

E-PON OLT PX-30 Transceiver

FPP43-8SD3-HRA

Feature

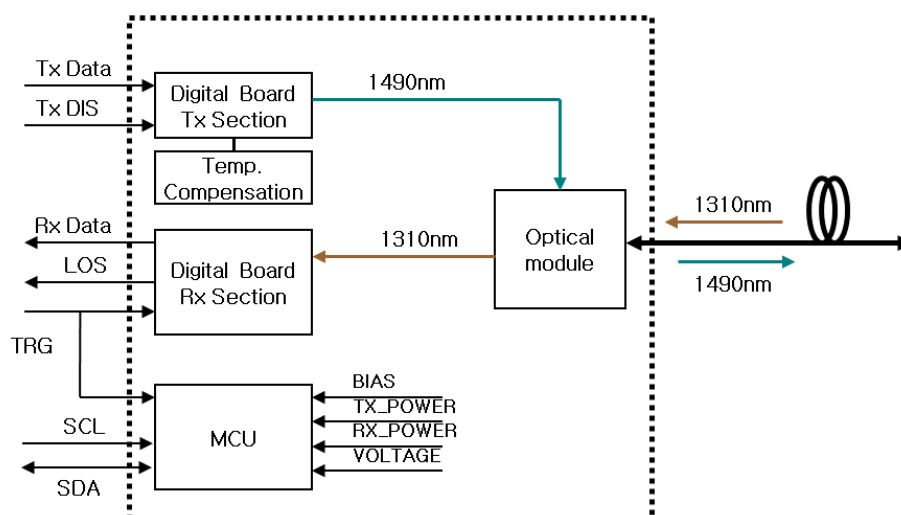
- High power E-PON OLT transceiver
- SFP Simplex SC/PC Receptacle type
- 1.25G downstream / 1.25G upstream
- Compliant with SFP MSA
- Ultra High power 1490nm DFB LD transmitter (Typical +6dBm).
- 1310nm burst-mode receiver with APD-TIA
- Optical isolator built in
- Single +3.3V Power Supply
- LVTTTL LOS Output
- LVTTTL transmitter disable control
- RSSI function
- Operating Temperature Range : 0 to 70°C



Application Note

Fully IEEE 802.3ah compliant

Block Diagram



1. Absolute Maximum Rating

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V _{cc}	0	3.6	V	
Soldering Temperature	-	-	260	°C	10 seconds on leads only
Storage Temperature	T _{stg}	-40	85	°C	

2. Recommended Operating Condition

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power Supply Voltage	V _{cc}	3.13	3.3	3.47	V
Operating Temperature	T _{op}	0		70	°C
Data Rate	-	-	1250	-	Mbps

3. Transmitter Specifications

(T_c=0~70°C, Unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Average Launched Power	P _o	5		8	dBm	
Average Launched Power-OFF				-39		
Emission Center Wavelength	λ _c	1480		1500	nm	DFB LD
Spectral Bandwidth	σ _λ	-	-	1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Extinction Ratio	ER	8.2			dB	PRBS2 ⁷ -1@1.25Gbps
Eye Diagram	Compliant with IEEE802.3ah					
Rise Time (20%-80%)	T _R	-	-	0.2	ns	
Fall Time (80%-20%)	T _F	-	-	0.2	ns	
Power Supply Current	I _{cc}		-	250	mA	
Input Different Impedance	Z _{IN}	80	100	120	Ω	
Tx Disable Voltage	V _{EN}	2	-	V _{CCT}	V	LVTTTL
Tx Enable Voltage	V _{DIS}	0	-	0.8	V	

Laser Failure Alarm Voltage-High		2.4	-	VCCT	V	LVTTTL
Laser Failure Alarm Voltage-Low	V _{DIS}	0	-	0.4	V	

