

The Daytona directly modulated laser (DML) module is a cost effective solution for 10 Gb/s digital transmission up to 50km using traditional intra-city SMF28 single-mode fiber links. The 1310nm wavelength eliminates concern about dispersion control over most installed intra-city fiber plants. The package contains a high speed DFB laser chip, thermoelectric cooler, thermistor, optical isolator and a rear facet monitor photodiode allowing for external optical power control.

### Specifications (Case temperature -40°C to 80°C, Laser Temp 25°C unless otherwise specified)

Optical & Electrical Parameters	Symbol	Condition	Min	Typ	Max	Units
Average Optical Output Power	$P_o$	$I_{op}-I_{th}=30mA$	4	-	-	mW
Threshold Current (BOL)	$I_{th}$	-	2	-	30	mA
Wavelength	$\lambda$	-	1290	-	1320	nm
Wavelength Tuning Coefficient	$\Delta\lambda_T$	-	-	0.085	-	nm/°C
External Efficiency	$\eta$	-	0.125	0.15	-	W / A
DC Side Mode Suppression	SMSR	$I_{op}$	35	-	-	dB
Chromatic Dispersion Penalty, 50 km SMF28, 200 ps/nm	-	See Note 1	-	-	1.0	dB
Optical Isolation	-	-	32	-	-	dB
High Frequency Cutoff (3dB)	$F_h$	$I_{op}$ , Note 2	14	-	-	GHz
Low Frequency Cutoff (3dB)	$F_L$	$I_{op}$ , Note 2	-	-	30	kHz
RF Return Loss, 50 Ohms						
(0.1GHz to 8GHz)	$ S_{11} $	$I_{op}$	10	-	-	dB
Rise/Fall Time, 10% - 90%	$t_r/t_f$	See Note 1	-	-	50	ps
Thermo-Electric Cooler Current	$I_{tec}$	-	-	-	1.3	A
Thermistor Resistance	$R_{th}$	-	-	10	-	k $\Omega$
Thermistor Coefficient	-	-	-	-4.4	-	% / °C
Monitor Photodiode Current	$I_{MPD}$	$I_{op}$	40	-	1500	$\mu A$

Note 1: 10 Gb/s PRBS 2<sup>23</sup>-1, E<sub>r</sub> = 8.2dB, @ I<sub>op</sub>, T<sub>op</sub>=25°C, typical 50mA pk-ph drive current

Note 2: Measurements made with 100 $\mu H$  in series with pin#3 (laser cathode)

### Absolute Maximum Ratings

Operating Temperature	-40	-	80	°C
Storage Temperature	-40	-	90	°C
Laser Forward Bias	-	TEC on	150	mA
Reverse Voltage (Laser)	-	-	2	V
Reverse Voltage (Photodiode)	-	-	20	V
TEC Current	-	-	1.7	A

### Model Number

1861A

### applications

- SONET/SDH low cost Metro applications
- High-speed data communications
- DWDM equipment drop side applications

### features

- 1310 Directly Modulated Laser module characterized for use in 10 Gb/s operation up to 50Km
- Average Optical Output Power 4mW min.
- Temperature stabilized with internal thermoelectric cooler (TEC) enabling operation -40°C to +80°C
- Hermetically sealed optics
- GPO RF connector
- Single mode fiber pig tail
- Isolator on TEC
- High relaxation frequency at low bias



### Ordering Information

Contact your local sales representative for more information, or call (800) 362-3891.

