

## SFP-2-5GB-DW30-160-AV-C

ADVA® Compatible TAA 2.5GBase-DWDM SFP Transceiver C-Band 100GHz (SMF, 1553.33nm, 160km, LC, DOM)

### Features:

- INF-8074 and SFF-8472 Compliance
- Duplex LC Connector
- Single-mode Fiber
- Commercial Temperature 0 to 70 Celsius
- Hot Pluggable
- Metal with Lower EMI
- Excellent ESD Protection
- RoHS Compliant and Lead Free



### Applications:

- Gigabit Ethernet over DWDM
- 1x Fibre Channel
- Access, Metro and Enterprise

### Product Description

This ADVA® compatible SFP transceiver provides 2.5GBase-DWDM throughput up to 160km over single-mode fiber (SMF) using a wavelength of 1553.33nm via an LC connector. Our transceiver is built to meet or exceed OEM specifications and is guaranteed to be 100% compatible with ADVA®. It has been programmed, uniquely serialized, and tested for data-traffic and application to ensure that it will initialize and perform identically. All of our transceivers comply with Multi-Source Agreement (MSA) standards to provide seamless network integration. Additional product features include Digital Optical Monitoring (DOM) support which allows access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

ProLabs' transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S.-made or designated country end products.")



### SFP+ Channel Number and Wavelength

Channel	Frequency	Center Wavelength (nm)	Channel	Frequency (THz)	Center Wavelength (nm)
0	190.0	1577.86	50	195.0	1537.40
1	190.1	1577.03	51	195.1	1536.61
2	190.2	1576.20	52	195.2	1535.82
3	190.3	1575.37	53	195.3	1535.04
4	190.4	1574.54	54	195.4	1534.25
5	190.5	1573.71	55	195.5	1533.47
6	190.6	1572.89	56	195.6	1532.68
7	190.7	1572.06	57	195.7	1531.90
8	190.8	1571.24	58	195.8	1531.12
9	190.9	1570.42	59	195.9	1530.33
10	191.0	1569.59	60	196.0	1529.55
11	191.1	1568.77	61	196.1	1528.77
12	191.2	1567.95	62	186.2	1610.06
13	191.3	1567.13	63	186.3	1609.19
14	191.4	1566.31	64	186.4	1608.33
15	191.5	1565.50	65	186.5	1607.47
16	191.6	1564.68	66	186.6	1606.60
17	191.7	1563.86	67	186.7	1605.74
18	191.8	1563.05	68	186.8	1604.88
19	191.9	1562.23	69	186.9	1604.03
20	192.0	1561.42	70	187.0	1603.17
21	192.1	1560.61	71	187.1	1602.31
22	192.2	1559.79	72	187.2	1601.46
23	192.3	1558.98	73	187.3	1600.60
24	192.4	1558.17	74	187.4	1599.75
25	192.5	1557.36	75	187.5	1598.89
26	192.6	1556.55	76	187.6	1598.04
27	192.7	1555.75	77	187.7	1597.19
28	192.8	1554.94	78	187.8	1596.34
29	192.9	1554.13	79	187.9	1595.49
30	193.0	1553.33	80	188.0	1594.64
31	193.1	1552.52	81	188.1	1593.79
32	193.2	1551.72	82	188.2	1592.95
33	193.3	1550.92	83	188.3	1592.10
34	193.4	1550.12	84	188.4	1591.26
35	193.5	1549.32	85	188.5	1590.41
36	193.6	1548.51	86	188.6	1589.57
37	193.7	1547.72	87	188.7	1588.73
38	193.8	1546.92	88	188.8	1587.88
39	193.9	1546.12	89	188.9	1587.04
40	194.0	1545.32	90	189.0	1586.20

41	194.1	1544.53	91	189.1	1585.36
42	194.2	1543.73	92	189.2	1584.53
43	194.3	1542.94	93	189.3	1583.69
44	194.4	1542.14	94	189.4	1582.85
45	194.5	1541.35	95	189.5	1582.02
46	194.6	1540.56	96	189.6	1581.18
47	194.7	1539.77	97	189.7	1580.35
48	194.8	1538.98	98	189.8	1579.52
49	194.9	1538.19	99	189.9	1578.69

#### Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Maximum Supply Voltage	Vcc	-0.5		3.6	V
Storage Temperature	Tstg	-40		85	°C
Operating Case Temperature	Tc	0		70	°C
Operating Humidity	RH			95	%
Data Rate	GBE		1.25		Gbps
	FC		1.063		

#### Electrical Characteristics

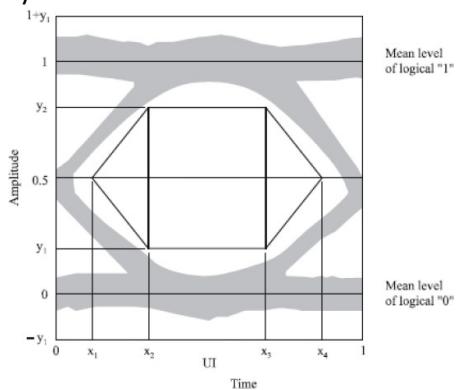
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Supply Voltage	Vcc	3.15	3.3	3.45	V	
Power Supply Current	Icc			450	mA	
Transmitter						
CML Differential Inputs	VIN	400		1600	mVp-p	AC Coupled Inputs
Input Differential Impedance	ZIN	85	100	115	Ω	RIN>100kΩ @ DC
Tx_Disable	Disable	2		Vcc	V	
	Enable	0		0.8		
Tx_Fault	Fault	2		Vcc	V	
	Normal	0		0.8		
Receiver						
CML Differential Outputs	VOUT	400	800	1200	mVp-p	AC Coupled Outputs
Output Impedance	ZOUT	85	100	115	Ω	
Rx_LOS	LOS	2		Vcc	V	
	Normal	0		0.8		
MOD-DEF (0:2)		VOH	2.5		V	
		VOL	0	0.8	V	

## Optical Characteristics

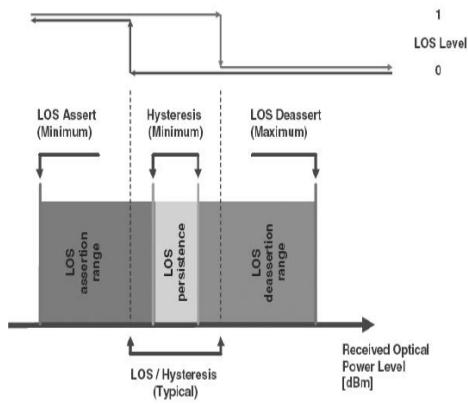
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmitter</b>						
<b>Optical Center Wavelength</b>	$\lambda_C$	1528		1610	nm	
<b>Spectral Width (-20dB)</b>	$\Delta\lambda$			0.3	nm	
<b>Side-Mode Suppression Ratio</b>	SMSR	30			dB	
<b>Channel Spacing</b>	$\Delta f$		100		GHz	
<b>Deviation From Central Frequency @ EOL</b>		-12		12	GHz	
<b>Average Output Power</b>	POUT	2		5	dBm	1
<b>Average Launch Power (Tx Off)</b>	Poff			-45	dBm	
<b>Extinction Ratio</b>	ER	8.2			dB	1
<b>Rise/Fall Time (20-80%)</b>	Tr/Tf			150	ps	
<b>Tx_Disable Assert Time</b>	Toff			10	us	
<b>POUT @ Tx_Disable Asserted</b>	POUT			-45	dBm	
<b>Optical Signal Noise Ratio @ 0.1nm</b>	OSNR		40		dB	3
<b>Relative Intensity Noise</b>	RIN			-135	dB/Hz	
<b>Dispersion Tolerance</b>	DT		2400		Ps/nm	
<b>Output Optical Eye</b>	Compatible with IEEE 802.3					1, 4
<b>Receiver</b>						
<b>Optical Input Wavelength</b>	$\lambda$	1528		1620	nm	
<b>Receiver Sensitivity</b>	Pmin			-31	dBm	2
<b>Receiver Overload</b>	Pmax	-9			dBm	
<b>LOS De-Assert</b>	LOSD			-32	dBm	
<b>LOS Assert</b>	LOSA	-45			dBm	
<b>LOS Hysteresis</b>			0.5		dB	5

### Notes:

1. Filtered. Measured with a PRBS 2<sup>23</sup>-1 test pattern at 2.5Gbps.
2. Measured with a PRBS 2<sup>23</sup>-1 test pattern at 2.5Gbps, G.652 SMF, and BER  $\leq 1 \times 10^{-12}$ .
3. OSNR at BER of 10e-12.
4. Eye Pattern Mask.



