

■ Fiber Optic Products

Optic 2 Wave Transceiver

◆ Feature

- Broad band operation
- Low Noise & Low back reflection
- High sensitivity & High dynamic range
- Single 12V DC power operation
- 1310nm wavelength (Slave), 1550nm wavelength (Master)
- Wide temperature operation (-20℃ ~ +60℃)
- Optional feature (WDM, FSK Modem)

◆ Application

- Optical Repeater systems
- Remote Antenna systems
- Cellular / PCS / UMTS/ CATV
- LTE/ Tetra



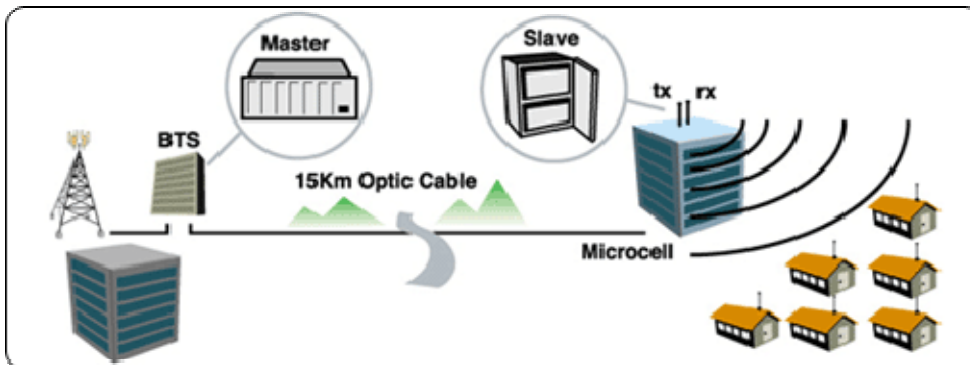
◆ Specification

Parameter		Condition		
Transceiver Characteristics (T=25℃)		Min	Typ.	Max
Optical output power		2mW	3mW	4 mW
RF Gain		-1.5 dB	0 dB	+ 1.5 dB
Bandwidth		-	Customize	-
Flatness of frequency		-	±0.5 dB	±1 dB
Wavelength	Master	1300nm	1310nm	1320nm
	Slave	1540nm	1550nm	1560nm
Optical Return Loss		-54dB	-	-
Output Noise Floor		-	-135dBm/Hz	-
RF port VSWR		-	-	1.5:1
Third order intercept (IP3)		-	28 dBm	-
Supply		-	12V	-
Current Consumption	Master	-	350 mA at 12V	400mA at 12V
	Slave	-	350 mA at 12V	400mA at 12V
Fiber Connector/ RF Connector		FC / APC, SMA Female		
Absolute Maximum Rating		Rating	Absolute Maximum Rating	Rating
Optical Input Power		4mW	Operating Temperature	-20℃ ~ +60℃
RF Input Power		5 dBm	Storage Temperature	-30℃ ~ +80℃
DC Supply voltage		+14V	-	-

PIN CONFIGURATION (9 PIN D-SUB CONNECTOR)

PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	N/C	2	GND	3	12V	4	N/C	5	N/C
6	N/C	7	LD Alarm	8	N/C	9	PD Alarm	-	-

◆ 2 Wave system application



■ Fiber Optic Products

Optic 3 Wave Transceiver

◆ Feature

- Broad band operation
- Low Noise & Low back reflection
- High sensitivity & High dynamic range
- Single 12V DC power operation
- Wide temperature operation (-20℃~ +60℃)
- Optional feature (WDM, FSK Modem)

◆ Application

- Optical Repeater systems
- Remote Antenna systems
- Cellular / PCS /UMTS/ CATV
- LTE/ Tetra



◆ Specification

Parameter		Condition		
Transceiver Characteristics (T=25℃)		Min	Typ.	Max
Optical output power		2mW	3mW	4 mW
RF Gain		-1.5 dB	0 dB	+ 1.5 dB
Bandwidth		-	Customize	-
Flatness of frequency		-	±0.5 dB	±0.75dB
Wavelength	Master	1300nm	1310nm	1320nm
	Slave (or RV1)	1540nm	1550nm	1560nm
	Slave (or RV2)	1500nm	1510nm	1520nm
Optical Return Loss		-54dB	-	-
Output Noise Floor		-130dBm/Hz	-132dBm/Hz	-
RF port VSWR		-	-	1.5:1
Third order intercept (IP3)		25 dBm	27 dBm	-
Supply		-	12V	-
Current Consumption	Master	-	350 mA at 12V	400mA at 12V
	Slave	-	350 mA at 12V	400mA at 12V
Fiber Connector/ RF Connector		FC / APC, SMA Female		
Absolute Maximum Rating		Rating	Absolute Maximum Rating	Rating
Optical Input Power		4mW	Operating Temperature	-20℃ ~ +60℃
RF Input Power		5 dBm	Storage Temperature	-30℃ ~ +80℃
DC Supply voltage		+14V	-	-

PIN CONFIGURATION (Master)

PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	N/C	2	GND	3	12V	4	N/C	5	N/C ¹ , PD1 Alarm ²
6	N/C	7	LD Alarm	8	N/C	9	PD Alarm ¹ , PD2 Alarm ²	-	-

PIN CONFIGURATION (Slave)

PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	N/C	2	GND	3	12V	4	N/C	5	N/C, LD1 Alarm
6	N/C	7	LD Alarm ¹ , LD2 Alarm ²	8	N/C	9	PD Alarm	-	-

