ACP-S7500E-96-SM CW Tunable Laser – Butterfly Package

ACP-S7500E-96-SM Tunable Laser incorporates a monolithic InP chip that integrates a tunable MG-Y laser with a semiconductor optical amplifier (SOA). The MG-Y (Modulated Grating Y-branch) laser is an electronically tuned device that can address any wavelength in the C-band. Since no mechanical or thermal adjustments are necessary, channel switching is very fast. The SOA facilitates flexible control of the output power and acts as a shutter when reverse biased, enabling dark tuning between channels.

The devices are packaged into a compact, low-profile hermetically sealed package, with an internal optical isolator and a wavelength locker. The locker monitors both output power and frequency of the light emitted from the chip, enabling a closed loop control that guarantees stability of the frequency and output power over life, to within the requirements of 50 GHz ITU grid spacing applications. The ACP-S7500E-96-SM is provided with polarization maintaining fiber for use with an external modulator. The laser is compliant per RoHS Directive 2011/65/EU.

PRODUCT SELECTION

Product Code	Description
ACP-S7500E-96-SM	Tunable laser, butterfly package, 191.30 THz to 196.05 THz, 13dBm output power, 400 µm polarization maintaining fiber pigtail with SM FC/APC connector

PERFORMANCE SPECIFICATIONS

Parameter	Specifications				
	Symbol	Test Conditions	Min.	Typ.	Max.
Wavelength Range	CW	-	1929.16nm		1567.14nm
Frequency Range	F	-	191.3THz		196.05THz
Output Power	Po	Isoa=100mA, Igain=100mA	10dBm	12dBm	
Linewidth	LW	-	1MHz	5MHz	
Relative Intensity Noise	RIN	-			-140dB/Hz
Side Mode Suppression Ratio	SMSR	-	40dB		
Reference PD		-	500uA		2000uA
Etalon PD		-	500uA		2000uA
Polarization Extinction Ratio	Per	-	20dB		
Front Mirror Section Voltage	Vfr	-		1.4V	2V
Front Mirror Section Current	Ifr	-		50mA	70mA
Phase Section Voltage	Vp	-		1.5V	2V
Phase Section Current	Ip	-		20mA	30mA
Back Mirror Section Voltage	Vbr	-		1.5V	2V
Back Mirror Section Current	Ibr	-		60mA	70mA
SOA Section Forward Voltage	Vsoa	-			3V
SOA Section Forward Current	Isoa	-		150mA	200mA
Gain Section Forward Voltage	Vgain	-		1.3V	1.5V
Gain Section Forward Current	Igain	-		100mA	150mA
Thermistor Resistance@25°C	Rth	-		10KΩ	
Thermistor B-Constant	B	-		3930	
COC chip Set Temperature	Tset	-		45°C	
Channel Space		-		50GHz	
Fiber Length				1000±100 mm	
Fiber Type				G657 A3	

FEATURES

- Full C-band Tuning (96 channels at 50 GHz spacing)
- High, Flexible, Adjustable Output Power (from 9 to 13dBm)
- Low Power Dissipation (typically <2.2W at 75°C)
- High Side-mode Suppression Ratio (>40dB)
- Dark Tuning by Reverse Biasing the Integrated Optical Amplifier
- Compact,Low-profile, Hermetic Laser Package with Internal Optical Isolator
- Integral Wavelength Locker, Allowing Stabilization to within ±2.5GHz Over Life, Compatible with 50GHz ITU Grid Spacing
- Polarization Maintaining Fiber Pigtail

APPLICATION

- DWDM Transmission Systems
- Tunable DWDM Transponders and Transceivers
- Dynamic Provisioning and Wavelength Routing in Metro DWDM Systems
- Optical Packet or Burst-mode Switching Test and Measurement

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ABSOLUTE MAXIMUM RATINGS

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Min.	Typ.	Max.
Storage Temperature	Ts	-40°C		+85°C
Relative Humidity	RH	0		85%
Laser Diode Reverse Voltage (all sections)				3V
Laser Gain Current	Ig			160mA
Reflector Currents	Irl, Irr			50mA
Phase Current	Ipc			10mA
SOA Current	Isoa			240mA
Photodiode Bias Voltage	$V_{PD, ref}$, $V_{PD, \lambda}$	-5V		0
Photodiode Reverse Current	$I_{PD, ref}$, $I_{PD, \lambda}$			2mA
TEC Current	I_{TEC}			1.2A
TEC Voltage	V_{TEC}			3.5V

PIN DESCRIPTIONS

1. TEC-	8. NA
2. TEC+	9. SOA Anode
3. Thermistor	10. Laser Gain Anode
4. NA	11. Laser Phase Section Anode
5. Thermistor	12. Laser Back Reflector Anode
6. Etalon MPD+	13. Laser Front Reflector Anode
7. Power MPD +	14. Laser+SOA Common Cathode

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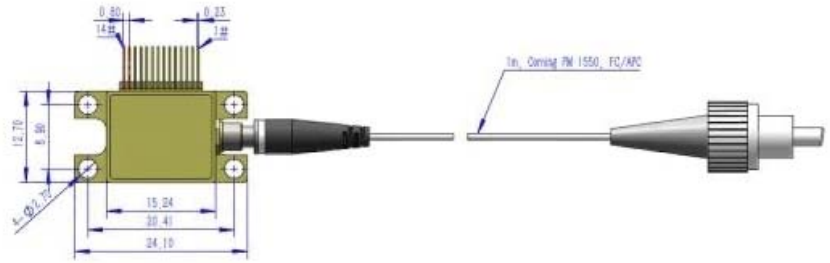
MECHANICAL DIMENSIONS

Mechanical drawing of the CA-S7500E-96-SM tunable laser. (Dimensions are in millimeters.)



(Shown with FC/APC. Other options are available)