

R6B21A-OPC

HP® R6B21A Compatible TAA 16GBase-LW Fibre Channel SFP+ Transceiver (SMF, 1310nm, 25km, LC)

Features

- SFF-8432 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:

- Fibre Channel
- Access and Enterprise

Product Description

This HP® R6B21A compatible SFP+ transceiver provides 16GBase-LW Fibre Channel throughput up to 25km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent HP® 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. It is built to meet or exceed the specifications of HP®, as well as to comply with MSA (Multi-Source Agreement) standards to ensure seamless network integration. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

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

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit
Storage Temperature	Tstg	-40		85	°C
Relative Humidity	RH	5		95	%
Supply Voltage	Vcc	-0.5		4.0	V
Operating Temperature	Tc	0	25	70	°C
Data Rate			4.25/8.5/14.025		Gbps

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Module Supply Current	Icc			550	mA	
Power Dissipation	P _{DISS}			1800	mW	
Supply Voltage	Vcc	3.135	3.3	3.465	V	
Transmitter						
Input Differential Impedance	ZIN		100		Ω	
Differential Data Input Swing	VIN,pp	180		700	mVp-p	
Tx_Fault	Transmitter Fault	VOH	2.0	Host_Vcc	V	
	Normal Operation	VOL	0	0.8	V	
Tx_Disable	Transmitter Disable	VIH	2.0	Host_Vcc	V	
	Transmitter Enable	VIL	0	0.8	V	
Receiver						
Output Differential Impedance	ZOUT		100		Ω	
Differential Data Output Swing	VOUT,pp	300		850	mVp-p	1
Data Output Rise/Fall Time	Tr/Tf	28			ps	2
Rx_LOS	Loss of Signal (LOS)	VOH	2.0	Host_Vcc	V	3
	Normal Operation	VOL	0	0.8	V	3

Notes:

1. Internally AC coupled but requires an external 100Ω differential load termination.
2. 20-80%.
3. LOS is an open collector output that should be pulled up with 4.7kΩ on the host board.

Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power @14.025Gbps	P _{o,RH}	-5		2	dBm	1, 2
Launch Optical Power @4.25Gbps, 8.5Gbps	P _{o,RL}	-5		-1	dBm	3
Center Wavelength	λ_C	1295	1310	1325	nm	4
Extinction Ratio	ER	3.5			dB	
Transmitter and Dispersion Penalty @8.5Gbps	TDP			3.2	dB	7
Transmitter and Dispersion Penalty @14.025Gbps	TDP			4.4	dB	7
Spectral Width	$\Delta\lambda$			1	nm	4, 5
Optical Rise/Fall Time @4.25Gbps	T _r /T _f			90	ps	8
Optical Return Loss Tolerance	ORLT			12	dB	
POUT @Tx_Disable Asserted	P _{off}			-30	dBm	9
Receiver						
Center Wavelength	λ_C	1260	1310	1370	nm	
Unstressed Receiver OMA Sensitivity	RxSENS			-15.4	dBm	10
Unstressed Receiver OMA Sensitivity = 8.5	RxSENS			-13.7	dBm	10
Unstressed Receiver OMA Sensitivity	RxSENS			-12.0	dBm	11
Receiver Overload (P _{avg})	POL	0.5			dBm	
Optical Return Loss	ORL	12			dB	
LOS De-Assert	LOSD			-16	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
2. High-Bandwidth Mode. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
3. Low-Bandwidth Mode. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
4. Also specified to meet curves in FC-PI-5 Rev 6.10 Figures 23, 24, and 25, which allow trade-off between wavelength, spectral width, and OMA for 4.25Gbps and 8.5Gbps operation.
5. 20dB spectral width.
6. Equivalent extinction ratio specification for Fibre Channel. Allows smaller ER at higher average power.
7. For 14.025Gbps and 8.5Gbps operation, Jitter values for gamma T and gamma R are controlled by TDP.
8. Unfiltered, 20-80%. Complies with IEEE 802.3 (Gig. E), FC 4x eye masks when filtered.
9. The optical power is launched into 9/125 μ m SMF.
10. Measured with PRBS 2⁷-1 at 10⁻¹² BER.
11. Measured with PRBS 2³¹-1 at 10⁻¹² BER.