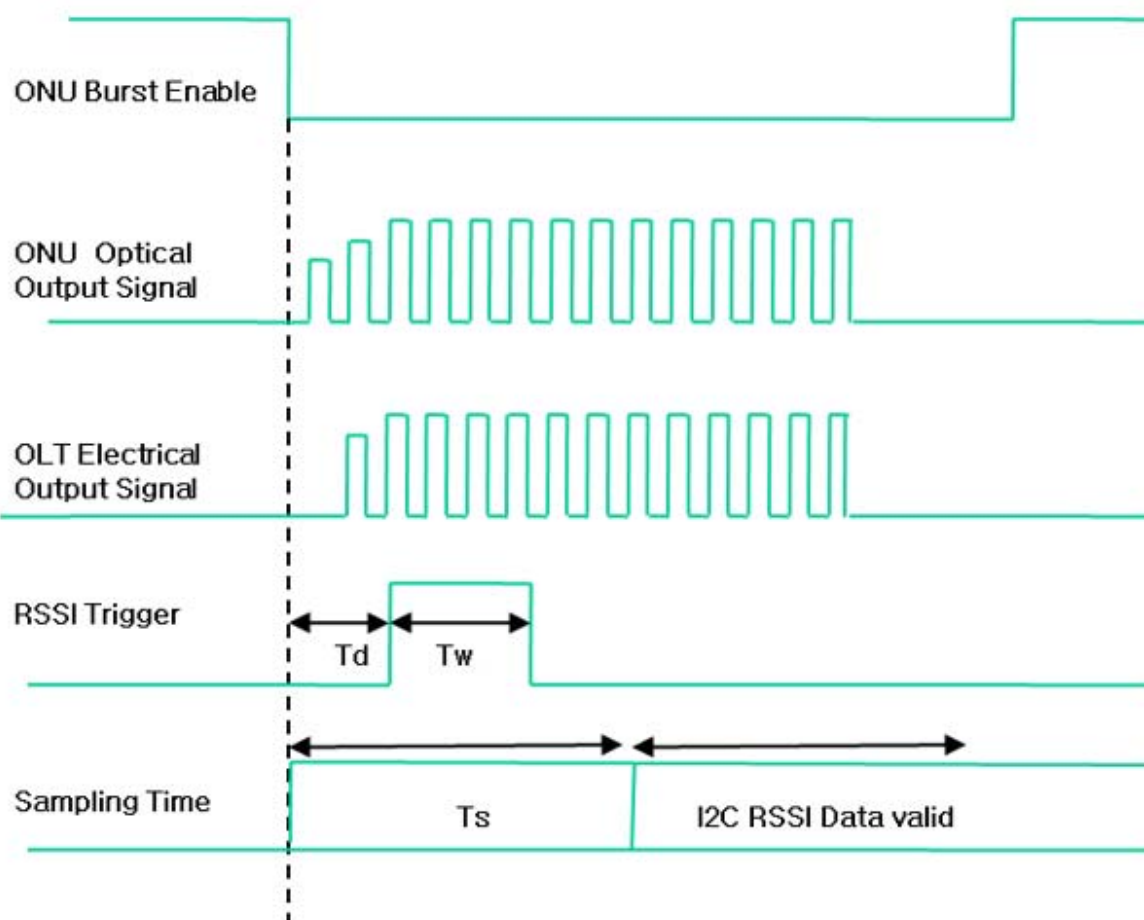
4. Receiver Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Receiving Wavelength	λ_R	1260		1360	nm	
Maximum Input Power	P _{in}	-6	-		dBm	
Sensitivity	P _s	-	-	-33	dBm	Note1
Loss of Signal Deassert Level	P _a	-	-	-34	dBm	
Loss of Signal Assert Level	P _d	-47	-	-	dBm	
LOS Hysteresis	-	0.5	-	6	dB	
Power Supply Current	I _{cc}	-	-	170	mA	
Signal Detected Voltage-Low	V _{SD_L}	0		0.4	V	LVTTTL
Signal Detected Voltage-High	V _{SD_H}	2.4		V _{cc}	V	

Note1 : Measured with a PRBS 2⁷-1 pattern@1250Mbps, ER=10dB, BER=10⁻¹²

5. Timing Characteristics for Digital RSSI

Parameter	Symbol	Min	Typical	Max	Unit
RSSI Trigger Delay	Td	2			us
RSSI Trigger width	Tw	2			us
Sampling Time	Ts	500			us



