

# SFP-Dxx-80-48D

## 100M-2.7G, SFP, LR-2, SMF TRANSCEIVER

### 1528.77-1563.86nm, 80km REACH, DUPLEX LC CONNECTOR

#### Product Features

- Up to 1.25Gb/s data links
- DWDM DML laser transmitter and PIN photo-detector.
- 100 GHz ITU channel spacing with integrated wavelength locker.
- Up to 80km on 9/125um SMF
- Hot-pluggable SFP footprint
- Duplex LC/UPC type pluggable optical interface.
- Low power dissipation
- RoHS-10 compliant and lead-free
- Support Digital Monitoring interface.
- Single +3.3V power supply
- Compliant with SFF-8472
- Metal enclosure, for lower EMI
- Meet ESD requirements.
- Case operating temperature:
  - Commercial: 0 ~ +70°C
  - Industrial: -40 ~ +85°C



#### Product Applications

- 1000BASE-ZR & 1G Ethernet
- OTN / FC / CPRI
- Other Optical Links

#### I. Maximum Ratings

Exceeding the limits below may damage the transceiver module permanently.

Parameter	Symbol	Min.	Typ.	Max.	Units
Power Supply Voltage	V <sub>cc</sub>	-0.5		3.6	V
Storage Temperature	T <sub>S</sub>	-40		85	°C
Relative Humidity	RH	5		95	%
Damage Threshold	TH <sub>d</sub>	5			dBm

## II. Operating Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Operating Case Temperature	T <sub>OP</sub>	0		+70	°C	Commercial
		-40		+85		Industrial
Power Supply Voltage	V <sub>CC</sub>	3.135	3.3	3.465	V	
Data Rate			1.25		Gb/s	
Control Input Voltage HIGH		2		V <sub>CC</sub>	V	
Control Input Voltage LOW		0		0.8	V	
Link Distance (SMF)	D			80	km	9/125um

## III. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmitter</b>						
Optical Wavelength	$\lambda_c$	1528.77~1563.86 (peak, Ch:17-61)			nm	1
Center Wavelength Spacing			100		GHz	
Spectrum Bandwidth (RMS)	$\sigma$			1	nm	
Side Mode Suppression Ratio	SMSR	30			dB	
Average Optical Power	P <sub>AVG</sub>	0		4	dBm	2
Optical Extinction Ratio	ER	9			dB	
Transmitter OFF Output Power	POff			-45	dBm	
Transmitter Eye Mask		Compliant with 802.3z(class 1 laser safety)				
<b>Receiver</b>						
Center Wavelength	$\lambda_c$	1270		1610	nm	
Receiver Sensitivity (Average Power)	Sen.			-26	dBm	3
Input Saturation Power (overload)	Psat	-3			dBm	
LOS Assert	LOS A	-36			dB	4
LOS De-assert	LOS D			-27	dBm	4
LOS Hysteresis	LOS H	0.5			dBm	

### Notes:

- 100GHz spacing; DWDM ITU Grid channel selection from 1528.77~1563.86 (peak, Ch:17-61)
- Measure at 2<sup>7</sup>-1 NRZ PRBS pattern.
- Measured with Light source 1563.86~1528.77nm, ER=9dB; BER≤1E-12 @PRBS=2<sup>7</sup>-1 NRZ.
- When LOS de-asserted, the RX data+/- output is High-level (fixed).