Pin Descriptions

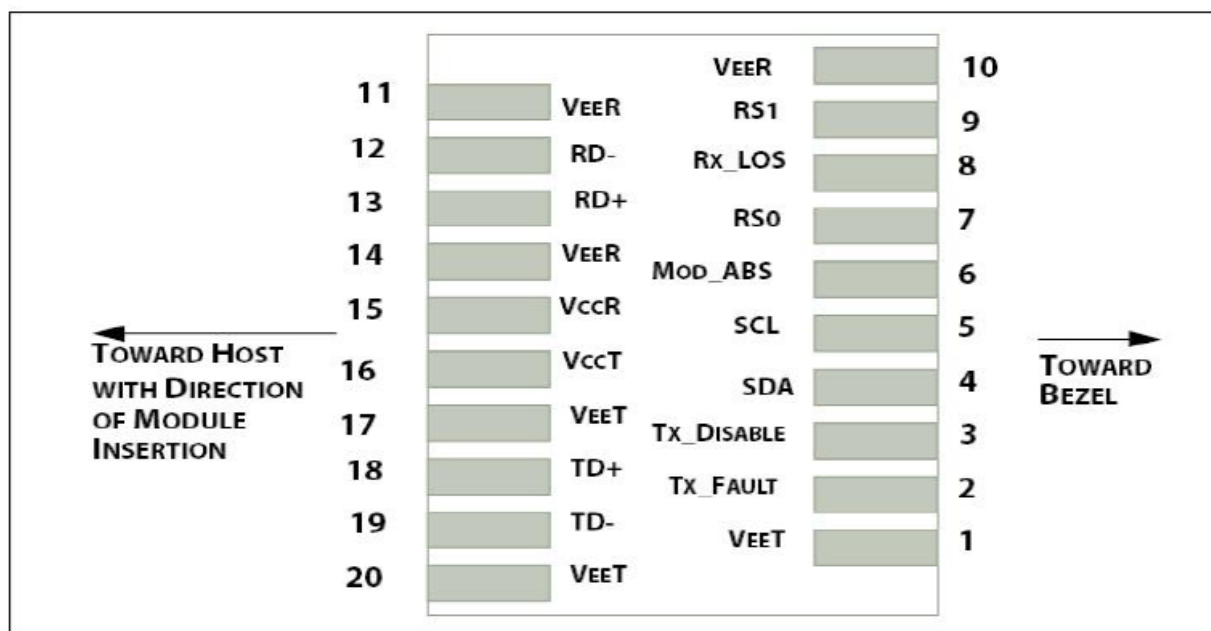
Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground.	1
2	Tx_Fault	Transmitter Fault (LVTTL-O). "High" indicates a fault condition.	2
3	Tx_Disable	Transmitter Disable (LVTTL-I). "High" or "open" disables the transmitter.	3
4	SDA	2-Wire Serial Interface Data (LVCMOS-I/O) (MOD-DEF2).	4
5	SCL	2-Wire Serial Interface Clock (LVCMOS-I/O) (MOD-DEF1).	4
6	MOD_ABS	Module Absent (Output). Connected to the VeeT or VeeR in the module.	5
7	RS0	Rate Select 0. Not used. Presents high input impedance.	6
8	Rx_LOS	Receiver Loss of Signal (LVTTL-O).	2
9	RS1	Rate Select 1. Not used. Presents high input impedance.	6
10	VeeR	Receiver Ground.	1
11	VeeR	Receiver Ground.	1
12	RD-	Inverse Received Data Out (CML-O).	
13	RD+	Received Data Out (CML-O).	
14	VeeR	Receiver Ground.	
15	VccR	+3.3V Receiver Power.	
16	VccT	+3.3V Transmitter Power.	
17	VeeT	Transmitter Ground.	1
18	TD+	Transmitter Data In (CML-I).	
19	TD-	Inverse Transmitter Data In (CML-I).	
20	VeeT	Transmitter Ground.	1