¹: Add-Drop system application

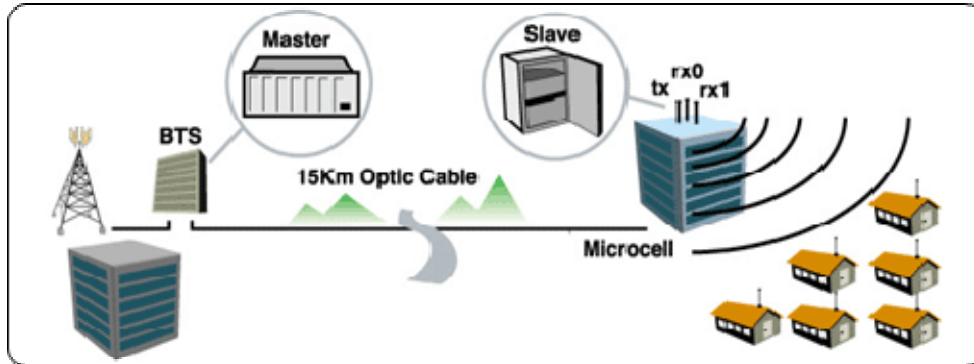
²: Diversity system application

Fiber Optic Products

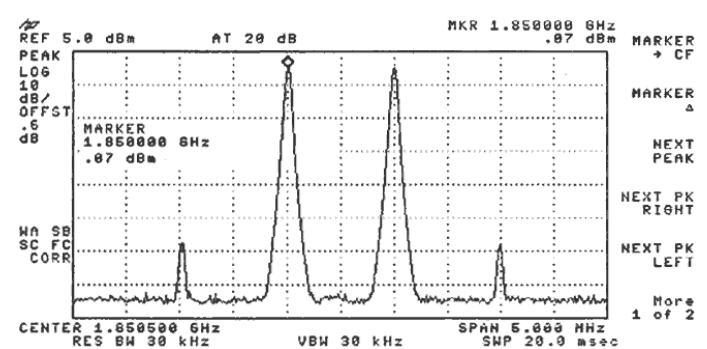
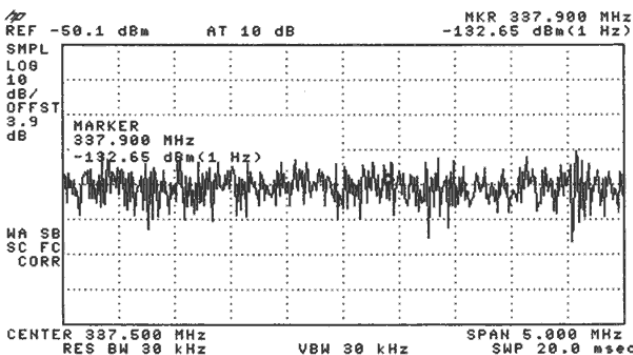
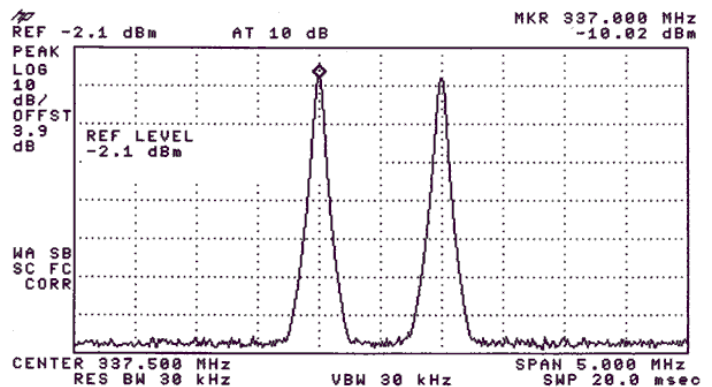
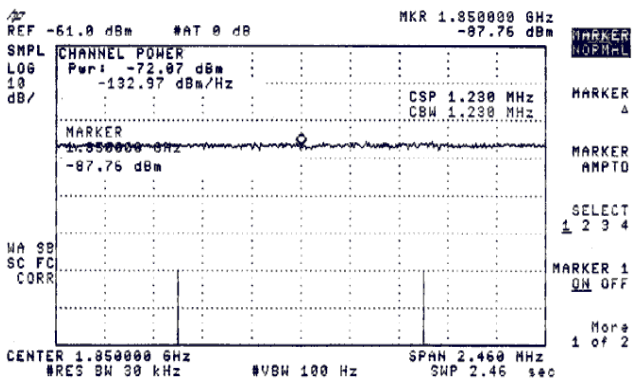
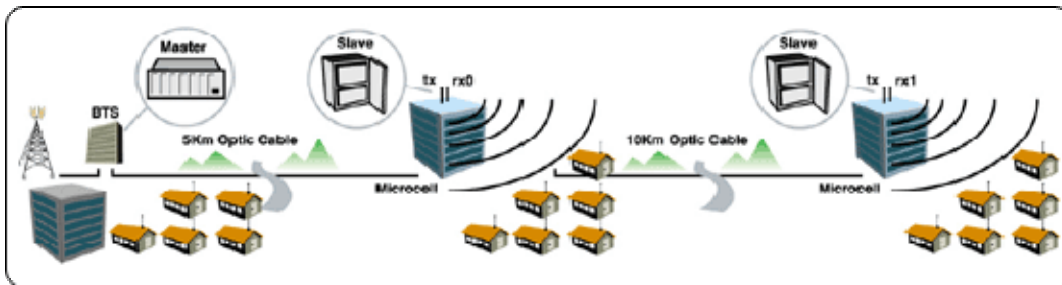
Optic 3 Wave Transceiver

◆ 3 Wave system application

- 3W Diversity system



- 3W Add-Drop system



■ Fiber Optic Products

Optic 4 Wave Transceiver

◆ Feature

- Broad band operation
- Low Noise & Low back reflection
- High sensitivity & High dynamic range
- Single 12V DC power operation
- 1310nm wavelength (Master)
- 1510, 1530, 1550nm wavelength (Slave1, 2, 3)
- Wide temperature operation (-20°C ~ +60°C)
- Optional feature (WDM, FSK Modem)

◆ Application

- Optical Repeater systems
- Remote Antenna systems
- Cellular / PCS / UMTS/ CATV
- LTE/ Tetra