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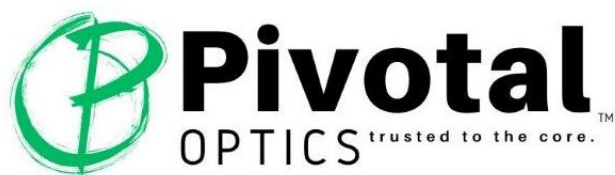
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**IV. Electrical Characteristics**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Power Consumption	P			1.0	W	Commercial
				1.5		Industrial
Supply Current	Icc			300	mA	Commercial
				450		Industrial
<b>Transmitter</b>						
Single-ended Input Voltage Tolerance	Vcc	-0.3		4.0	V	
Differential Input Voltage Swing	Vin,pp	200		2400	mVpp	
Differential Input Impedance	Zin	90	100	110	Ohm	
Transmit Disable Assert Time				5	Us	
Transmit Disable Voltage	Vdis	Vcc-1.3		Vcc	V	
Transmit Enable Voltage	Ven	Vee-0.3		0.8	V	
<b>Receiver</b>						
Differential Output Voltage Swing	Vout,pp	500		900	mVpp	
Differential Output Impedance	Zout	90	100	110	Ohm	
Data output rise/fall time	Tr/Tf		100		Ps	20% - 80%
LOS Assert Voltage	VloSH	Vcc-1.3		Vcc	V	
LOS De-Assert Voltage	VloSL	Vee-0.3		0.8	V	

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## V. Ordering Information

Pivotal Part Number	Description
<b>SFP-Dxx-80-48D</b>	SFP, DWDM, LR-2 SMF 80km, 100M-2.7G DDM, C-Temp
<b>SFP-Dxx-80-48DI</b>	SFP, DWDM, LR-2 SMF 80km, 100M-2.7G DDM, I-Temp

### Notes:

1. Please contact sales for specific OEM Platform part numbers to fit your network.

Channel #	Frequency GHz	Wavelength nm	Part # D(xx)	Channel #	Frequency GHz	Wavelength nm	Part # D(xx)
17	191700	1563.86	<b>D17</b>	40	194000	1545.32	<b>D40</b>
18	191800	1563.05	<b>D18</b>	41	194100	1544.53	<b>D41</b>
19	191900	1562.23	<b>D19</b>	42	194200	1543.73	<b>D42</b>
20	192000	1561.42	<b>D20</b>	43	194300	1542.94	<b>D43</b>
21	192100	1560.61	<b>D21</b>	44	194400	1542.14	<b>D44</b>
22	192200	1559.79	<b>D22</b>	45	194500	1541.35	<b>D45</b>
23	192300	1558.98	<b>D23</b>	46	194600	1540.56	<b>D46</b>
24	192400	1558.17	<b>D24</b>	47	194700	1539.77	<b>D47</b>
25	192500	1557.36	<b>D25</b>	48	194800	1538.98	<b>D48</b>
26	192600	1556.56	<b>D26</b>	49	194900	1538.19	<b>D49</b>
27	192700	1555.75	<b>D27</b>	50	195000	1537.4	<b>D50</b>
28	192800	1554.94	<b>D28</b>	51	195100	1536.61	<b>D51</b>
29	192900	1554.13	<b>D29</b>	52	195200	1535.82	<b>D52</b>
30	193000	1553.33	<b>D30</b>	53	195300	1535.04	<b>D53</b>
31	193100	1552.52	<b>D31</b>	54	195400	1534.25	<b>D54</b>
32	193200	1551.72	<b>D32</b>	55	195500	1533.47	<b>D55</b>
33	193300	1550.92	<b>D33</b>	56	195600	1532.68	<b>D56</b>
34	193400	1550.12	<b>D34</b>	57	195700	1531.9	<b>D57</b>
35	193500	1549.32	<b>D35</b>	58	195800	1531.12	<b>D58</b>
36	193600	1548.52	<b>D36</b>	59	195900	1530.33	<b>D59</b>
37	193700	1547.72	<b>D37</b>	60	196000	1529.55	<b>D60</b>
38	193800	1546.92	<b>D38</b>	61	196100	1528.77	<b>D61</b>
39	193900	1546.12	<b>D39</b>				

Non-ITU: Peak wavelength between 1563.86-1528.77nm [Channel: 17-61]

### Warranty

<https://pivotaloptics.com/warranty/>

### Disclaimer

External physical characteristics are subject to variation. This may include, but is not limited to, external case designs, pull tab colors and/or shapes, removal latch styles or colors, and label sizes and placement. These variations do not affect the function or characteristics of the transceivers.