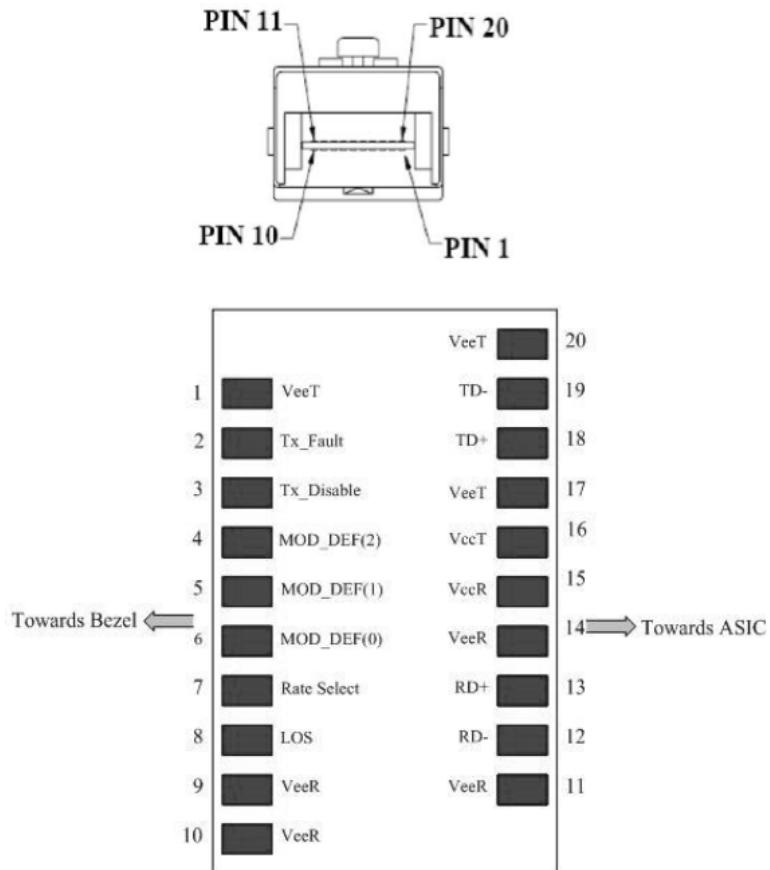
## 5. LOS Hysteresis.