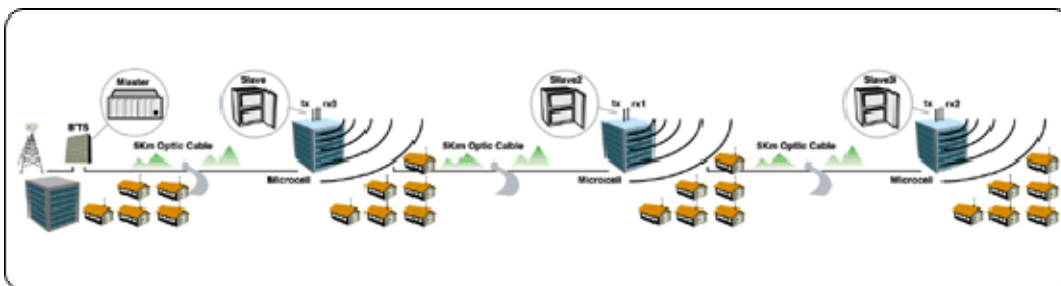
◆ Specification

Parameter		Condition		
Transceiver Characteristics (T=25°C)		Min	Typ.	Max
Optical output power		1mW	2mW	3 mW
RF Gain		-1.5 dB	0 dB	+ 1.5 dB
Bandwidth		-	Customize	
Flatness of frequency		-	±0.5 dB	±1 dB
Wavelength	Master	1300nm	1310nm	1320nm
	Slave1	1527nm	1530nm	1533nm
	Slave2	1507nm	1510nm	1513nm
	Slave3	1547nm	1550nm	1553nm
Optical Return Loss		-48dB	-	-
Output Noise Floor (not include Coupler)		-130dBm/Hz	-135dBm/Hz	-
RF port VSWR		-	-	1.5:1
Third order intercept (IP3)		25 dBm	27 dBm	-
Supply		11V	12V	13V
Current Consumption	Master	-	350 mA at 12V	400mA at 12V
	Slave	-	350 mA at 12V	400mA at 12V
Fiber Connector/ RF Connector		FC / APC, SMA Female		
Absolute Maximum Rating		Rating	Absolute Maximum Rating	Rating
Optical Input Power		4mW	Operating Temperature	-20°C ~ +60°C
RF Input Power		5 dBm	Storage Temperature	-30°C ~ +80°C
DC Supply voltage		+14V	-	-

PIN CONFIGURATION (9 PIN D-SUB CONNECTOR)

PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	N/C	2	GND	3	12V	4	N/C	5	N/C
6	N/C	7	LD Alarm	8	N/C	9	PD Alarm	-	-

◆ 4 Wave system application



■ Fiber Optic Products

Optic 5 Wave Transceiver

◆ Feature

- Broad band operation
- Low Noise & Low back reflection
- High sensitivity & High dynamic range
- Single 12V DC power operation
- 1310nm wavelength (Master).
- 1510, 1530, 1550, 1570nm wavelength (Slave1, 2)
- Wide temperature operation (-20℃~+60℃)
- Optional feature (WDM, FSK Modem)

◆ Application

- Optical Repeater systems
- Remote Antenna systems
- Cellular / PCS /UMTS/ CATV
- LTE/ Tetra

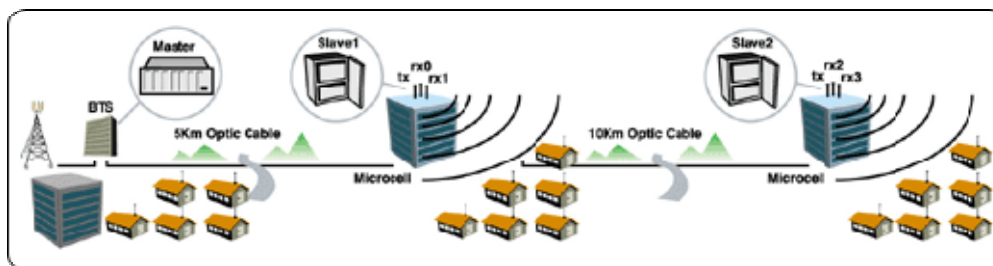


◆ Specification

Parameter		Condition		
Transceiver Characteristics (T=25℃)		Min	Typ.	Max
Optical output power		2mW	3mW	4 mW
RF Gain		-1.5 dB	0 dB	+ 1.5 dB
Bandwidth		-	Customize	-
Flatness of frequency		-	±0.5 dB	±0.75dB
Wavelength	Master	1300nm	1310nm	1320nm
	Slave1	1500nm	1510nm	1520nm
	Slave2	1520nm	1530nm	1540nm
	Slave1	1540nm	1550nm	1560nm
	Slave2	1560nm	1570nm	1580nm
Optical Return Loss		-54dB	-	-
Output Noise Floor (not include Coupler)		-130dBm/Hz	-132dBm/Hz	-
RF port VSWR		-	-	1.5:1
Third order intercept (IP3)		25 dBm	27 dBm	-
Supply		-	12V	-
Current Consumption	Master	-	350 mA at 12V	400mA at 12V
	Slave	-	350 mA at 12V	400mA at 12V
Fiber Connector/ RF Connector		FC / APC, SMA Female		
Absolute Maximum Rating		Rating	Absolute Maximum Rating	Rating
Optical Input Power		4mW	Operating Temperature	-20℃ ~ +60℃
RF Input Power		5 dBm	Storage Temperature	-30℃ ~ +80℃
DC Supply voltage		+14V	-	-

PIN CONFIGURATION (Master)						PIN CONFIGURATION (Slave)					
PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION	PIN	FUNCTION
1	N/C	4	N/C	7	LD Alarm	1	N/C	4	N/C	7	LD2 Alarm
2	GND	5	PD1 Alarm	8	PD3 Alarm	2	GND	5	LD1 Alarm	8	N/C
3	12V	6	PD2 Alarm	9	PD4 Alarm	3	12V	6	N/C	9	PD1 Alarm

◆ 5 Wave system application



■ Fiber Optic Products

FSK Modem(TX + RX)

◆ Feature

- Stability TX output power
- High Sensitivity
- Upto 19200bps
- Compact size
- High Performance