Notes:

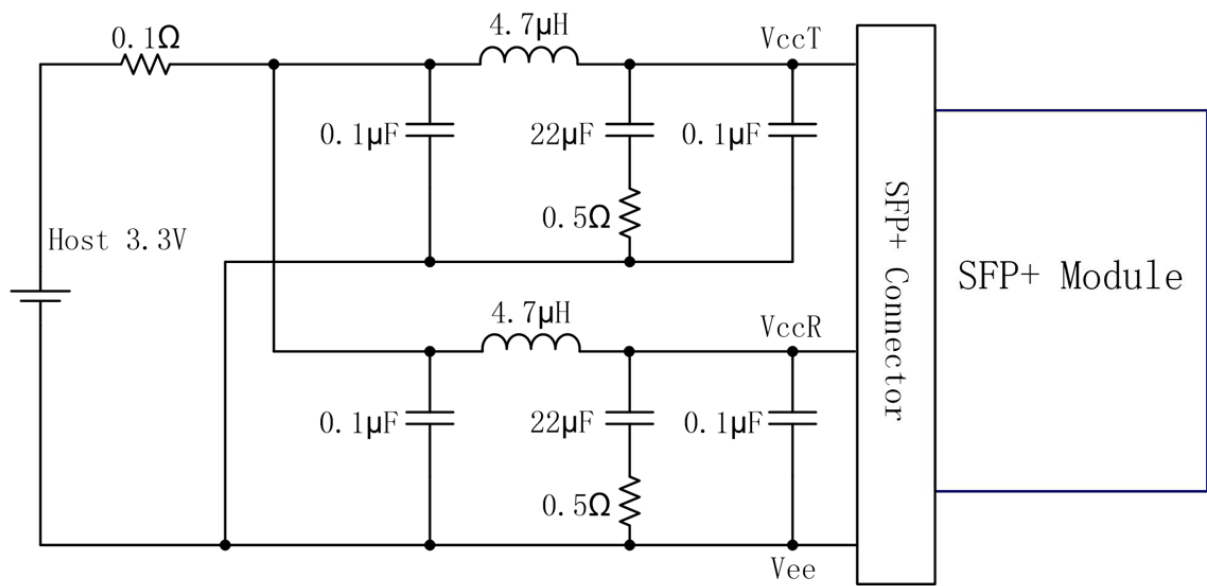
1. The module signal grounds are isolated from the module case.
2. This is an open collector/drain output that, on the host board, requires a 4.7kΩ to 10kΩ pull-up resistor to the Host_Vcc.
3. This input is internally biased "high" with a 4.7kΩ to 10kΩ pull-up resistor to the VccT.
4. 2-Wire Serial Interface Clock and Data lines require an external pull-up resistor dependent on the capacitance load.
5. This is a ground return that, on the host board, requires a 4.7kΩ to 10kΩ pull-up resistor to the Host_Vcc.
6. Rate select can also be set through the 2-wire bus in accordance with SFF-8472 v. 11.0. Rx Rate Select is set at Bit 3, Byte 110, and Address A2h. Tx Rate Select is set at Bit 3, Byte 118, and Address A2h.

Note: Writing a "1" selects maximum bandwidth operation. Rate select is the logic OR of the input state of the Rate Select Pin and 2-wire bus.

