

## **RDH10275/2-OPC**

LG-Ericsson® RDH10275/2 Compatible TAA 25GBase-LRL SFP28 Transceiver Capable (SMF, 1310nm, 2km, LC, DOM, -40 to 85C)

### **Features**

- Up to 25.78Gbps Bi-Directional Data Links
- SFP28 MSA Package with Duplex LC Connectors
- Up to 2km on 9/125µm SMF
- Single 3.3V Power Supply
- Class 1 Laser Safety Certified
- Built-In Dual CDR with Shut-Off Control
- Uncooled 1310nm DFB Laser
- Power Consumption: less than 1.2W
- Operating Temperature: -40 to 85 Celsius
- RoHS Compliant and Lead-Free



### **Applications:**

- 25GBase Ethernet
- Access and Enterprise

### **Product Description**

This LG-Ericsson® RDH10275/2 compatible SFP28 transceiver provides 25GBase-LR throughput up to 2km over single-mode fiber (SMF) using a wavelength of 1310nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent LG-Ericsson® 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. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage	Vcc	-0.5		4.0	V	
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tc	-40	25	85	°C	
Relative Humidity	RH	5		95	%	
Maximum Receive Power				2	dBm	
Data Rate		9.8304		25.78125	Gbps	

## Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Notes
Supply Voltage		Vcc	3.135	3.3	3.465	V	
Module Supply Current		Icc			360	mA	
Power Dissipation		P <sub>DISS</sub>			1200	mW	
Transmitter							
Input Differential Impedance		Z <sub>IN</sub>		100		Ω	
Differential Data Input Swing		V <sub>IN,pp</sub>	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		Z <sub>O</sub>		100		Ω	
Differential Data Output Swing		V <sub>OUT,pp</sub>	300		850	mVp-p	1
Data Output Rise/Fall Time		Tr/Tf	15			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. Should be pulled up with 4.7kΩ on the host board.

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Launch Optical Power	Pavg	-5		2	dBm	1
Optical Modulation Amplitude	POMA	-7		2	dBm	
Extinction Ratio	ER	3.5			dB	
Center Wavelength Range	$\lambda_C$	1295	1310	1325	nm	
Transmitter Dispersion Penalty	TDP			1.0	dB	
SMSR		30			dB	
Spectral Width	$\Delta\lambda$			1	nm	2
Optical Return Loss Tolerance	ORLT			20	dB	
Transmitter Reflectance				-26	dB	
POUT @Tx_Disable Asserted	Poff			-30	dBm	
Eye Test : {X1, X2, X3, Y1, Y2, Y3}		5			%	3
Receiver						
Center Wavelength	$\lambda_C$	1295	1310	1325	nm	
Receiver OMA Sensitivity	RxSENS			-11	dBm	4
Receiver Overload (Pavg)	POL	2			dBm	
Receiver Reflectance				-26	dB	
LOS De-Assert	LOSD			-15	dBm	
LOS Assert	LOSA	-30			dBm	
LOS Hysteresis		0.5		5	dB	

### Notes:

1. Class 1 Laser Safety per FDA/CDRH and EN (IEC) 60825 regulations.
2. 20dB spectral width.
3. Test condition: {0.31, 0.4, 0.45, 0.34, 0.38, 0.4}. Hit count =  $5E^{-5}$ .
4. Measured with PRBS  $2^{31}-1$  at  $5 \times 10^{-5}$  BER.

## Pin Descriptions

Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground.	1
2	Tx_Fault	Transmitter Fault (LVTTTL-O). “High” indicates a fault condition.	2
3	Tx_Disable	Transmitter Disable (LVTTTL-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	Hardware Tx Rate Select Pin.	6
8	Rx_LOS	Receiver Loss of Signal (LVTTTL-O).	2
9	RS1	Hardware Rx Rate Select Pin.	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