◆ Application

- RF/Optic Repeater system
- Remote monitoring & control



◆ Specification

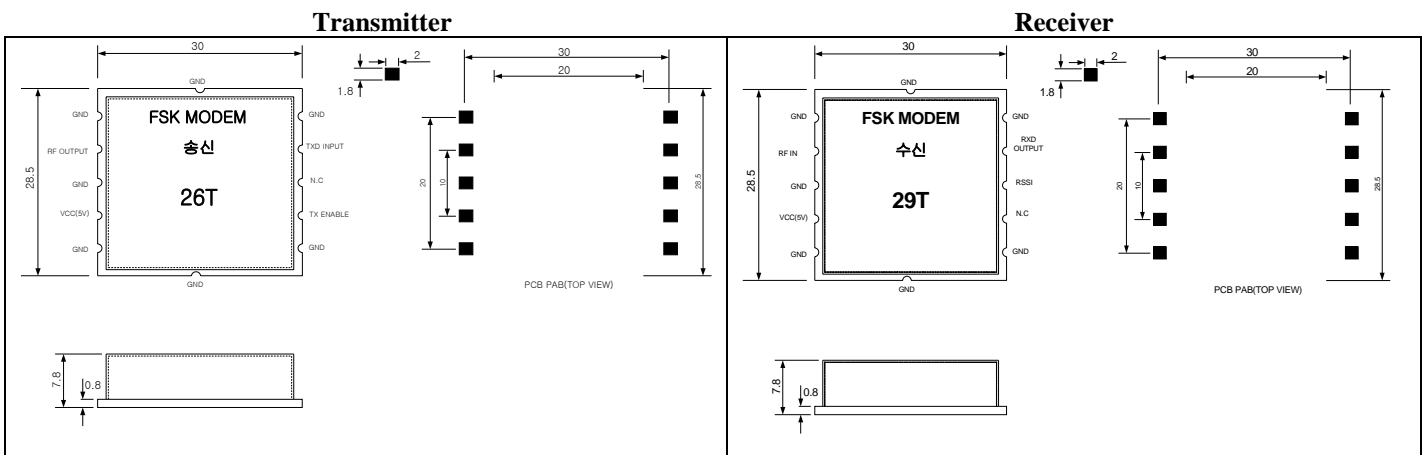
Parameter	Condition	Unit	Specifications	Remarks
Frequency	Master	MHz	TX 29.9 / RX 26.9 MHz	
	Slave:		TX 26.9 / RX 29.9 MHz	
Receiver	Sensitivity	dBm	-10~ -75dBm	-71dBm setting Refer to (1)
	Frequency Deviation	KHz	40KHz / ±15 KHz	
Spurious	2 nd Harmony	dBc	- 60dBc min.	-
	3 rd Harmony		-70 dBc min.	
Transmitter	Output Power	dBm	-10 ±2dBm	customized
	Frequency Shift	KHz	H:fo+20 / L:fo-60 KHz	Data 1 = H Data 0 = L
Deviation		±5kHz		
Power	Input Power	V	5±0.2 V / 30mA	-
Data Rate	-	bps	19200 bps	Refer to (2)
Impedance	-	Ω	50 +/- (j)20	-

NOTE: ※ test conditions: After termination, the above data are measured.

(1) Sensitivity will be -73±3 dBm if there's no special request.

(2) Data Rate will be 19200bps if there's no special request.

◆ Mechanical Dimension (mm)



Fiber Optic Products

CWDM / WDM

◆ Feature

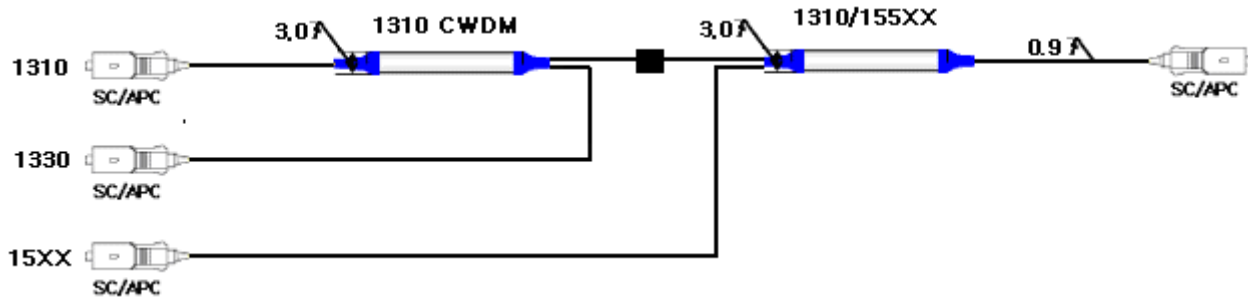
- Low Excess Loss & High Performance
- Good Uniformity
- Coupling Ratio of 50/50 or as customer order
- Optional Pre-connectorized outputs
- Wide wavelength range

◆ Application

- Optical Repeater systems
- Local Area Networks
- Test Equipment
- PTTH / CATV
- Fiber Optic Sensor

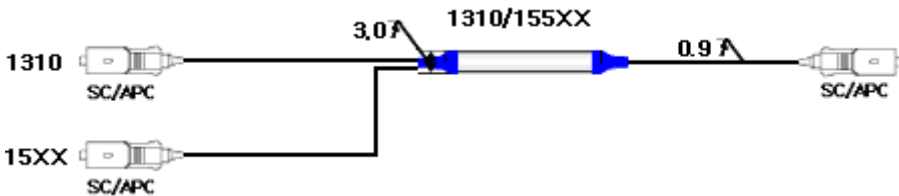


◆ P/N : OC-T3CW



	Insertion Loss	Isolation
-		
1310 Port	1.3	>30
1330 Port	1.2	>15
15xx Port	0.7	>17

◆ P/N : OC-T2SW



	Insertion Loss	Isolation
-		
1310 Port	0.7	>17
15xx Port	0.7	>17

◆ P/N : OC-WC82

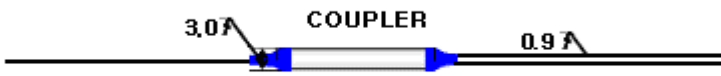


	Insertion Loss
20% Port	7.9
80% Port	1.2

◆ P/N : OC-WC73

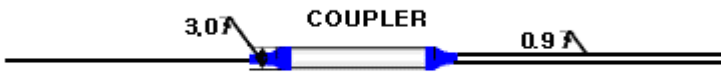
■ Fiber Optic Products

CWDM / WDM



	Insertion Loss
30% Port	6.0
70% Port	1.9

◆ P/N : OC-WC64



	Insertion Loss
40% Port	4.7
60% Port	2.7

◆ P/N : OC-WC55



	Insertion Loss
50% Port	3.6
50% Port	3.6

- The length of each node is 500mm.

■ Fiber Optic Products

LD(Optic Laser Diode)

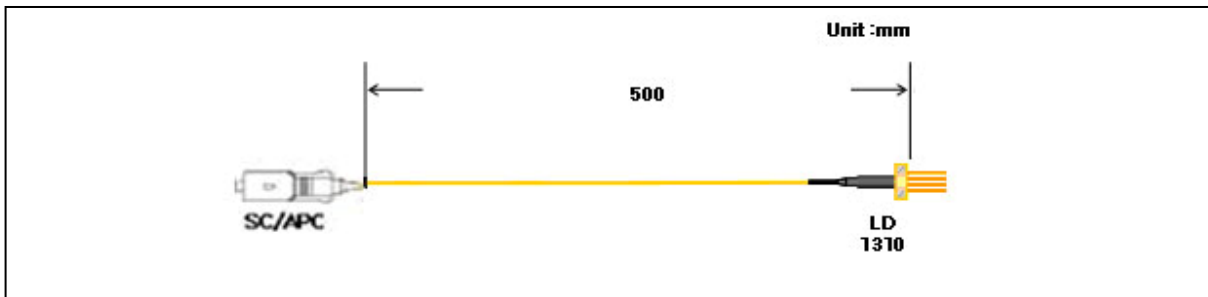
◆ Feature

- 1.31 μ m / 1.55 μ m FD-LD or DFB-LD 1.27 μ m to 1.61 μ m DFB LD (20nm spacing)
- Bandwidth : ~2.3GHz
- Operating temperature 0 $^{\circ}$ C ~ +70 $^{\circ}$ C / -40 $^{\circ}$ C ~ +85 $^{\circ}$ C
- Single-mode or multi-mode fiber pigtailed with optional connector
- Customizing Design according to customer requests