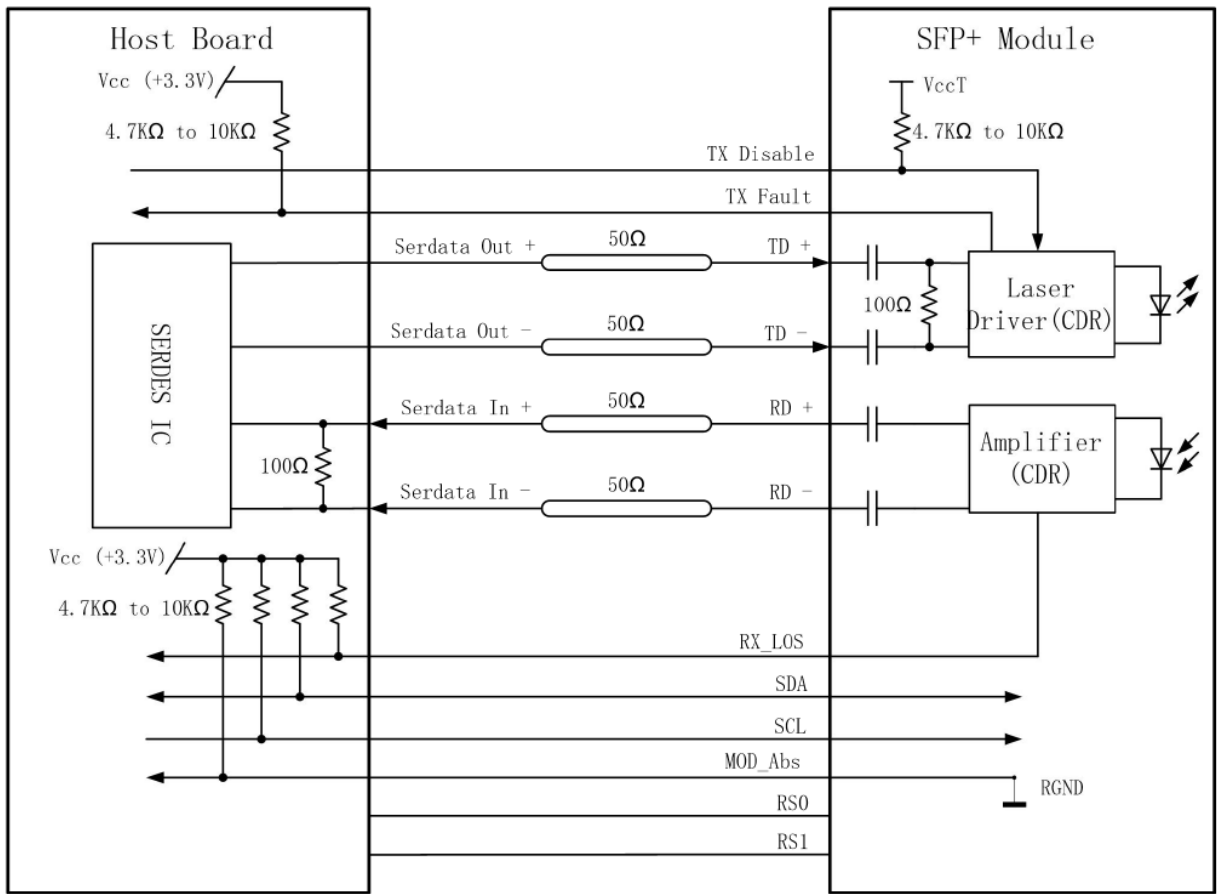
Electrical Pad Layout



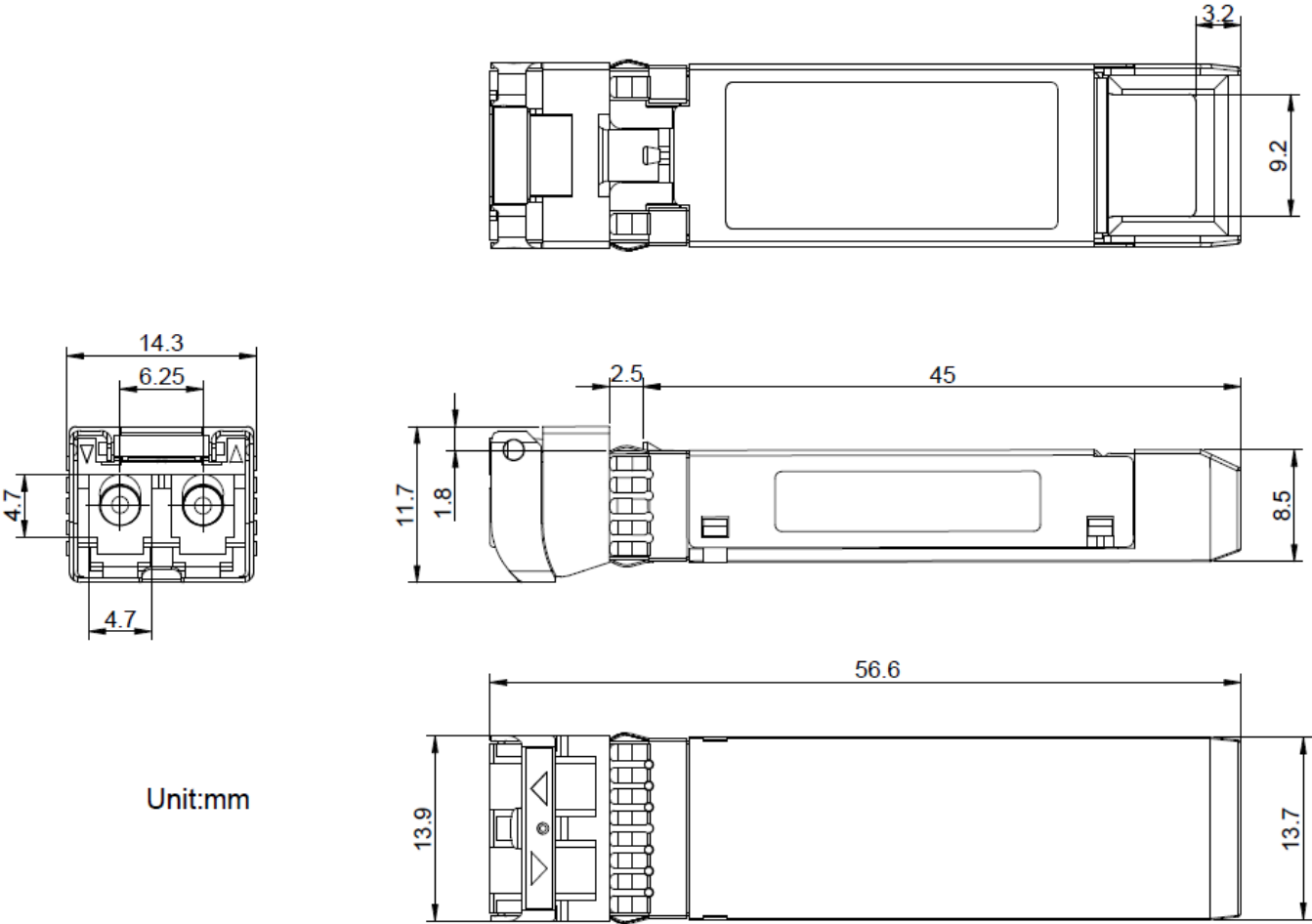
Recommended Host Board Power Supply Filter Network



Recommended Application Interface Block Diagram



Mechanical Specifications



OptioConnect

Innovation for the Future of High-Speed Networking

Who We Are

OptioConnect is reshaping the landscape of communication and high-speed networking through intelligent technology. With a core focus on cutting edge technology, we deliver smarter fiber optic solutions for enterprise networks, data centers, and next-gen telecom infrastructures.

What We Do

At OptioConnect, we fuse advanced engineering with intelligent automation to drive the future of networking. Our AI-integrated solutions are designed to optimize performance and streamline operations with:

- Superior Performance
- Network and traffic optimization
- Intelligent energy management
- Seamless OEM compatibility
- Scalable cost-efficiency

Smarter Networks by Design

Innovation isn't just a goal—it's our process. We embed AI and machine learning across our R&D and product lines, enabling adaptive performance, automated tuning, and faster deployment cycles. The result? Networks that don't just work—they learn, evolve, and outperform.

Our Team

Our engineers, data scientists, and network architects bring decades of experience and a future-focused mindset. We provide hands-on support with intelligent insights that turn complex challenges into simple solutions.

Our Mission

To deliver AI-enhanced connectivity that reduces cost, increases speed, and maximizes efficiency—empowering our partners to operate at the forefront of a rapidly evolving digital world.

Let's Connect

Discover how OptioConnect's intelligent infrastructure solutions can power your network's next leap forward.

www.optioconnect.com | info@optioconnect.com

