

Fiber Optic Transceiver, SFP+, BiDi, 10G DDM, Calix Compatible



## FXC-SPB-wwxx-10-CLX

### Features

- Operating Data Rates up to 11.3 Gbps
- Distance Range 10, 40, 60 & 80 km
- Pluggable Bi-Directional SFP+ Simplex LC Connectors
- Standard Temperature Range (available in Industrial Operating Temperatures)
- Compliant with Calix system level specifications

### Applications

- Telecommunication Service Providers
- Metro Ethernet
- OTN And Other Optical Links
- Transport Networks
- Enterprise Optical Networks
- Carrier Ethernet

### Description

The L-com FXC-SPB-wwxx-10-CLX is the highest quality Bi-Directional SFP+ transceiver series in the industry that delivers a dependable 10G Ethernet data rates. This SFP+ BiDi transceiver series has been designed, programmed and tested to be 100% compliant with the Calix system level specifications. The L-com FXC-SPB-wwxx-10-CLX series has different distances options of 10, 40, 60 & 80 km to meet current and future networking requirements. The L-com FXC-SPB-wwxx-10-CLX series features digital diagnostics for performance monitoring of this BiDi transceiver. The L-com FXC-SPB-wwxx-10-CLX series is one of thousands of fiber optic connectivity products available with in-stock inventory and ready to ship. Contact our technical support and sales staff with your questions on fiber optic connectivity or other L-com products.

### Configuration

|                            |         |
|----------------------------|---------|
| Data Rate                  | 10 Gbps |
| Form Factor                | SFP+    |
| Connector                  | LC      |
| Connector Mode             | Simplex |
| Mfg Platform Compatibility | Calix   |

### Electrical Specifications

| Description          | Minimum | Typical | Maximum | Units |
|----------------------|---------|---------|---------|-------|
| Power Supply Voltage | 3.15    | 3.3     | 3.45    | V     |
| Power Supply Current |         |         | 430     | mA    |

\*See table below

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications:  
[FXC-SPB-wwxx-10-CLX](#)

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## FXC-SPB-wwxx-10-CLX

### Optical Specifications

| Base Part Number | Distance (km) | Wavelength pair designator (ww) | Transmitter center wavelength (nm) | Receiver center wavelength (nm) | Transmitter Output (min/max) dBm | Receiver Sensitivity (min) dBm |
|------------------|---------------|---------------------------------|------------------------------------|---------------------------------|----------------------------------|--------------------------------|
| FXC-SPB-ww10-10  | 10            | 23                              | 1270                               | 1330                            | -5/0                             | -14                            |
|                  |               | 32                              | 1330                               | 1270                            | -5/0                             | -14                            |
| FXC-SPB-ww40-10  | 40            | 23                              | 1270                               | 1330                            | 1/5                              | -15                            |
|                  |               | 32                              | 1330                               | 1270                            | 1/5                              | -15                            |
| FXC-SPB-ww60-10  | 60            | 23                              | 1270                               | 1330                            | 1/6                              | -20                            |
|                  |               | 32                              | 1330                               | 1270                            | 1/6                              | -20                            |
| FXC-SPB-ww80-10  | 80            | 45                              | 1490                               | 1550                            | -1/4                             | -20                            |
|                  |               | 54                              | 1550                               | 1490                            | -1/4                             | -20                            |

#### Size

Length 1.755 in [44.58 mm]  
Weight 0.05 lbs [22.68 g]

### Environmental Specifications

#### Temperature

Operating Range 0 to +70 deg C  
Storage Range -40 to +85 deg C

Notes:

**Compliance Certifications** (see [product page](#) for current document)

### Plotted and Other Data

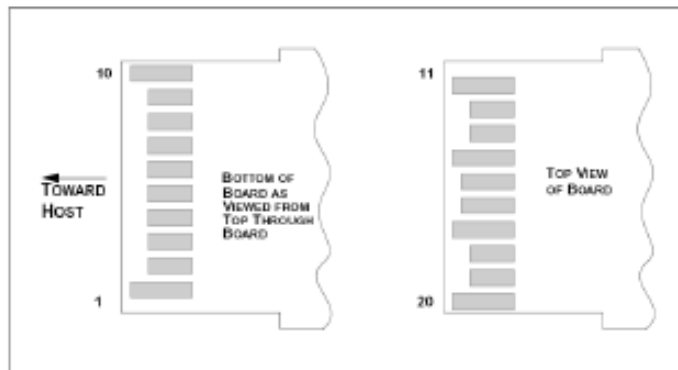
Notes:

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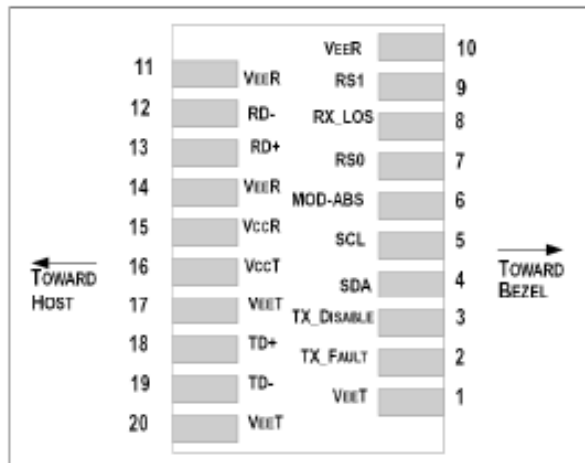