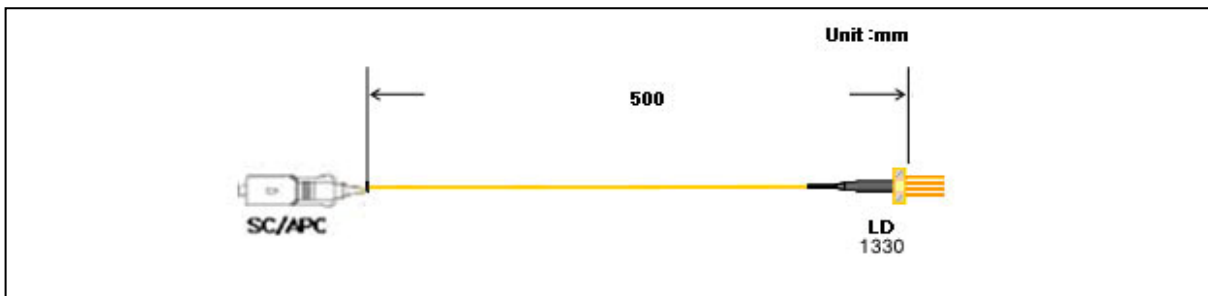
◆ Application

- Optical Repeater systems
- Local Area Networks
- Test Equipment
- PTTH / CATV
- Fiber Optic Sensor

