

Mini-GBIC (SFP)

125Mbps, WDM1310~1550, Single Fiber Bi-directional

SFP,

ONU Transceiver

- Distance: 20km, 40km, 60km, 80km
- Standard Operating Temperature: -10°C ~ 70°C
- Wide Operating Temperature: -40°C ~ 85°C



OVERVIEW

Lantech 125Mbps Bi-directional (BiDi) Small Form Factor Pluggable (SFP) transceiver module series is specifically designed for the high performance integrated duplex data link over a single optical fiber. These transceiver modules are compliant with the SFP Multisource Agreement (MSA). With the hot pluggability, these modules offer an easy way to be installed into SFP MSA compliant ports at any time

without the interruption of the host equipments operating online.

Lantech 125Mbps BiDi SFP transceiver module series using a long wavelength FP or DFB laser diode and enable data transmission up to 80km on a single-mode (9/125μm) optical fiber.

FEATURES & BENEFITS

- 125~155Mbps bi-directional single-fiber link
- Single LC receptacle
- 1310~1550nm FP/DFB transmitter
- 1310~1550nm PIN receiver
- 20km to 80km point-to-point transmission
- SFP Multi-Source Agreement compliant
- Serial ID functionality support
- Class 1 laser safety standard IEC 60825 compliant
- Low power dissipation

SPECIFICATION

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Storage Temperature	Ts	-40	+85	°C	
Supply Voltage	Vcc	-0.5	4.0	V	
Storage Relative Humidity	RH	5	95	%	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	Tc	-10 / -40		70 / 85	°C	1
Supply Voltage	VccT VccR	3.1	3.3	3.5	V	
Supply Current	ITX + IRX		150	300	mA	

Datasheet Version 1.3

Notes: 1. Standard Operating Temperature / Wide Operating Temperature (-E model)

Transmitter Electro-Optical Interface

Parameter			Symbol	Min.	Typ.	Max.	Unit	Note
Transmitter Differential Input Voltage			TD +/-	400		2400	mV	
Tx Fault - High			VFault_H	2		VccT	V	
Tx Fault - Low			VFault_L	VeeT		VeeT+0.8	V	
Tx Disable - High			VDisable_H	2		VccT	V	
Tx Disable - Low			VDisable_L	VeeT		VeeT+0.8	V	
Optical Output Power	20km	WDM1310	Po	-14		-8	dBm	1
		WDM1550		-14		-8		
	40km	WDM1310		-8		0		
		WDM1550		-8		0		
	60km	WDM1310		-5		0		
		WDM1550		-5		0		
	80km	WDM1310		0		+5		
		WDM1550		0		+5		
Optical Extinction Ratio			ER	9			dB	
Center Wavelength	20km	WDM1310	λC	1260	1310	1360	nm	
		WDM1550		1480	1550	1580		
	40km	WDM1310		1260	1310	1360		
		WDM1550		1480	1550	1580		
	60km	WDM1310		1260	1310	1360		
		WDM1550		1480	1550	1580		
	80km	WDM1310		1260	1310	1360		
		WDM1550		1480	1550	1580		
Spectral Width	20km	WDM1310	Δλ			4	nm	
		WDM1550				3		
	40km	WDM1310				2.5		
		WDM1550				1		
	60km	WDM1310				2.5		
		WDM1550				1		
	80km	WDM1310				2.5		
		WDM1550				1		
Optical Rise / Fall Time			tr / tf			2	ns	

Notes: 1. Coupling into a 9/125 μ m single-mode fiber.

Receiver Electro-Optical Interface

Parameter			Symbol	Min.	Typ.	Max.	Unit	Note
Receiver Differential Output Voltage			RD +/-	400		2000	mV	
Receiver Overload	20km	WDM1310	PINMAX	-3				1
		WDM1550		-3				
	40km	WDM1310		0				
		WDM1550		0				
	60km	WDM1310		0				
		WDM1550		0				
	80km	WDM1310		0				2
		WDM1550		0				1
Receiver Sensitivity	20km	WDM1310	PINMIN			-32	dBm	1
		WDM1550				-34		
	40km	WDM1310				-34		
		WDM1550						
	60km	WDM1310						2
		WDM1550						1
	80km	WDM1310						
		WDM1550						
Operating Center Wavelength	20km	WDM1310	λc	1480		1580	nm	
		WDM1550		1260		1360		
	40km	WDM1310		1480		1580		
		WDM1550		1260		1360		
	60km	WDM1310		1480		1580		
		WDM1550		1260		1360		
	80km	WDM1310		1480		1580		
		WDM1550		1260		1360		
Return Loss			RL	12			dB	3
Receiver Loss of Signal - TTL Low	20km	WDM1310	PRX_LOSD			-32	dBm	
		WDM1550						
	40km	WDM1310				-34		
		WDM1550						
	60km	WDM1310				-34		
		WDM1550						
	80km	WDM1310				-34		
		WDM1550						
Receiver Loss of Signal - TTL High			PRX_LOSA	-45			dBm	