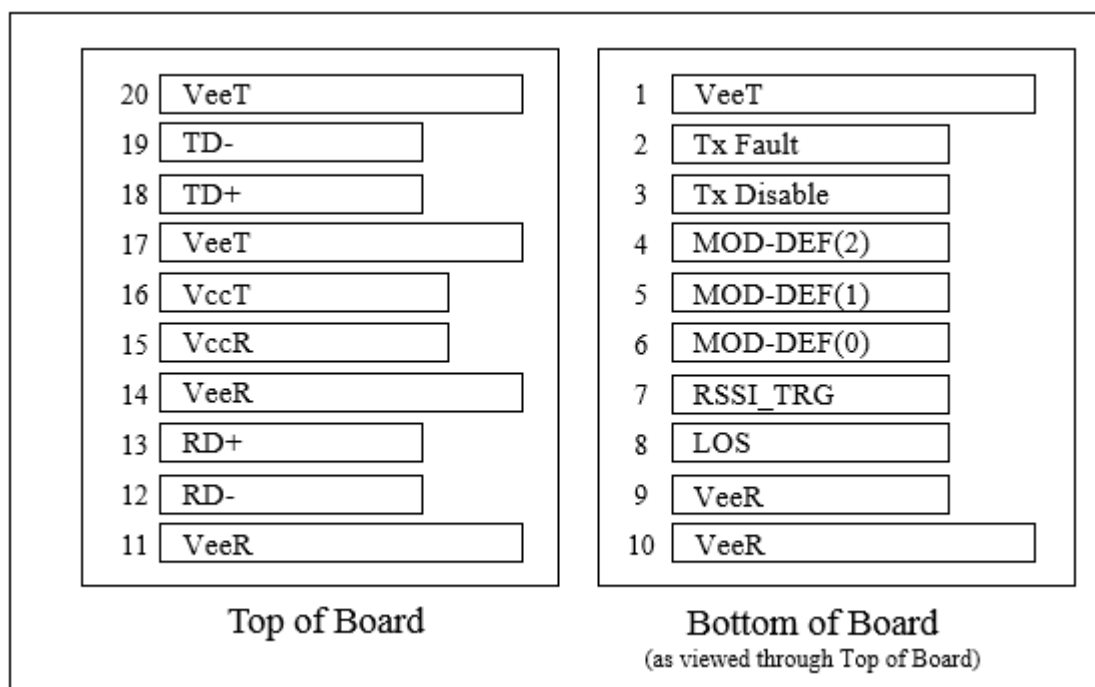
6. Serial ID : Data Fields-Address A0

Adr	Size	Name of Field	Hex	ASCII	Adr	Size	Name of Field	Hex	ASCII
0	1	Identifier	03		32	35	Vendor name	20	
1	1	Ext.Identifier	04		33			20	
2	1	Connector	01		34			20	
3	8	Transceiver	00		35			20	
4			00		36	1	Reserved	00	
5			00		37	3	Vendor OUI	00	
6			80		38			00	
7			00		39			00	
8			00		40	16	Vendor PN	46	F
9			01		41			50	P
10			00		42			50	P
11	1	Encoding	01		43			34	4
12	1	BR,Nominal	0D		44			33	3
13	1	Reserved	00		45			2D	-
14	1	Length(9um)-km	14		46			38	8
15	1	Length(9um)	00		47			53	S
16	1	Length(50um)	00		48			44	D
17	1	Length(62.5um)	00		49			32	3
18	1	Length(Copper)	00		50			2D	-
19	1	Reserved	00		51			4E	H
20	16	Vendor name	46	F	52			52	R
21			4F	O	53			41	A
22			54	T	54			20	
23			54	T	55			20	
24			55	U	56	4	Vendor Rev	00	
25			20		57			00	
26			49	I	58			00	
27			4E	N	59			00	