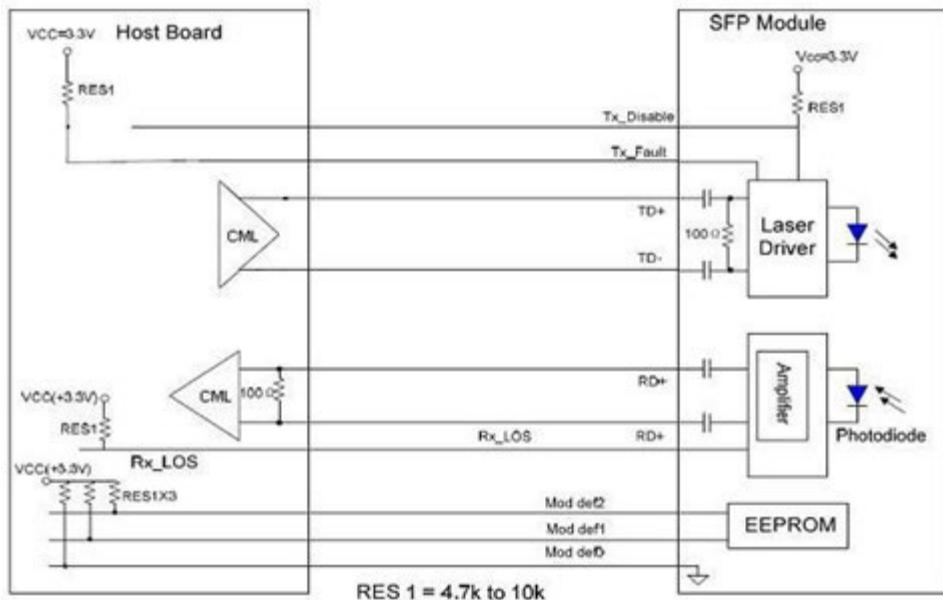
## Pin Descriptions

Pin	Symbol	Name/Description	Note
1	VeeT	Transmitter Ground.	
2	Tx_Fault	Transmitter Fault Indication. Open Collector/Drain Output.	
3	Tx_Disable	Transmitter Disable.	
4	MOD-DEF2	Module Definition 2. 2-Wire Serial Interface Data.	
5	MOD-DEF1	Module Definition 1. 2-Wire Serial Interface Clock.	
6	MOD-DEF0	Module Definition 0. Grounded within the module.	
7	Rate Select	Rate Select 0. Not Used.	
8	LOS	Loss of Signal. Open Collector/Drain Output.	
9	VeeR	Receiver Ground.	
10	VeeR	Receiver Ground.	
11	VeeR	Receiver Ground.	
12	RD-	Inverted Receiver Data Out.	
13	RD+	Received Data Out.	
14	VeeR	Receiver Ground.	
15	VccR	Receiver Power. $3.3 \pm 5\%$ .	
16	VccT	Transmitter Power. $3.3 \pm 5\%$ .	
17	VeeT	Transmitter Ground.	
18	TD+	Transmitter Data In.	
19	TD-	Inverted Transmit Data In.	
20	VeeT	Transmitter Ground.	

