



## XFC27B14100DFD8

ADVA® 1061701842-01-CW27 Compatible 10GBase-CWDM XFP Transceiver (SMF, 1270nm, 40km, LC, DOM)

### Product Description

This ADVA® 1061701842-01-CW27 compatible XFP transceiver provides 10GBase-CWDM throughput up to 40km over single-mode fiber (SMF) using a wavelength of 1270nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent ADVA® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

Skylane's transceivers are RoHS compliant and lead-free.

### Features:

- INF-8077i Compliance
- Duplex LC Connector
- Commercial Temperature 0 to 70 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



### Applications:

- 10x Gigabit Ethernet over CWDM
- Access, Metro and Enterprise
- 8x/10x Fibre Channel
- Mobile Fronthaul CPRI/OBSAI

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*For your product safety, please read the following information carefully before any manipulation of the transceiver:*



#### ESD

This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 / JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



#### LASER SAFETY

This is a Class1 Laser Product according to IEC 60825-1:2007. This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).

*The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination.*

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## Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883G Method 3015.7
- ESD to the LC Receptacle: compatible with IEC 61000-4-3
- EMI/EMC compatible with FCC Part 15 Subpart B Rules, EN55022:2010
- Laser Eye Safety compatible with FDA 21CFR, EN60950-1& EN (IEC) 60825-1,2
- RoHS compliant with EU RoHS 2.0 directive 2015/863/EU

## CWDM Wavelength

| Band            | Channels | Wavelength |      |        |
|-----------------|----------|------------|------|--------|
|                 |          | Min.       | Typ. | Max.   |
| O-Band          | 27       | 1264       | 1270 | 1277.5 |
|                 | 29       | 1284       | 1290 | 1297.5 |
|                 | 31       | 1304       | 1310 | 1317.5 |
|                 | 33       | 1324       | 1330 | 1337.5 |
|                 | 35       | 1344       | 1350 | 1357.5 |
| E-Band Extended | 37       | 1364       | 1370 | 1377.5 |
|                 | 39       | 1384       | 1390 | 1397.5 |
|                 | 41       | 1404       | 1410 | 1417.5 |
|                 | 43       | 1424       | 1430 | 1437.5 |
|                 | 45       | 1444       | 1450 | 1457.5 |

## Absolute Maximum Ratings

| Parameter                   | Symbol | Min  | Max | Unit |
|-----------------------------|--------|------|-----|------|
| Storage Temperature         | TS     | -40  | +85 | °C   |
| Maximum Supply Voltage      | VCC    | -0.5 | 3.6 | V    |
| Operating Relative Humidity |        |      | 95  | %    |
| Operating Case Temperature  | Tc     | 0    | +70 | °C   |

\*Exceeding any one of these values may destroy the device immediately

## Electrical Characteristics

| Parameter                      | Symbol     | Min.      | Typ. | Max.     | Unit | Notes |
|--------------------------------|------------|-----------|------|----------|------|-------|
| Power Supply Voltage           | Vcc        | 3.15      | 3.3  | 3.45     | V    |       |
| Power Supply Current           | Icc        |           |      | 750      | mA   |       |
| Transmitter                    |            |           |      |          |      |       |
| Input differential Impedance   | Rin        |           | 100  |          |      |       |
| Differential data input        | Vin,pp     | 120       |      | 820      | mV   | 1     |
| Transmit Disable Voltage       | VD         | 2.0       |      | Vcc      | V    |       |
| Transmit Enable Voltage        | VEN        | GND       |      | GND +0.8 | V    |       |
| Transmit Disable Assert Time   |            |           |      | 10       | us   |       |
| Receiver                       |            |           |      |          |      |       |
| Differential data output swing | Vout,pp    | 340       | 650  | 850      | mV   | 1     |
| RX Rise time (20-80%)          | tr         |           |      | 38       | ps   |       |
| RX Fall time (20-80%)          | tf         |           |      | 38       | ps   |       |
| LOS Fault                      | VLOS fault | Vcc – 0.5 |      | VccHOST  | V    | 2     |
| LOS Normal                     | VLOS norm  | GND       |      | GND+0.5  |      | 2     |

### Notes:

1. After internal AC coupling
2. Loss of signal is open collector to be pulled up to with a 4.7k-10kohm resistor to 3.15-3.6V. Logic 0 indicates normal operation; logic 1 indicates no signal detected.