28			43	C	60	2	Wavelength	05	
29			20		61			D2	
30			20		62	1	Reserved	00	
31			20		63	1	CC_BASE	00	
Extended ID Fields									
Adr	Size	Name of Field	Hex	ASCII	Adr	Size	Name of Field	Hex	ASCII
64	2	Options	00		80	16	Vendor SN	00	
65			1A		81				
66	1	BR,max	00		82				
67	1	BR,min	00		83				
68	16	Vendor SN	00		84	8	Data code	00	
69					85				
70					86				
71					87				
72					88				
73					89				
74					90				
75					91				
76					92	1	Diagnostic Monitoring type	58	
77					93	1	Enhanced Options	B0	
78					94	1	SFF-8472Compliance	02	
79					95	1	CC-EXT	00	
Vendor Specific ID Fields									
96	32	Vendor Specific	00		112	32	Vendor Specific	00	
97			00		113			00	
98			00		114			00	
99			00		115			00	
100			00		116			00	
101			00		117			00	
102			00		118			00	

103			00		119			00	
104			00		120			00	
105			00		121			00	
106			00		122			00	
107			00		123			00	
108			00		124			00	
109			00		125			00	
110			00		126			00	
111			00		127			00	

7. Pin Function Definitions



Pin	Symbol	Function	Pin	Symbol	Function
1	VeeT	Transmitter Ground	11	VeeR	Receiver Ground
2	TX Fault	Transmitter Fault Indication	12	RD-	Inv. Receiver Data Out
3	TX Disable	Transmitter Disable	13	RD+	Receiver Data out
4	MOD-DEF2	Module Definition2	14	VeeR	Receiver Ground
5	MOD-DEF1	Module Definition1	15	VccR	Receiver Power
6	MOD-DEF0	Module Definition0	16	VccT	Transmitter Power
7	RSSI_TRG	RSSI Trigger	17	VeeT	Transmitter Ground
8	LOS	Loss of Signal	18	TD+	Transmit Data In
9	VeeR	Receiver Ground	19	TD-	Inv. Transmit Data In
10	VeeR	Receiver Ground	20	VeeT	Transmitter Ground

8. 2-Wire Address A2h, Alarm and Warning Threshold

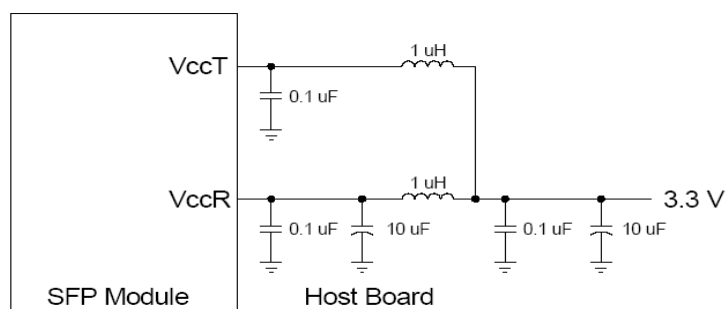
Address	Bytes	Name	Real Value
00-01	2	Temp High Alarm	85 °C
02-03	2	Temp Low Alarm	-5 °C
04-05	2	Temp High Warning	80 °C
06-07	2	Temp Low Warning	0 °C
08-09	2	Voltage High Alarm	3.6V
10-11	2	Voltage Low Alarm	3.0V
12-13	2	Voltage High Warning	3.47V
14-15	2	Voltage Low Warning	3.13V
16-17	2	Bias High Alarm	95
18-19	2	Bias Low Alarm	7
20-21	2	Bias High Warning	85
22-23	2	Bias Low Warning	8
24-25	2	Tx Power High Alarm	8
26-27	2	Tx Power Low Alarm	1
28-29	2	Tx Power High Warning	7
30-31	2	Tx Power Low Warning	2
32-33	2	Rx Power High Alarm	-7
34-35	2	Rx Power Low Alarm	-34

36-37	2	Rx Power High Warning	-8
38-39	2	Rx Power Low Warning	-33

9. Monitoring Specification

Parameter	Range	Accuracy	Calibration
Temperature	0 to 70 °C	±3 °C	Internal
Voltage	3.0 to 3.6V	±3%	Internal
Bias Current	7 to 90mA	±10%	Internal
Tx Power	5 to 8dBm	±3dB	Internal
Rx Power	-8 to -33dBm	±3dB	External

