

# 10Gb/s Pluggable SFP+ Transceiver

## Description

The SFP+ transceivers are high performance, cost effective modules supporting dual data-rate of 10Gbps and 10km transmission distance with SMF.

The transceiver consists of three sections: a FP laser transmitter, a PIN photodiode integrated with a trans-impedance preamplifier (TIA) and MCU control unit. All modules satisfy class I laser safety requirements.

The transceivers are compatible with SFP Multi-Source Agreement (MSA) and SFF-8472. For further information, please refer to SFP MSA.

## Application

- Gigabit Ethernet
- Fiber Channel
- Switch to Switch interface
- Switched backplane applications
- Router/Server interface
- Other optical transmission
- Systems



## Features

- Dual data-rate of 10Gbps operation
- 1310nm FP laser and PIN photo detector for 20km transmission
- Compliant with SFP MSA and SFF-8472 with duplex LC receptacle
- Digital Diagnostic Monitoring: Internal Calibration or External Calibration
- Compatible with SONET OC-24-LR-1
- Compatible with RoHS
- +3.3V single power supply
- Operating case temperature: Standard : 0 to +70°C Industrial : -40to +85°C

## Absolute Maximum Ratings

Table 1 - Absolute Maximum Ratin

Parameter	Symbol	Min	Max	Unit
Supply Voltage	Vcc	-0.5	4.5	V
Storage Temperature	Ts	-40	+85	°C
Operating Humidity	-	5	85	%

**Recommended Operating Conditions Table 2 -  
Recommended Operating Conditions**

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Standard Temperature	Tc	0		+70	°C
		Industrial	-40	+85	°C
Power Supply Voltage	Vcc	3.13	3.3	3.47	V
Power Supply Current	Icc			300	mA
Data Rate			1.25		Gbps

### Optical and Electrical Characteristics

**DP-1312-L1xx: (FP and PIN, 1310nm, 10km Reach)**

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Transmitter						
Centre Wavelength	$\lambda_c$	1260	1310	1360	nm	
Spectral Width (RMS)	$\Delta\lambda$			4	nm	
Average Output Power	Pout	-9		0	dBm	1
Extinction Ratio	ER	9			dB	
Optical Rise/Fall Time (20%~80%)	tr/tf			0.26	ns	2
Data Input Swing Differential	V <sub>IN</sub>	400		1800	mV	
Input Differential Impedance	Z <sub>IN</sub>	90	100	110	$\Omega$	
TX Disable	Disable	2.0		Vcc	V	
TX Fault	Enable	0		0.8	V	
	Fault	2.0		Vcc	V	
	Normal	0		0.8	V	
Receiver						
Centre Wavelength	$\lambda_c$	1260		1360	nm	
Receiver Sensitivity				-23	dBm	3
Receiver Overload		-3			dBm	3
LOS De-Assert	LOS <sub>D</sub>			-24	dBm	
LOS Assert	LOS <sub>A</sub>	-30			dBm	
LOS Hysteresis		1		4	dB	
Data Output Swing Differential	Vout	400		1800	mV	4
LOS	High	2.0		Vcc	V	
	Low			0.8	V	