

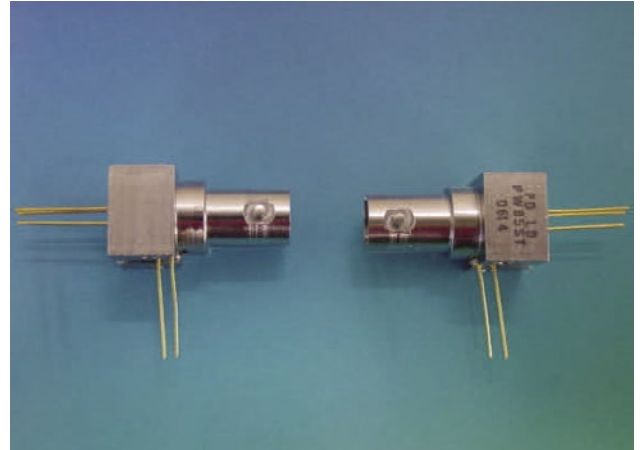
PW13ST WDM Multimode 1300nm Transmit/850nm Receive Bidirectional Modules

Applications

- Video Transmission
- Short distance over MMF
- Full Duplex Communications
- WDM Bi-Directional transmission over a single fiber
- CATV
- CCTV

Features

- Output Power of -16dBm typical
- -40°C to 85°C Operating Temperature Range
- 1300 nm LED Source
- Low Internal Cross Talk
- Low Noise Silicon PIN Photodiode Receiver
- Compact, rugged construction
- Low Power Consumption
- ST Board or Panel Mount Receptacle
- Replaces Discreet Components
- Class 1 Eye Safe Device
- Optically/Electrically Equivalent to Zarlink MF699
- Pairs with PW85ST Series



PD-LD Inc. manufactures LED based WDM style Bi-Directional transmitter and receiver modules operating in the 850 and 1310nm optical windows. These devices, part number PW13ST, are designed to simultaneously transmit and receive over a single optical fiber at frequencies from DC to 200MHz. Dual wavelength bi-directional modules replace the need for a multimode fiber coupled LEDs, a fiber coupled PIN photodiode, a discreet fiber optic WDM and a second stage optical isolator. The Bi-Directional Modules combine all of these optical functions and relieve the user of having to fusion splice several discreet units together and then squeeze them onto their PCB.

These small, compact modules require minimal board real estate and when used in pairs deliver two way operation over a single 62.5/125um optical fiber.

The PD-LD product incorporates high reliability surface emitting 1300nm light emitting diodes (LEDs) transmitters that have typical operating currents between 50 and 100mA. The receiver sections offer discreet Silicon PIN photodiodes of planar semiconductor design that have dielectric passivation for very low noise performance at 850nm. See the data sheet for the PW85ST series for the matching bidirectional module. PD-LD's BiDirectional WDM modules are built to meet the demanding requirements of industrial operating temperature ranges of -40 to 85°C .

The PD-LD BiDirectional modules are 100% tested for conformance to specification and are of robust construction. The optical semiconductor die are mounted within hermetically sealed TO can subassemblies making them impervious to contaminants and moisture. This construction ensures that the modules will operate over full industrial temperature range.

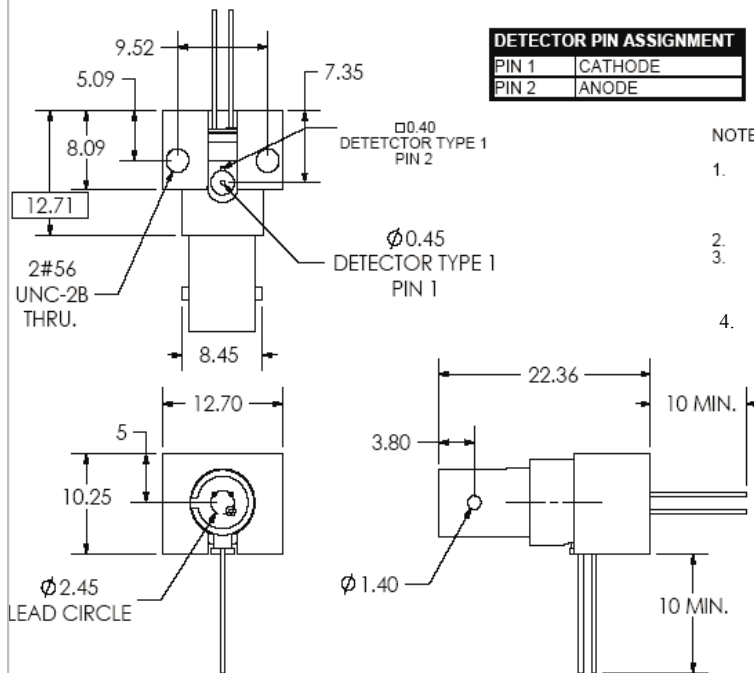
PD-LD Inc. reserves the right to make modifications to or discontinue products without prior notice.