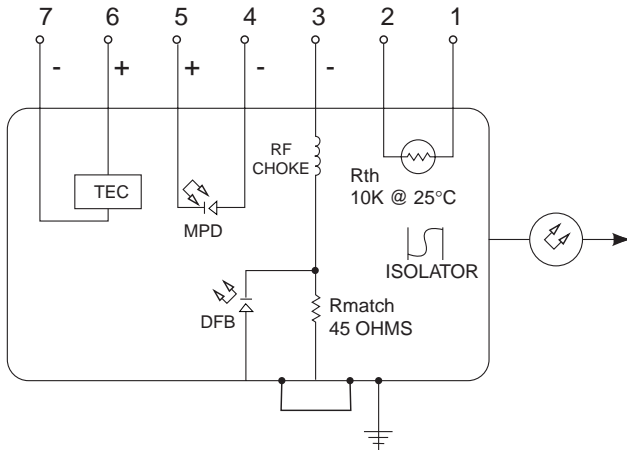
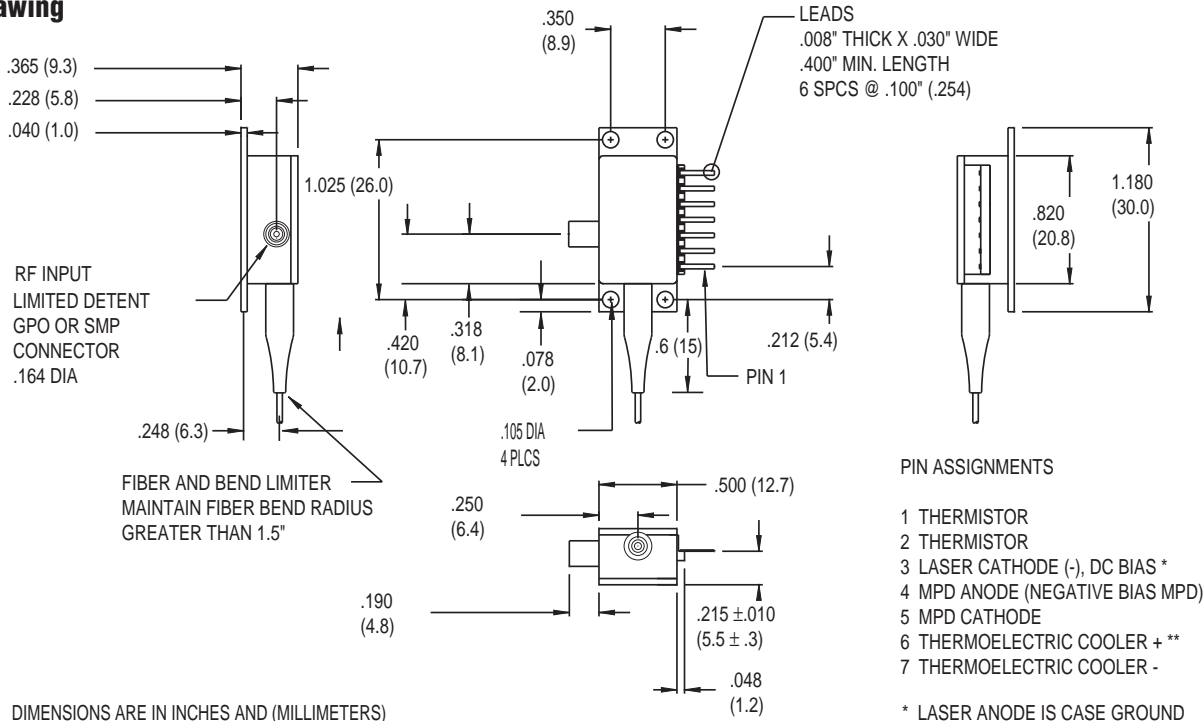
harnessing  
the power  
of light

# DAYTONA

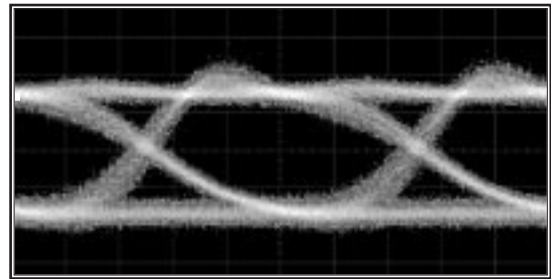
## 1861A 10 Gb/s 1310nm DML Module

DATA SHEET

### Outline Drawing



### Filtered Optical Eye Diagram



0km, 4th Order Bessel Filter, 8.2dB ER, 20ps/div

**Safety Considerations** – The light emitted from this transmitter is invisible and may be harmful to the human eye. Avoid looking directly into the fiber pigtail or into the collimated beam along its axis when the device is in operation. Operating the transmitter outside of its maximum ratings may cause device failure or a safety hazard.



#### Corporate Headquarters

2015 West Chestnut Street  
Alhambra, California USA 91803-1542  
Phone: (800) 362-3891 • (626) 281-3636  
Fax: (626) 458-9243  
email: info@ortel.com  
www.ortel.com

#### Eastern United States Office

(215) 489-8860  
Fax: (215) 489-8865

#### Europe

Ortel Vertriebs GmbH  
49-89-3790 7214  
Fax: 49-89-3790 7249

#### Singapore

Ortel Asia Private Ltd.  
65-254-7877  
Fax: 65-254-7377

#### China

86-10-6526-0767  
Fax: 86-10-6526-0768

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