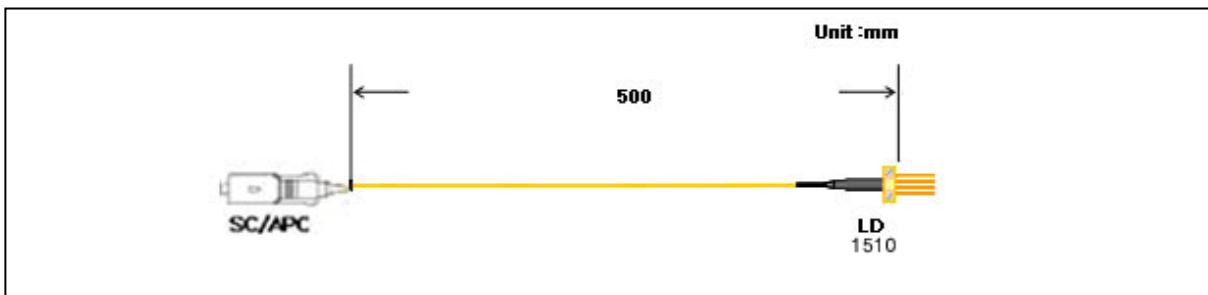
◆ P/N : LD1310



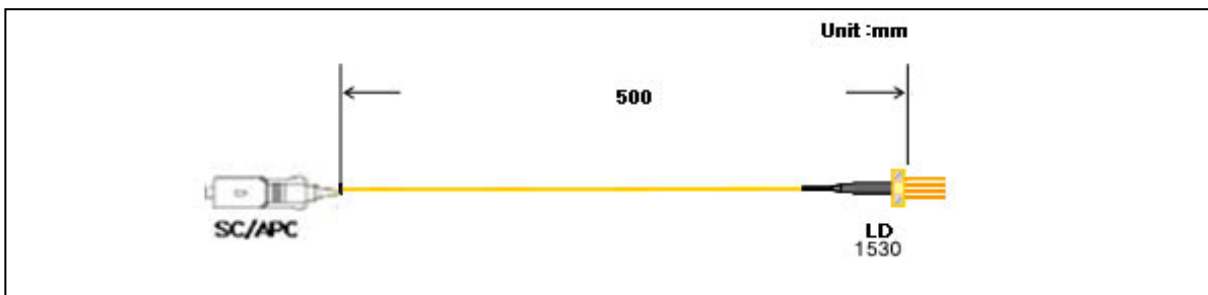
◆ P/N : LD1330



◆ P/N : LD1510



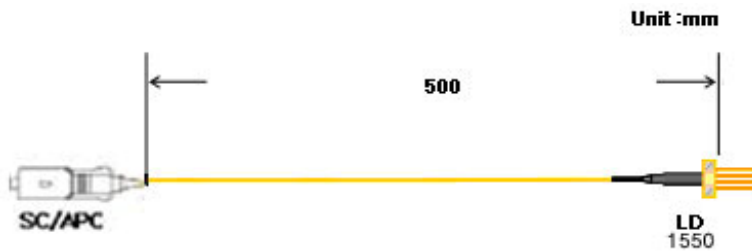
◆ P/N : LD1530



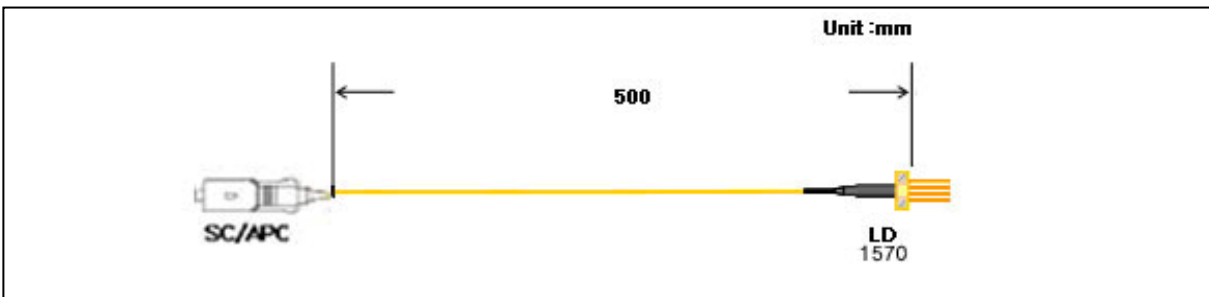
◆ P/N : LD1550

Fiber Optic Products

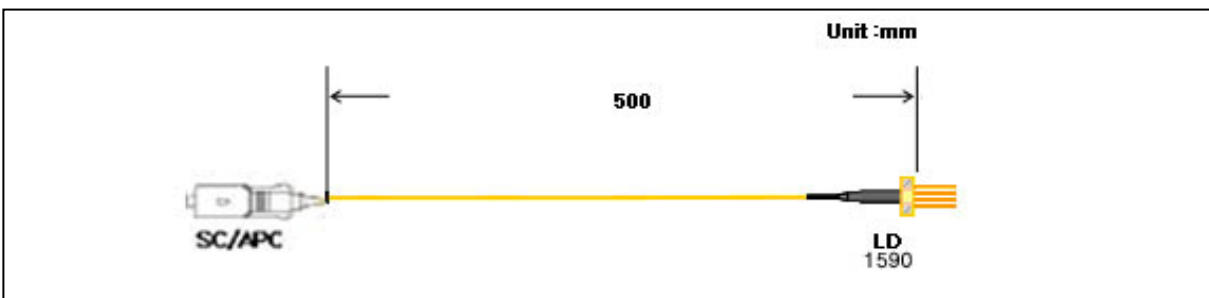
LD(Optic Laser Diode)



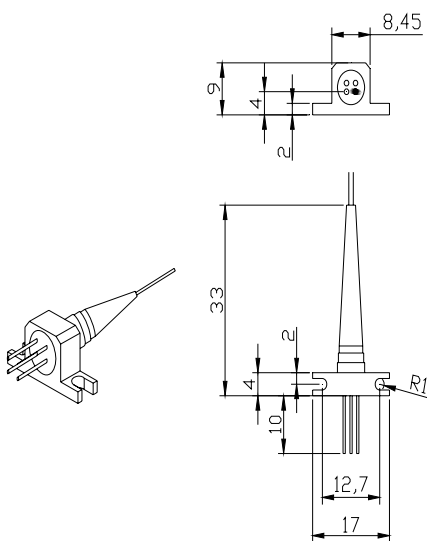
◆ P/N : LD1570



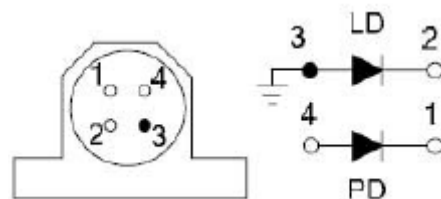
◆ P/N : LD1590



◆ Mechanical drawing



4 pin coaxial package with outer diameter 7.0±0.1mm



Bottom view

*Pin Assignment

Pin	Signal
1	PD Cathode
2	LD Cathode
3	Case/LD Anode
4	PD Anode

Fiber Optic Products

PD(Optic Photo Diode)

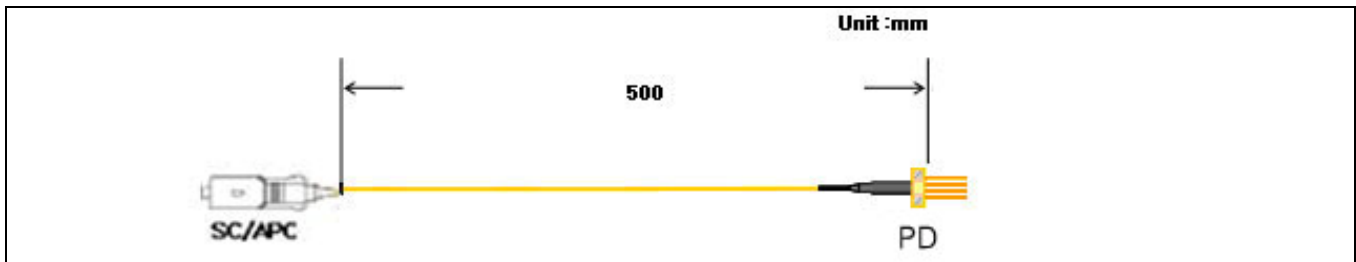
◆ Feature

- InGaAs PIN photodiode- Bandwidth : ~2.3GHz
- Operation at 910nm ~ 1650nm
- High Responsibility, low dark current and low capacitance
- Bandwidth : ~5GHz
- Operation temperature 0°C ~ +70°C / -40°C ~ +85°C
- Maximum input optical overload : ~+10mW
- Customizing Design according to customer requests

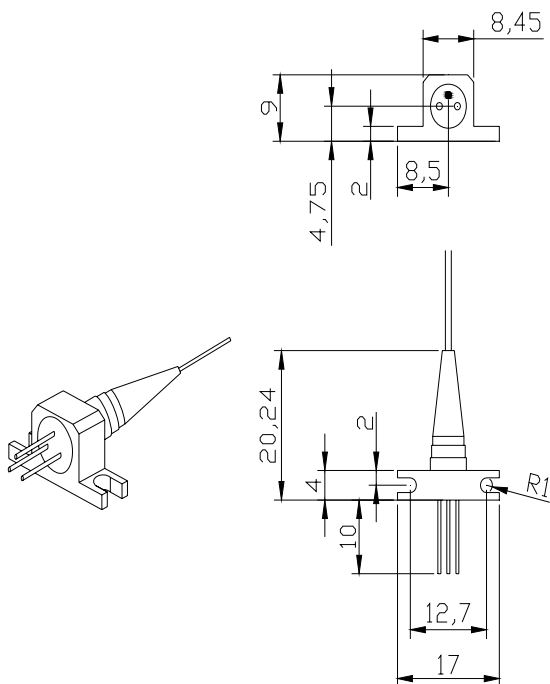
◆ Application

- Wireless fiber-optic repeaters
- Analog and digital modulation system
- Video link
- CATV for Return-path