## Optical Characteristics

| Parameter                             | Symbol           | Min.            | Typ.        | Max.              | Unit | Notes |
|---------------------------------------|------------------|-----------------|-------------|-------------------|------|-------|
| Power Budget                          | PB               |                 | 14          |                   | dB   |       |
| Data Rate                             |                  |                 | 10.3125     |                   | Gbps |       |
| Transmitter                           |                  |                 |             |                   |      |       |
| Center Wavelength                     | $\lambda_C$      | $\lambda_{C-6}$ | $\lambda_C$ | $\lambda_{C-7.5}$ | nm   |       |
| Spectral Width (-20dB)                | $\Delta\lambda$  |                 |             | 1                 | nm   |       |
| Side Mode Suppression Ratio           | SMSR             | 30              |             |                   | dB   |       |
| Average Output Power                  | P <sub>out</sub> | -1              |             | 4                 | dBm  | 3     |
| Extinction Ratio                      | ER               | 3.5             |             |                   | dB   |       |
| P <sub>out</sub> @TX Disable Asserted | P <sub>out</sub> |                 |             | -30               | dBm  |       |
| Receiver                              |                  |                 |             |                   |      |       |
| Center Wavelength                     | $\lambda_C$      | 1260            |             | 1600              | nm   |       |
| Receiver Sensitivity                  | P <sub>min</sub> |                 |             | -15               | dBm  | 4     |
| Receiver Overload                     | P <sub>max</sub> | 0.5             |             |                   | dBm  |       |
| LOS De-Assert                         | LOSD             |                 |             | -17.8             | dBm  |       |
| LOS Assert                            | LOSA             | -29.8           |             |                   | dBm  |       |
| LOS Hysteresis                        |                  | 1               |             |                   | dB   |       |

### Notes:

1. Output power is coupled into a 9/125 $\mu$ m SMF.
2. Average received power; BER less than 1E-12 and PRBS 231-1 test pattern.