10. Power Supply Information

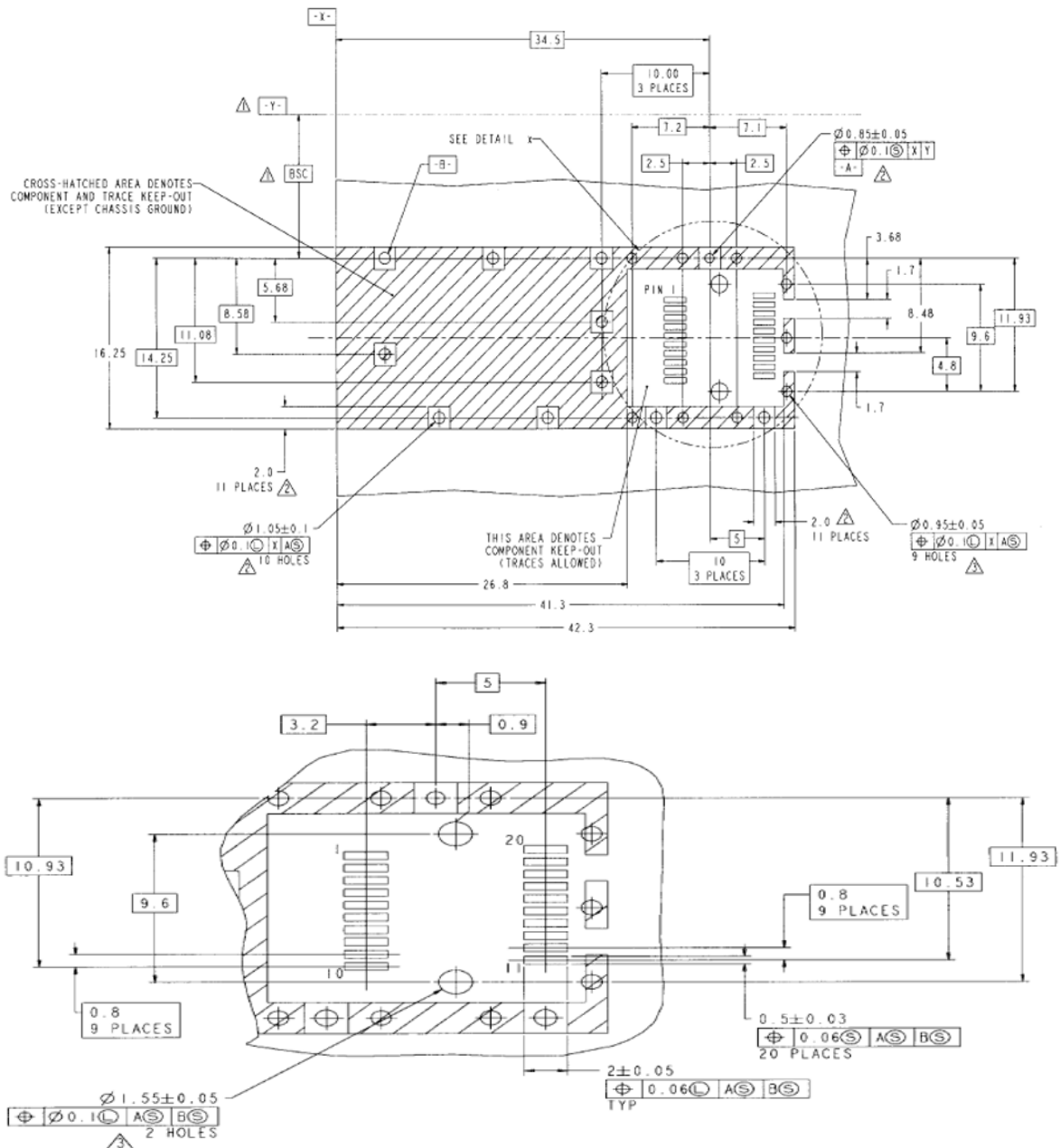


[Recommended Host Board Supply Filtering Network]