11-15 PW13ST BiDi Rev.E

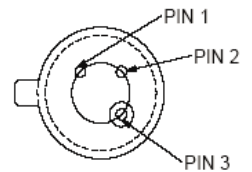
PW13ST WDM Multimode 1300nm Transmit/850nm Receive Bidirectional Modules

Absolute Maximum Ratings Parameters

Module	Symbol	Rating	Units
Operating Temp	T_{OP}	-40 to 85	°C
Storage Temp	T_{STG}	-40 to 85	°C
Soldering Temp	T_{SLD}	240	°C
LED			
Forward Current	$I_{F(LD)}$	150	mA
Reverse Voltage	$V_{R(LD)}$	2	V
PIN Photodiode			
Forward Current	$I_{F(PD)}$	10	mA
Reverse Current	$I_{R(PD)}$	5	mA
Reverse Voltage	$V_{R(PD)}$	20	V



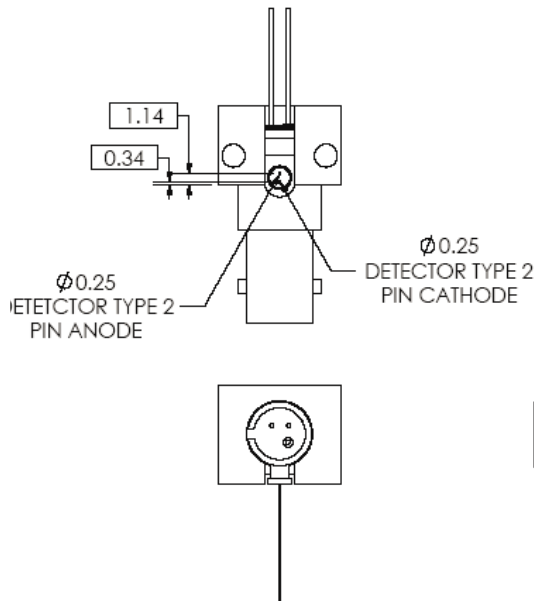
- SLED PIN ASSIGNMENT**
- | | |
|-------|-------------|
| PIN 1 | ANODE |
| PIN 2 | CATHODE |
| PIN 3 | CASE GROUND |



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NOTES:

1. ALL MECHANICAL DIMENSIONS ARE SAME AS SHOWN IN SHEET 1
2. FINAL PRODUCT MAY CONTAIN EITHER DETECTOR TYPE.

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BiDirectional Module Characteristics and Parameters						
	Symbol	MIN.	TYP.	MAX	Units	Test Condition
1300nm LED						
Power	P_O	20	25		uW	$I_F=100$ mA (Note 1)
Operating Current	I_{OP}			100	mA	$I_F = I_{OP}$
Operating Voltage	V_{OP}	-	1.2	1.7	V	$I_F = I_{OP}$
Peak Wavelength	Lambda	1280	1310	1350	nm	25°C
Spectral Width	Delta Lambda	-	-	170	nm	FWHM
Rise/Fall Time	t_r, t_f	-	-	3.0	nsec	10~90%
Si PIN Photodiode						
Active Area			300		μ m	Diameter
Spectral Sensitivity	S	0.2	0.25		A/W	$V_{R(PD)}$ =5V@850nm
Reverse Voltage	V		5	15	V	
Dark Current	$I_{D(PD)}$	-	0.1	1.0	nA	$V_{R(PD)}=5V@25^\circ C$
Capacitance	$C_{(PD)}$		2	4	pF	$V_{R(PD)}=5V,$ $f=1MHz$
Rise/Fall Time	t_r, t_f	-	-	2.0	nsec	$V_{R(PD)}=5V,$ 10~90%
Cross Talk Current	I_{Cr}		75		nA	$V_{R(PD)}=5V$ $I_{LED}=60mA$ (Note 2)

Note 1: 62.5/125um graded index fiber (NA=0.275)

Note 2: Internal Cross Talk with ceramic ferrule inserted but no optical power from fiber. Total current = Dark Current + Cross Talk Current.

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