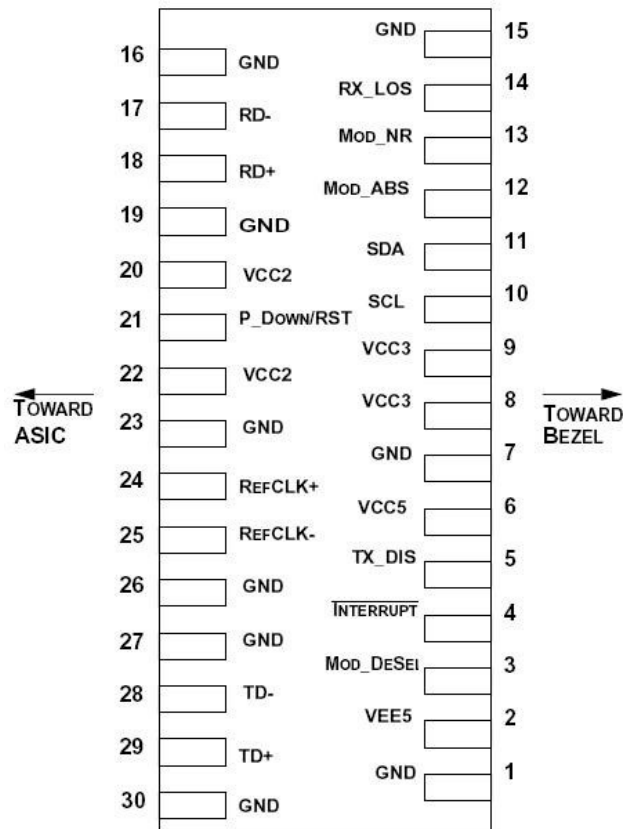
## Pin Descriptions

| Pin | Symbol     | Function                                                                                                                                                                                                                                                                   | Notes |
|-----|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 1   | GND        | Module Ground                                                                                                                                                                                                                                                              | 1     |
| 2   | VEE5       | Optional -5.2 Power Supply - Not Required                                                                                                                                                                                                                                  |       |
| 3   | Mod_Desel  | Module De-select; When held low allows module to respond to 2-wire serial interface commands                                                                                                                                                                               |       |
| 4   | Interrupt  | Interrupt; Indicates presence of an important condition which can be read over the 2-wire serial interface.                                                                                                                                                                | 2     |
| 5   | TX_DIS     | Transmitter Disable; Transmitter laser source turned off                                                                                                                                                                                                                   |       |
| 6   | VCC5       | +5V Power Supply – Not required                                                                                                                                                                                                                                            |       |
| 7   | GND        | Module Ground                                                                                                                                                                                                                                                              | 1     |
| 8   | VCC3       | +3.3V Power Supply                                                                                                                                                                                                                                                         |       |
| 9   | VCC3       | +3.3V Power Supply                                                                                                                                                                                                                                                         |       |
| 10  | SCL        | Serial 2-wire Interface clock.                                                                                                                                                                                                                                             | 2     |
| 11  | SDA        | Serial 2-wire Interface Data Line                                                                                                                                                                                                                                          | 2     |
| 12  | Mod_Abs    | Module Absent: Indicated module is not present. Grounded in the module.                                                                                                                                                                                                    | 2     |
| 13  | Mod_NR     | Module Not Ready                                                                                                                                                                                                                                                           | 2     |
| 14  | RX_LOS     | Receiver Loss of Signal Indicator                                                                                                                                                                                                                                          | 2     |
| 15  | GND        | Module Ground                                                                                                                                                                                                                                                              | 1     |
| 16  | GND        | Module Ground                                                                                                                                                                                                                                                              | 1     |
| 17  | RD-        | Receiver Inverted Data Output                                                                                                                                                                                                                                              |       |
| 18  | RD+        | Receiver Non-Inverted Data Output                                                                                                                                                                                                                                          |       |
| 19  | GND        | Module Ground                                                                                                                                                                                                                                                              | 1     |
| 20  | VCC2       | +1.8V Power Supply (Not required).                                                                                                                                                                                                                                         |       |
| 21  | P_DOWN/RST | Power down; When high, places the module in the low power stand-by mode and on the falling edge of P_Down initiates a module reset<br>Reset; The falling edge initiates a complete reset of the module including the 2-wire serial interface, equivalent to a power cycle. |       |
| 22  | VCC2       | +1.8V Power Supply (Not required)                                                                                                                                                                                                                                          |       |
| 23  | GND        | Module Ground                                                                                                                                                                                                                                                              | 1     |
| 24  | REFCLK+    | Reference Clock Non-Inverted Input, AC coupled on the host board - Not Required                                                                                                                                                                                            | 3     |
| 25  | REFCLK-    | Reference Clock Inverted Input, AC coupled on the host board – Not Required                                                                                                                                                                                                | 3     |
| 26  | GND        | Module Ground                                                                                                                                                                                                                                                              | 1     |
| 27  | GND        | Module Ground                                                                                                                                                                                                                                                              | 1     |
| 28  | TD-        | Transmitter Inverted Data Input                                                                                                                                                                                                                                            |       |
| 29  | TD+        | Transmitter Non-Inverted Data Input                                                                                                                                                                                                                                        |       |
| 30  | GND        | Module Ground                                                                                                                                                                                                                                                              | 1     |

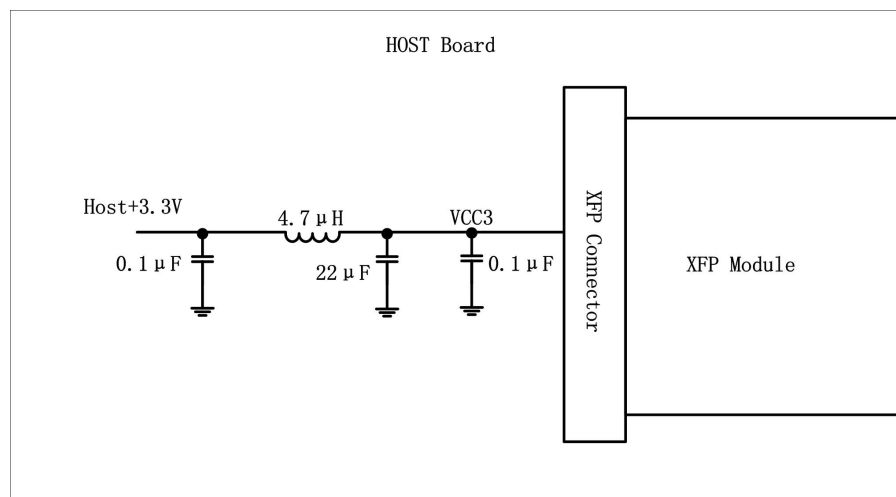
**Notes:**

1. Module circuit ground is isolated from module chassis ground within the module.
2. Open collector; should be pulled up with 4.7k-10k ohms on host board to a voltage between 3.15V and 3.6V.
3. Reference Clock input is not required.