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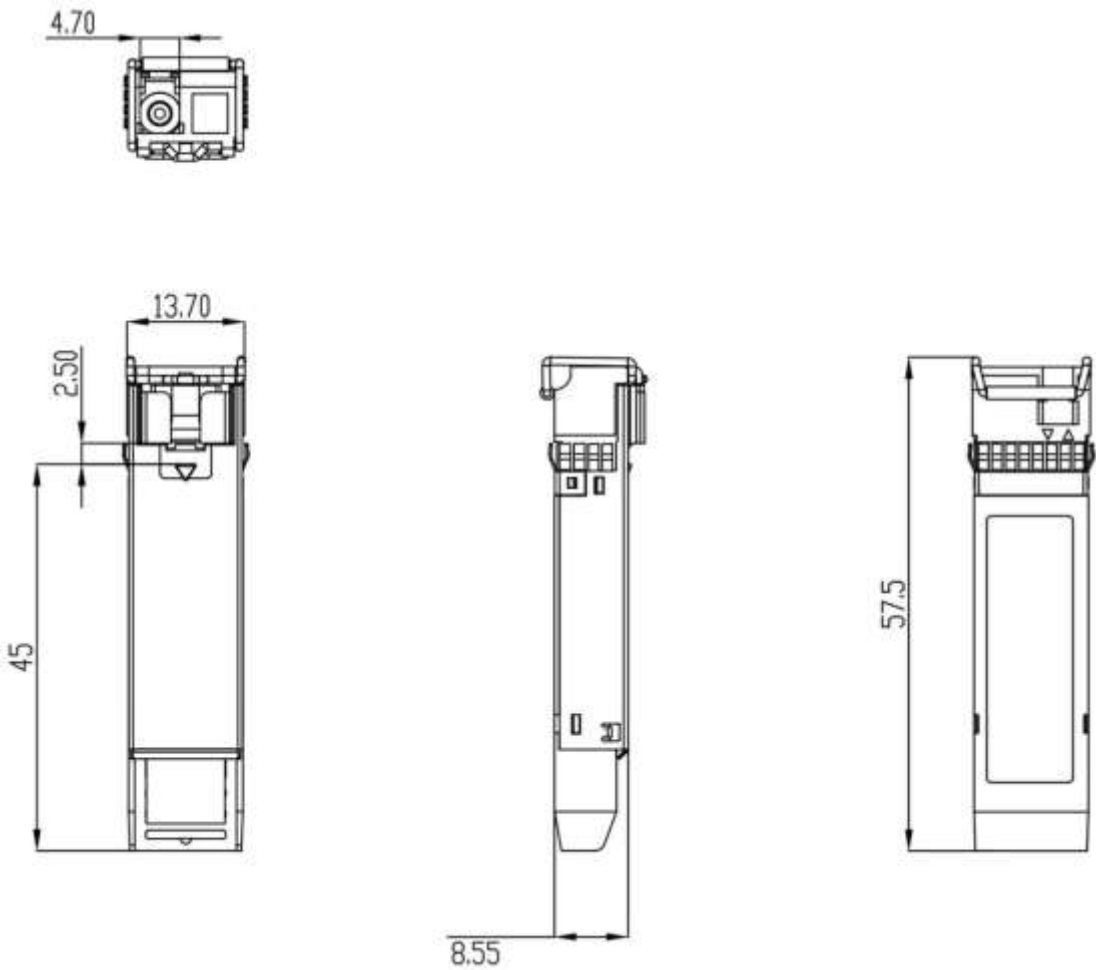
Receiver Loss of Signal - Hysteresis	PRX_LOSH	0.5				dB
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Notes: 1. With BER better than or equal to 1×10^{-10} , measured in the center of the eye opening with 125Mbps~155Mbps, PRBS $2^{23} - 1$
2. With BER better than or equal to 1×10^{-12} , measured in the center of the eye opening with 125Mbps~155Mbps, PRBS $2^7 - 1$
3. For 80km model, the return loss is 14 dB

MTBF

		60% Confidence Level, 25°C		90% Confidence Level, 25°C	
		MTBF	FIT	MTBF	FIT
20km	WDM1310	2532284	395	1012914	987
	WDM1550	2532284	395	1012914	987
40km	WDM1310	813526	1229	325410	3073
	WDM1550	813526	1229	325410	3073
60km	WDM1310	813526	1229	325410	3073
	WDM1550	813526	1229	325410	3073
80km	WDM1310	813526	1229	325410	3073
	WDM1550	813526	1229	325410	3073

DIMENSIONS (unit=mm)



*All dimensions are ± 0.2 mm unless otherwise specified

ORDERING INFORMATION

Part Number	TX	LD	RX	IO	LOS	Link	Mode	Temp.
8330-069D-V1	1310nm	FP	1550nm	AC/AC	TTL	20km	Single-mode	-10° ~70°C
8330-069DE-V1		FP				20km		-40° ~ 85°C
8330-080D-V1		FP				40km		-10° ~70°C
8330-080DE-V1		FP				40km		-40° ~ 85°C
8330-081D-V1		FP				60km		-10° ~70°C
8330-081DE-V1		FP				60km		-40° ~ 85°C
8330-084D-V1		FP				80km		-10° ~70°C
8330-084DE-V1		FP				80km		-40° ~ 85°C

Part Number	TX	LD	RX	IO	LOS	Link	Mode	Temp.
8330-068D-V1	1550nm	FP	1310nm	AC/AC	TTL	20km	Single-mode	-10° ~70°C
8330-068DE-V1		FP				20km		-40° ~ 85°C
8330-082D-V1		DFB				40km		-10° ~70°C
8330-082DE-V1		DFB				40km		-40° ~ 85°C
8330-083D-V1		DFB				60km		-10° ~70°C
8330-083DE-V1		DFB				60km		-40° ~ 85°C
8330-085D-V1		DFB				80km		-10° ~70°C
8330-085DE-V1		DFB				80km		-40° ~ 85°C

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