High Power 1550 nm DFB Laser

Model 1710A/B, 1711A/B

DATA SHEET

The 1710A/B and 1711A/B modules are high power 1550 nm laser devices in a 14 pin butterfly package with a thermoelectric cooler and monitor photodiode. The laser is designed to be used in conjunction with commercially available external modulators for high performance analog and digital applications. Ortel offers modules with 25 mW or 30 mW output power into polarization preserving fiber. Model 1710A/B operates with positive laser bias and Model 1711A/B operates with negative bias.

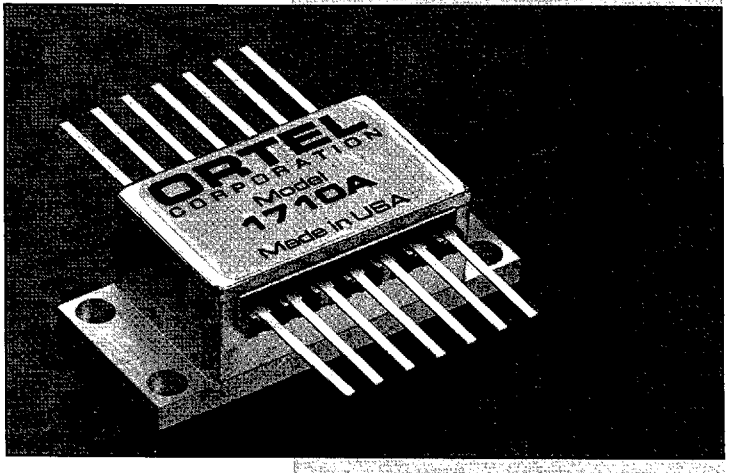
- **High Fiber Coupled Power: 25 mW and 30 mW**
- **Narrow Linewidth: <3 MHz**
- **Low Relative Intensity Noise: <-162 dB/Hz**
- **Coupled to Polarization Preserving Fiber**
- **ISO 9001 Certified**

Laser Parameter *	Sym.	Conditions	Min.	Max.	Unit
Output Power -A	P_O	-	25	-	mW
-B	P_O	-	30	-	mW
Center Wavelength	λ_C	I_{OP}	1540	1560	nm
Linewidth (FWHM)	$\Delta\nu$	I_{OP}	-	3	MHz
Side-mode Suppression Ratio	SMSR	I_{OP}	30	-	dB
Relative Intensity Noise	RIN	I_{OP}, 40 to 860MHz	-	-162	dB/Hz
Operating Current	I_{OP}	-	-	250	mA
Threshold Current	I_{TH}	-	-	25	mA
Forward Voltage	V_F	-	-	2.5	V
Optical Isolation	-	-20 to +65°C	30	-	dB
Polarization Extinction Ratio	T_E/T_M	From fiber end, I_{OP}	20	-	dB

*measured at 25°C Laser Temperature

Fiber Characteristics	
Type	Fujikura PANDA, 900 µm jacket
Fiber Length	1 ~ 2 m

Ordering Information	
1710A	25 mW; pos. laser bias
1710B	30 mW; pos. laser bias
1711A	25 mW; neg. laser bias
1711B	30 mW; neg. laser bias



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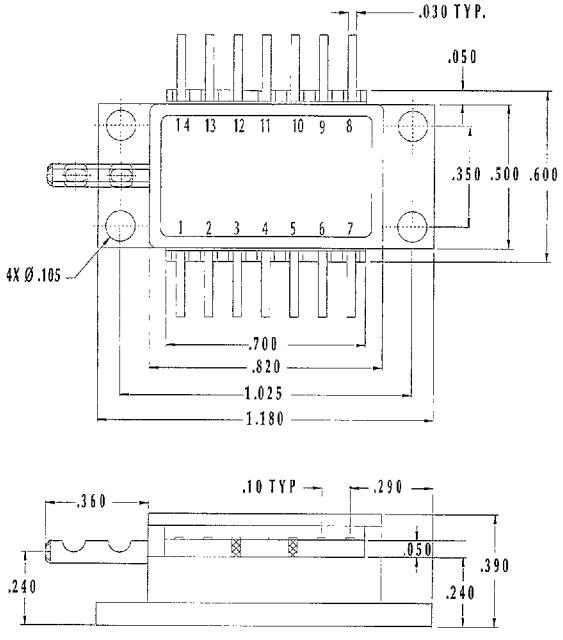
Monitor Photodiode	Sym.	Conditions	Min.	Max.	Unit
Reverse Voltage	V_{RMPD}	Iop	-	10	V
Monitor Current	I_{MPD}	-	40	1800	µA
Thermal					
TEC Current	I_{TEC}	ΔT = 40°C	-	1.8	A
TEC Voltage	V_{TEC}	ΔT= 40°C	-	2.2	V
Thermistor Resistance	R_{TH}	-	9.5	10.5	KΩ

Absolute Maximum Ratings			
Parameter	**Min.**	**Max.**	**Units**
Operating Temperature Range	-20	+65	°C
Storage Temperature Range	-40	+70	°C
Forward Current (Laser)	-	275	mA
Reverse Voltage (Laser)	-	2.0	V
Photodiode Reverse Voltage	-	10	V
TEC Voltage	-	2.2	V
TEC Current	-	2.0	A



Pin	Assignments	
Pin	**1710A/B (positive bias)**	**1711A/B (negative bias)**
1	TE Cooler (+)	TE Cooler (+)
2	NC	NC
3	Case Ground	Case Ground
4	NC	Laser Cathode
5	Laser Cathode, Case Ground	Laser Anode, Case Ground
6	Laser Anode	NC
7	Photodiode Cathode	Photodiode Cathode
8	Photodiode Anode	Photodiode Anode
9	Laser Anode	Laser Cathode
10	Case Ground	Case Ground
11	Thermistor	Thermistor
12	Case Ground	Case Ground
13	NC	NC
14	TE Cooler (-)	TE Cooler (-)

Dimensions are in inches

Safety Considerations – The light emitted from this laser diode 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 laser diode outside of its maximum ratings may cause device failure or a safety hazard.

DANGER
INVISIBLE LASER RADIATION
AVOID DIRECT EXPOSURE TO BEAM
PEAK POWER 100 mW
WAVELENGTH 1550 nm
CLASS IIIb LASER PRODUCT
THIS PRODUCT COMPLIES WITH 21 CFR CHAPTER I SUBCHAPTER J

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