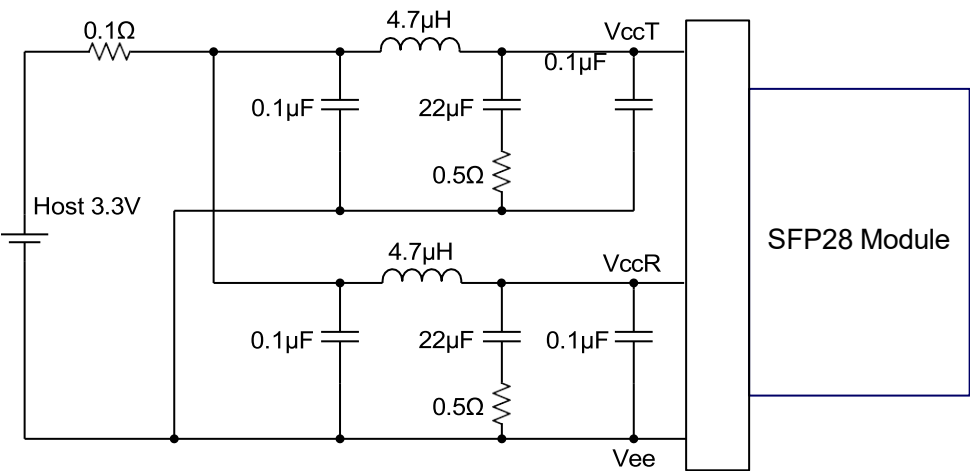
## Notes:

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 4.7k $\Omega$  to 10k $\Omega$  pull-up resistor to the Host\_Vcc.
3. This input is internally biased “high” with a 4.7k $\Omega$  to 10k $\Omega$  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 4.7k $\Omega$  to 10k $\Omega$  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. 12.1. 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 the maximum bandwidth operation. Rate Select is the logic OR of the input state of Rate Select Pin and 2-wire bus.

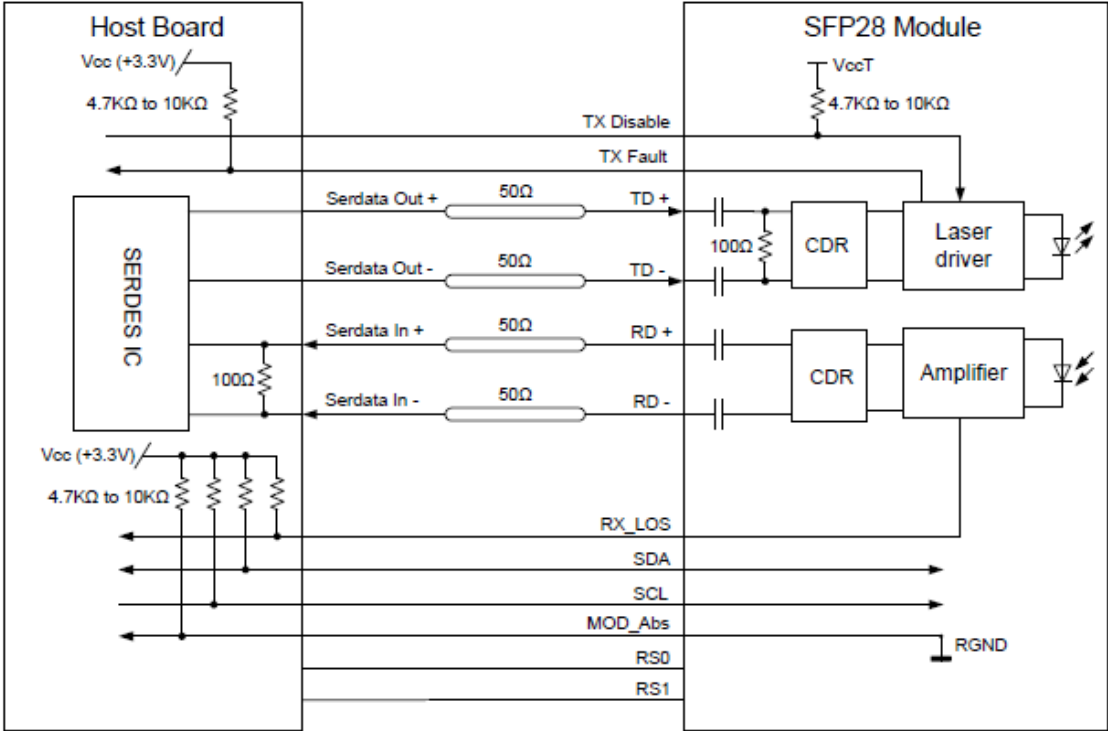
Electrical Pin-Out Details



Recommended Host Board Power Supply Filter Network



Recommended Application Interface Block Diagram



Mechanical Specifications