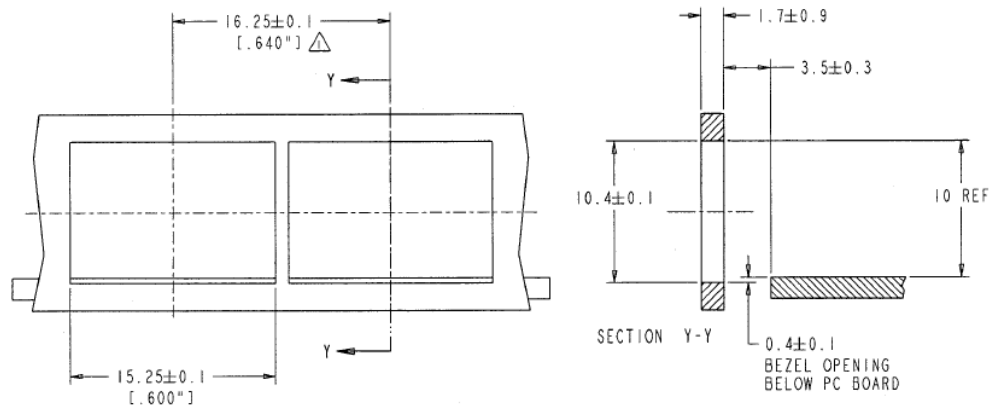
11. Host PCB Layout

Unit of dimension is millimeter.

- Notes : 1. Datum and basic dimensions established by customer
 2. Pads and vias are chassis ground, 11 places
 3. Thru holes plating optional



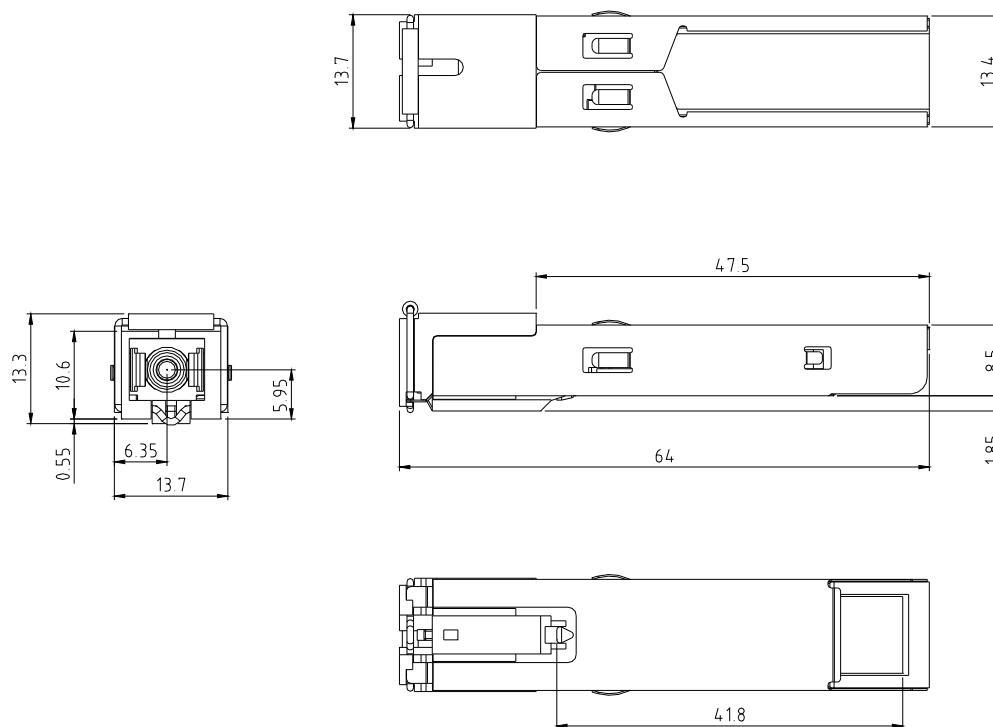
12. Bezel Design for Systems Using SFP Transceivers



[Panel Opening]

13. Module Outline Drawing

Dimensions are in millimeters
 $x.x \pm 0.05$ mm , unless otherwise specified



14. Ordering Information

FPP43-8SD3-HRA

FPP	XX	-	8	S	XX	-	NR	A	Latch Color
SFP	43:Tx 1490nm		1250Mbps	SC	D3:30km		High power	A:0~70℃	Black
PON	Rx 1310nm						RSSI		

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