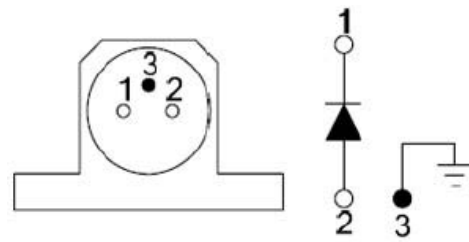
◆ PD



◆ Mechanical drawing



4 pin coaxial package with outer diameter 7.0±0.1mm



Bottom view

*Pin Assignment

Pin	Signal
1	Cathode
2	Anode
3	Case

■ Fiber Optic Products

LD+PD+WDM+Optic Cable Ass'y

◆ Feature

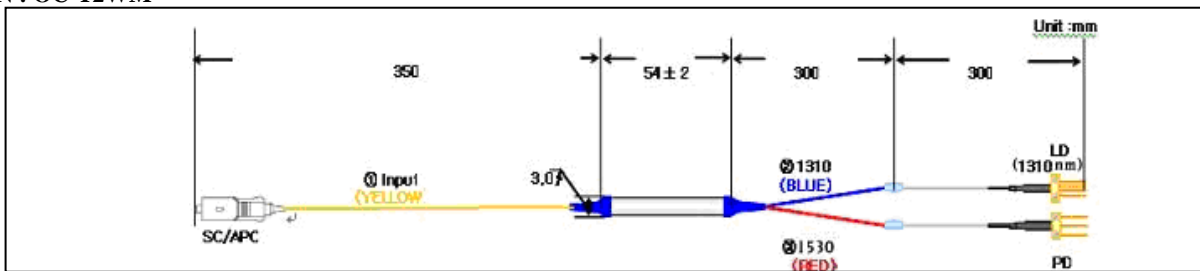
- Low Excess Loss & High Performance
- Good Uniformity
- Coupling Ratio of 50/50 or as customer order
- Optional Pre-connectorized outputs
- Wide wavelength range

◆ Application

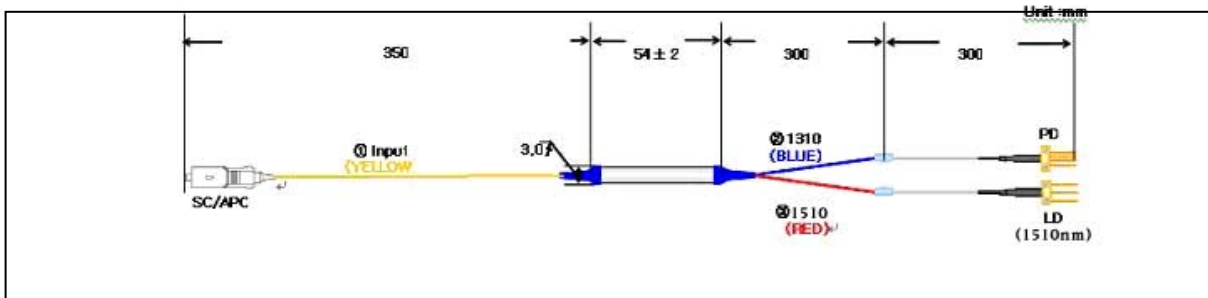
- Optical Repeater systems
- Local Area Networks
- Test Equipment
- PTH / CATV
- Fiber Optic Sensor