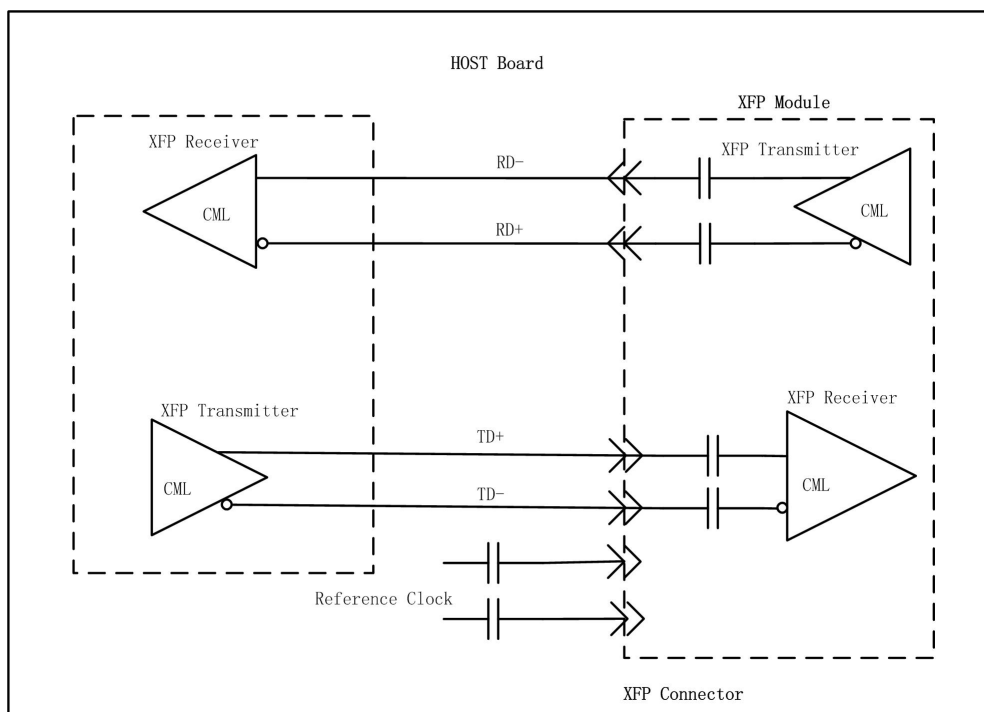
**Electrical Pin-out Details**



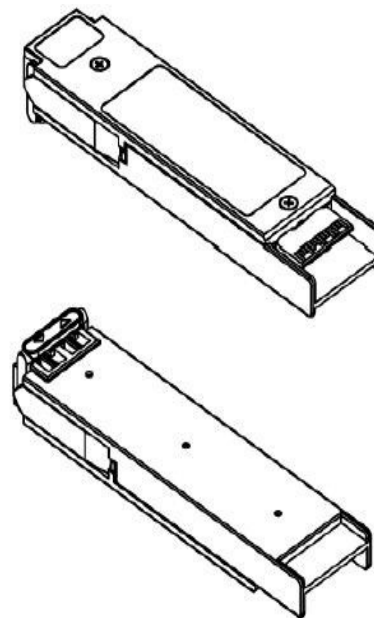
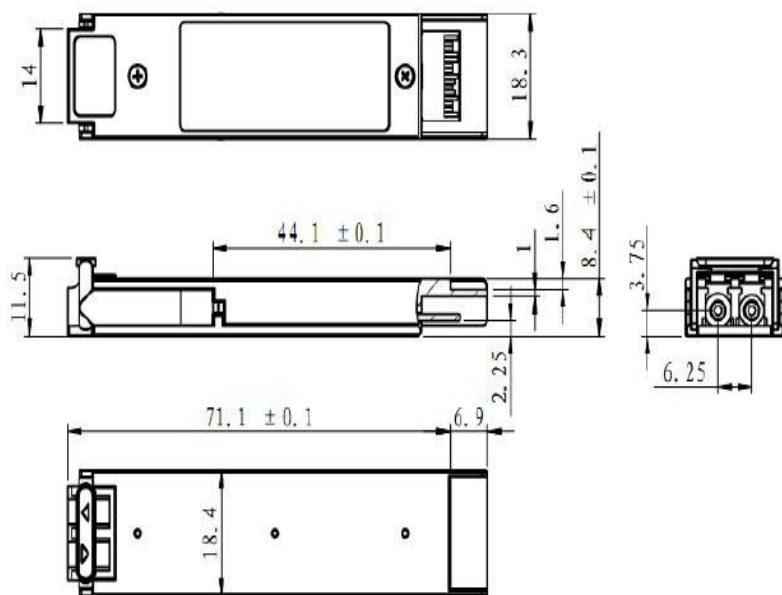
### Recommended Host Board Power Supply Circuit



### Recommend High-speed Interface Circuit



## Mechanical Specifications





# About Skylane Optics

Skylane is a leading provider of transceivers for optical communication.

We offer an extensive portfolio for the enterprise, access, datacenter and metropolitan fiber optical market as well as for smart home applications and home networks.

We cover the European, South American and North American market with a strong partner network and have offices in Belgium, Brazil, Sweden and USA.

Our offerings are characterized by high quality and performance. In combination with our strong technical support, we enable our customers to build cost optimized network solutions.

We offer an extensive range of high-quality products including transceivers (Optical and copper), Active Optical Cable (AOC), Direct Attach Cable (DAC), Mux/Demux, Coding Box.

