WL5000 Wavelength Locking Device

Description

The WL5000 Wavelength Locking Device allows long-term stable operation of distributed feedback (DFB) lasers by locking the wavelength to the ITU grid. An electronic feedback signal is generated within the wavelength locker and made available to allow very tight wavelength control of a DFB laser via temperature or current tuning. This control allows operation at 50 GHz channel spacing. To allow easier inventory control, only one device is required to lock to any wavelength in the erbium (Er) band. The device can also be used to lock tunable lasers to multiple wavelengths on the ITU grid.

The unit requires a small amount of light to be tapped from the laser output fiber (a 5% tap coupler is recommended). The laser wavelength is compared to the wavelength response of a highly stable etalon fixed to the ITU grid, as shown in the performance figure. The electrical output feedback signal is generated by comparing the signals from two photodiodes, as shown in the configuration diagram.

The thermal stability of the etalon is better than 0.04 GHz/°C, and long-term stability is ensured through the use of a hermetically sealed package. A built-in temperature sensor allows even tighter wavelength control if required. The package has been designed into a small footprint suitable for direct mounting onto a printed circuit board (PCB).

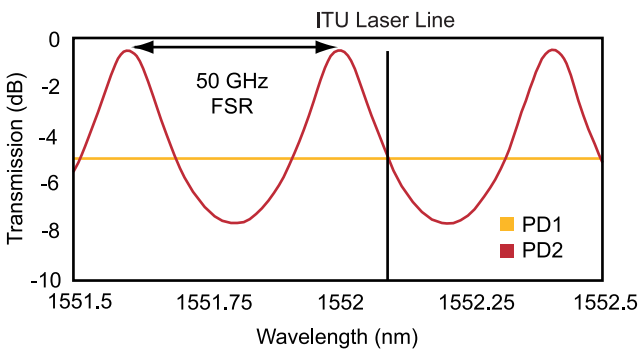
Key Features

- Hermetically packaged with small footprint
- Single device covers operation over entire Er band
- Excellent thermal stability (<0.04 GHz/°C)
- Built-in temperature sensor for even tighter wavelength control
- Large dynamic range (-30 dBm to -3 dBm)

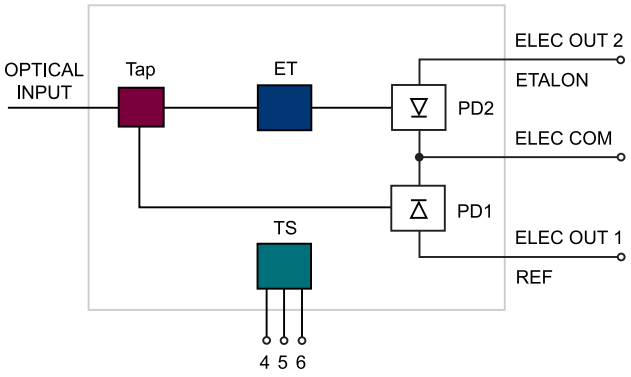
Applications

- DFB laser wavelength stabilization (locking) and monitoring
- Locking of tunable lasers to selectable ITU channels
- Optical sensing or measurement applications

Performance



Configuration



ET = Fabry-Perot Etalon
PD = Photodiodes
TS = Temperature Sensor

Specifications

Parameter	Specification
Operating wavelength	191.8 to 196.2 THz
Optical power range[1]	-30 to -3 dBm
Frequency accuracy	≤±1.5 GHz at 50 GHz and ≤±2.5 GHz at 100 GHz
Temperature co-efficient	0.04 GHz/°C typical
Polarization dependence	<0.5 GHz
Photodetector dark current	<6 nA at 70 °C
Electrical output	6 pins from side of package
Temperature sensor	LM35 type
Package style	Hermetic
Fiber type	SMF-28 with 900 µm buffer
Dimensions (WxHxD)	50.0 x 15.8 x 12.5 mm
Operating temperature	0 to 70 °C
Storage temperature	-40 to 85 °C

1. At the input.

Ordering Information

Indicate your requirements by selecting one option from each configuration table. Please print the corresponding codes in the available boxes to form your part number. For more information on this or other products and their availability, please contact your local JDS FITEL sales representative or JDS FITEL directly at (613)727-1303, by fax at (613)727-8284, or via e-mail at sales@jdsfitel.com.

Sample: WL5000+15C1.0NC

WL5000+1 □ C □ . □ □ □

Code	FSR (GHz)
5	50
1	100

Code	Fiber Type
C	9/125/900 µm

Code	Length (m)
0.1	0.1
...	...
...	...
...	...
1.0	1.0 (standard)
...	...
...	...
...	...
9.9	9.9

Code	Connector Type
NC	No connector
FP	FC/HPC
FA	FC/APC
SC	SC/HPC
SU	SC/APC

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