**FXC-SPB-wwxx-10-CLX**

**SFP+ Transceiver Electrical Pad Layout**



**Pin Function Definitions**



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| Pin Num. | Name       | FUNCTION                     | Plug Seq. | Notes                                   |
|----------|------------|------------------------------|-----------|---|
| 1        | VeeT       | Transmitter Ground           | 1         | Note 5                                  |
| 2        | TX Fault   | Transmitter Fault Indication | 3         | Note 1                                  |
| 3        | TX Disable | Transmitter Disable          | 3         | Note 2, Module disables on high or open |
| 4        | SDA        | Module Definition 2          | 3         | 2-wire Serial Interface Data Line.      |
| 5        | SCL        | Module Definition 1          | 3         | 2-wire Serial Interface Clock.          |
| 6        | MOD_ABS    | Module Definition 0          | 3         | Note 3                                  |
| 7        | RS0        | RX Rate Select (LVTTTL).     | 3         | No Function Implement.                  |
| 8        | RX LOS     | Loss of Signal               | 3         | Note 4                                  |
| 9        | RS1        | TX Rate Select (LVTTTL).     | 1         | No Function Implement.                  |
| 10       | VeeR       | Receiver Ground              | 1         | Note 5                                  |
| 11       | VeeR       | Receiver Ground              | 1         | Note 5                                  |
| 12       | RD-        | Inv. Received Data Out       | 3         | Note 6                                  |
| 13       | RD+        | Received Data Out            | 3         | Note 6                                  |
| 14       | VeeR       | Receiver Ground              | 1         | Note 5                                  |
| 15       | VccR       | Receiver Power               | 2         | 3.3 ± 5%, Note 7                        |
| 16       | VccT       | Transmitter Power            | 2         | 3.3 ± 5%, Note 7                        |
| 17       | VeeT       | Transmitter Ground           | 1         | Note 5                                  |
| 18       | TD+        | Transmit Data In             | 3         | Note 8                                  |
| 19       | TD-        | Inv. Transmit Data In        | 3         | Note 8                                  |
| 20       | VeeT       | Transmitter Ground           | 1         | Note 5                                  |

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### Notes:

- 1) TX Fault is an open collector/drain output, which should be pulled up with a 4.7K – 10K $\Omega$  resistor on the host board. Pull up voltage between 2.0V and  $V_{ccT}/R+0.3V$ . When high, output indicates a laser fault of some kind. Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.
- 2) TX disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7K – 10 K $\Omega$  resistor. Its states are:  
Low (0 – 0.8V): Transmitter on  
(>0.8, < 2.0V): Undefined  
High (2.0 – 3.465V): Transmitter Disabled  
Open: Transmitter Disabled
- 3) Module Absent, connected to VeeT or VeeR in the module.
- 4) RX LOS (Loss of Signal) is an open collector/drain output, which should be pulled up with a 4.7K – 10K $\Omega$  resistor. Pull up voltage between 2.0V and  $V_{ccT}/R+0.3V$ . When high, this output indicates the received optical power is below the worst-case receiver sensitivity (as defined by the standard in use). Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.
- 5) The module signal ground contacts, VeeR and VeeT, should be isolated from the module case.
- 6) RD-/+ : These are the differential receiver outputs. They are AC coupled 100 $\Omega$  differential lines which should be terminated with 100 $\Omega$  (differential) at the user SERDES. The AC coupling is done inside the module and is thus not required on the host board. The voltage swing on these lines will be between 120 and 800 mV differential (60 –400 mV single ended) when properly terminated.
- 7) VccR and VccT are the receiver and transmitter power supplies. They are defined as 3.3V  $\pm$ 5% at the SFP+ connector pin. Maximum supply current is 606mA. Recommended host board power supply filtering is shown below. Inductors with DC resistance of less than 1 ohm should be used in order to maintain the required voltage at the SFP+ input pin with 3.3V supply voltage. When the recommended supply-filtering network is used, hot plugging of the SFP+ transceiver module will result in an inrush current of no more than 30mA greater than the steady state value. VccR and VccT may be internally connected within the SFP+ transceiver module.
- 8) TD-/+ : These are the differential transmitter inputs. They are AC-coupled, differential lines with 100 $\Omega$  differential termination inside the module. The AC coupling is done inside the module and is thus not required on the host board. The inputs will accept differential swings of 150 – 1200 mV (75 – 600mV single-ended).

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Fiber Optic Transceiver, SFP+, BiDi, 10G DDM, Calix Compatible from L-com has same day shipment for domestic and International orders. Our portfolio includes coaxial cable assemblies, connectors, adapters and custom products as well as lightning and surge protectors, NEMA rated enclosures, and an RF product line which includes antennas, amplifiers, passive, and active components.

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L-com CAD Drawing