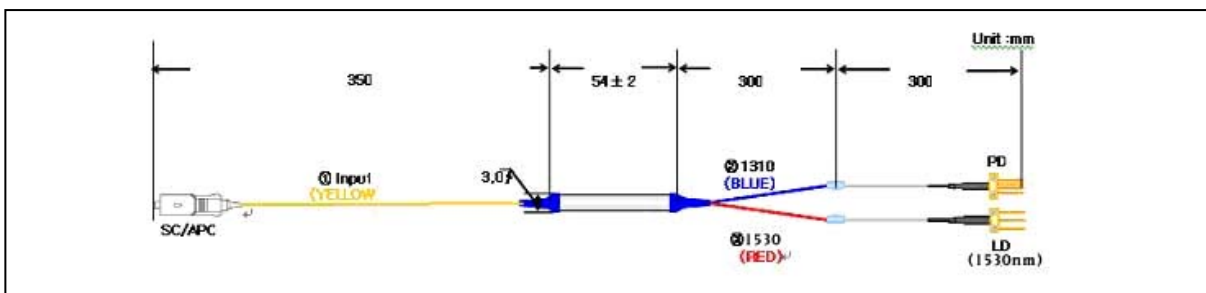
◆ P/N : OC-T2WM



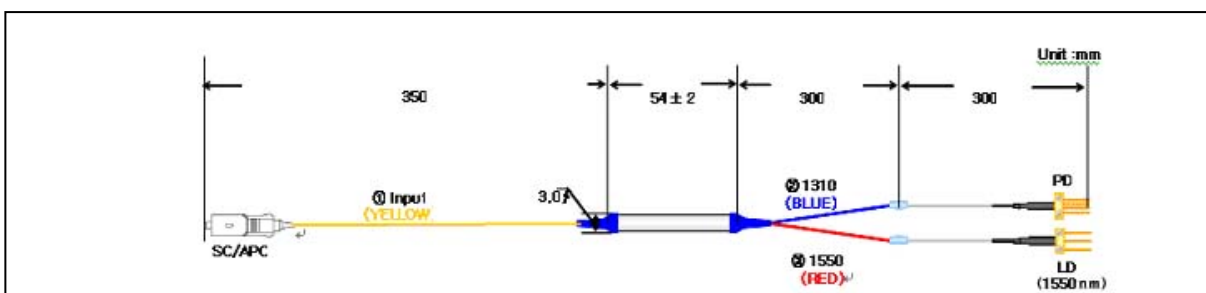
◆ P/N : OC-T2WSA



◆ P/N : OC-T2WSB



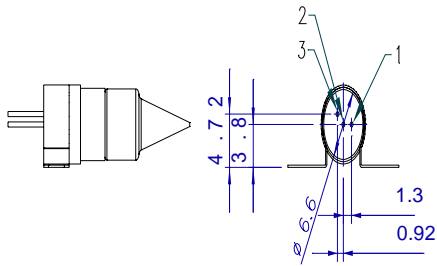
◆ P/N : OC-T2WSC



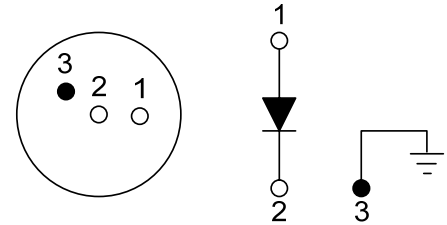
◆ Mechanical drawing

■ Fiber Optic Products

LD+PD+WDM+Optic Cable Ass'y

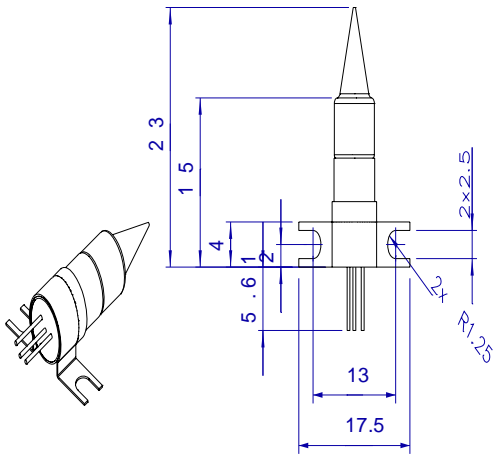


3 pin coaxial TO package with outer diameter 7.0±0.1mm

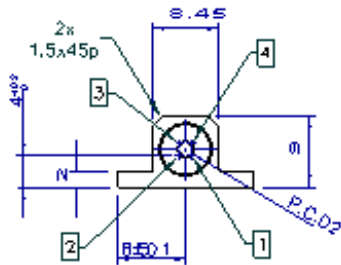


Bottom view

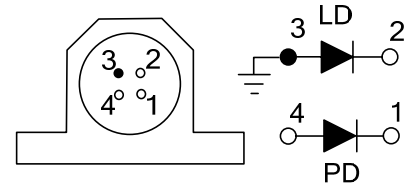
Pin	Signal
1	Anode
2	Cathode
3	Case



◆ Mechanical drawing

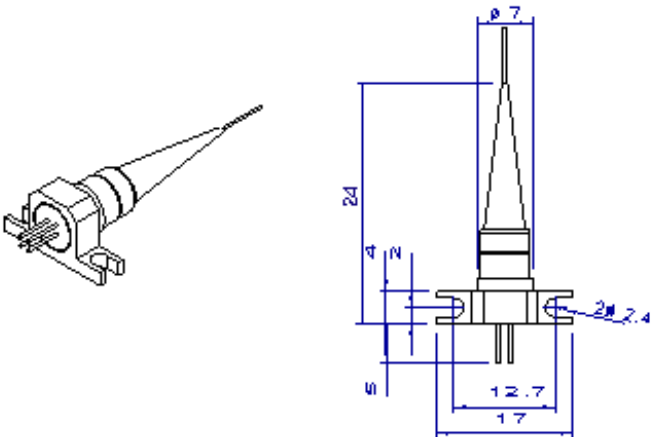


4 pin coaxial package with outer diameter 7.0±0.1mm



Bottom view

Pin	Signal
1	PD Cathode
2	LD Cathode
3	Case/LD Anode
4	PD Anode



Digital Fiber Optic Products

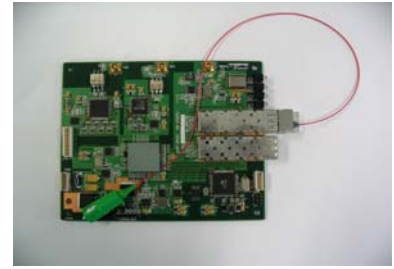
Digital Optic Fiber Board

◆ Feature

- Digital Signal ADD/Drop/Regeneration
- Low Noise & Low back reflection
- High sensitivity & High dynamic range
- Single 9V DC power operation
- 1310nm wavelength (DL), 1550nm wavelength (UL)
- Transmit over 30M Band X 4Channel
- Delay Adjustment

◆ Application

- Digital Optical Repeater systems
- RRH system
- CDMA / GSM / UMTS
- WiMAX / LTE



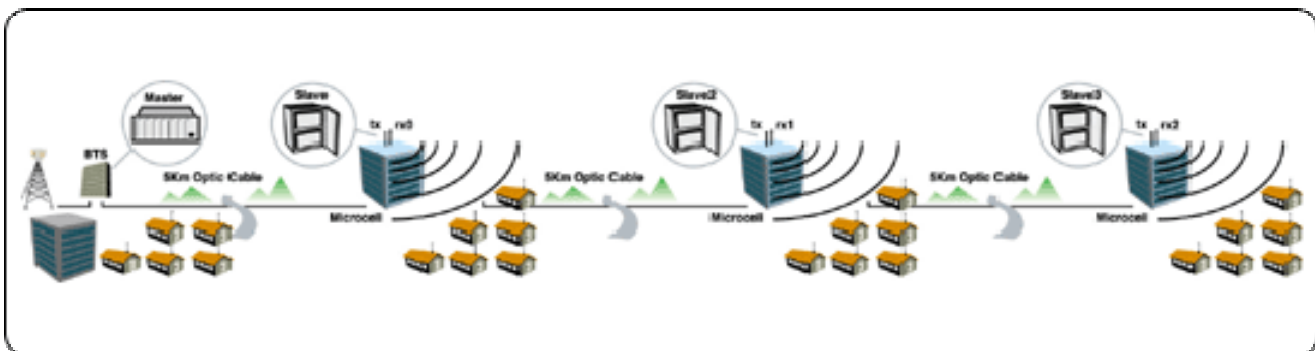
◆ Specification

Parameter	Condition		
	Min	Typ.	Max
Transceiver Characteristics (T=25°C)			
Optical output power	2mW	3mW	4 mW
Digital Loss	-	0	-
Transmission Distance	100Km	-	-
Transmission Capacity	-	2, 4, 8G	-
Reference	-	10MHz	-
ADC Resolution	-	14bit	-
DAC Resolution	-	14bit	-
SFP	-	-	-
Wavelength	DL	1300nm	1320nm
	UL	1540nm	1560nm
RF port VSWR	-	-	1.5:1
Supply	-	9V	-
Current Consumption	-	350 mA at 9V	-
	-	-	-

◆ Function

Digital Signal ADD/Drop/ Regeneration
Sector Selection
Digital NMS Function
Reference & TDD Synchronization Signal Transmission and Regeneration
Optic Branch Expansion (Cascade & Star Type)

◆ System application



Others

UTP Digital Transmission Board

◆ Feature

- Digital Signal ADD/Drop/Regeneration
- Low Noise & Low back reflection
- High sensitivity & High dynamic range
- Single 9V DC power operation
- PoE Transmission
- 1.2G bps for 150m Transmission
- Delay Adjustment

◆ Application

- Digital Optical Repeater systems
- Indoor System
- CDMA / GSM / UMTS
WiMAX / LTE



◆ Specification

Parameter	Condition		
	Min	Typ.	Max
Transceiver Characteristics (T=25 °C)			
Transmission Method	-	Gigabit UDP	-
Digital Loss	-	0	-
Transmission Distance	-	150m	-
Transmission Capacity	-	1.2G for UTP 1 Line	-
Reference	-	10MHz	-
ADC Resolution	-	12bit	-
DAC Resolution	-	12bit	-

◆ Function

Digital Signal ADD/Drop/ Regeneration
Sector Selection
Digital NMS Function
Reference & TDD Synchronization Signal Transmission and Regeneration

◆ System application

Optic Cable: —
UTP Cable: —

