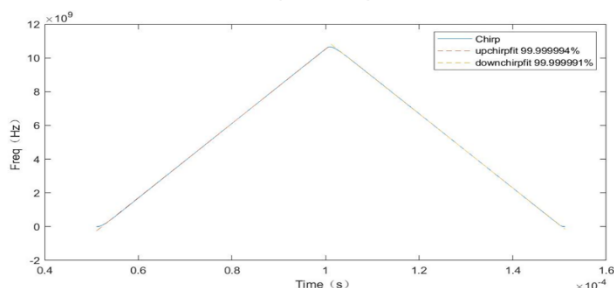
*Specified values are rated at a constant heat sink temperature of 25°C. Unless otherwise indicated all values are nominal.



Lorentzian Linewidth (11.6kHz)



Measured Sweep Linearity: >99.9999%



Product Selection Table

Part Number	Description
14BF-310	ECL Butterfly, C-Band, 10mW, 10kHz
14BF-310-200	High Power 200mW ECL Butterfly, C-Band, 10kHz
14BF-312	ECL Butterfly, O-Band, 10mW, 10kHz
14BF-312-200	High Power 200mW ECL Butterfly, O-Band, 10kHz
14BF-313	ECL Butterfly, C-Band, 10mW, <3kHz
14BF-313-200	High Power 200mW ECL Butterfly, C-Band, <3kHz
14BF-314	ECL Butterfly, O-Band, 10mW, <3kHz
14BF-314-200	High Power 200mW ECL Butterfly, O-Band, <3kHz