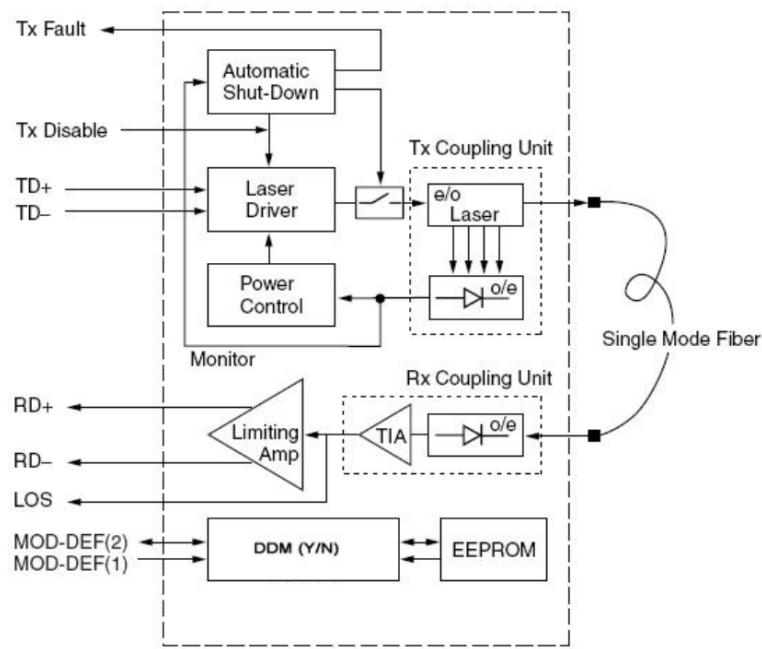
## Electrical Pad Layout



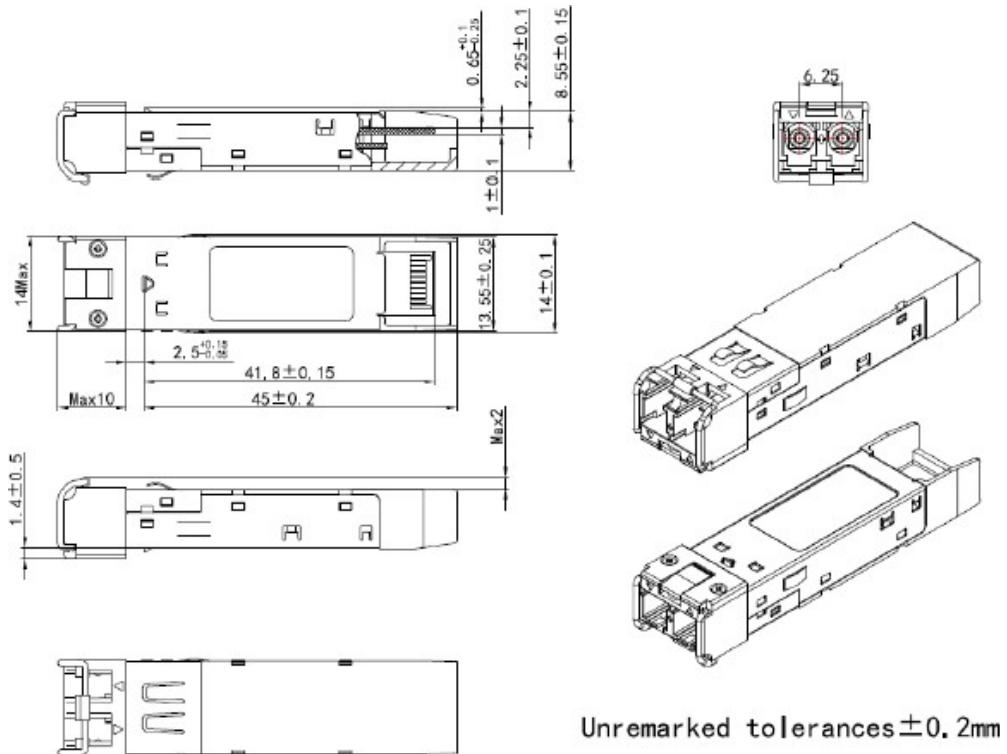
## Recommended Circuit Schematic



## Functional Description of Transceiver

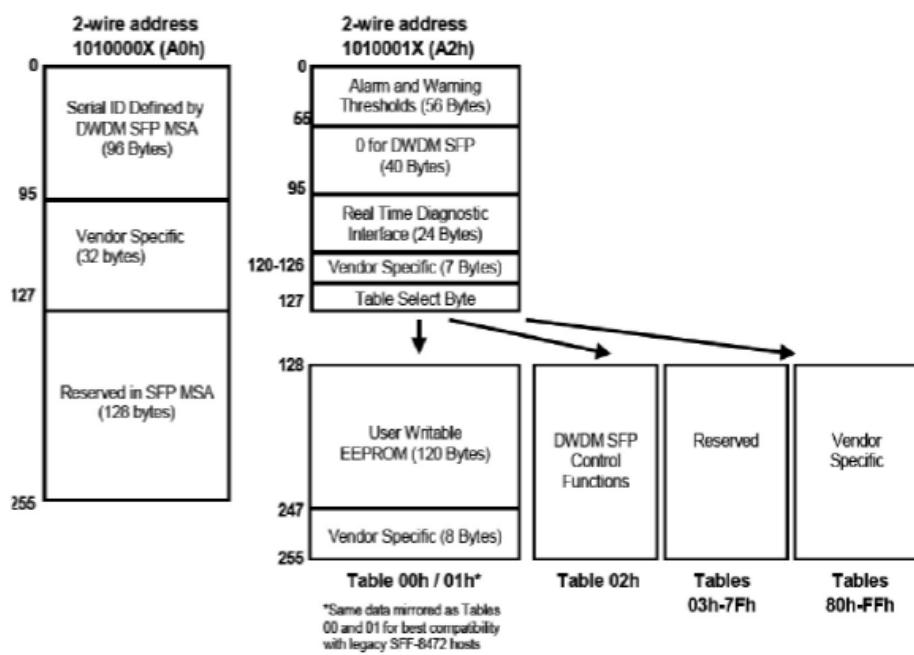


## Mechanical Specifications



## EEPROM Information

EEPROM memory map-specific data field description is as below:



## About ProLabs

Our experience comes as standard; for over 15 years ProLabs has delivered optical connectivity solutions that give our customers freedom and choice through our ability to provide seamless interoperability. At the heart of our company is the ability to provide state-of-the-art optical transport and connectivity solutions that are compatible with over 90 optical switching and transport platforms.

## Complete Portfolio of Network Solutions

ProLabs is focused on innovations in optical transport and connectivity. The combination of our knowledge of optics and networking equipment enables ProLabs to be your single source for optical transport and connectivity solutions from 100Mb to 400G while providing innovative solutions that increase network efficiency. We provide the optical connectivity expertise that is compatible with and enhances your switching and transport equipment.

## Trusted Partner

Customer service is our number one value. ProLabs has invested in people, labs and manufacturing capacity to ensure that you get immediate answers to your questions and compatible product when needed. With Engineering and Manufacturing offices in the U.K. and U.S. augmented by field offices throughout the U.S., U.K. and Asia, ProLabs is able to be our customers best advocate 24 hours a day.



## Contact Information

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