WTQ2HSR

200G QSFP56 Transceiver 850nm 100m

Data Rate 212.5	Wavelength 850



1. Product Overview

Features

- Supports 212.5Gb/s aggregate bit rate
- 4x26.5625GBd (PAM4) electrical interface
- VCSEL Transmitter
- PIN and TIA array on the receiver side
- Maximum link length of 100m on OM4 Multimode Fiber (MMF)
- Hot-pluggable QSFP56 footprint
- Single MPO 12 receptacle
- Low power Consumption
- RoHS-6 compliant and lead-free
- +3.3V single power supply
- Support Digital Diagnostic Monitor interface
- Case operating temperature

Applications

- 200GBASE-SR4 200G Ethernet

2. Ordering Information

Part NO.	Bit Rate (Gbps)	Laser (nm)	Distance(m)	Media	DDMI	Connector	Temp（℃）
WTQ2HSR	212.5	850	100 (OM4)	multi-mode fiber	YES	MPO 1X12	0~70

3. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Storage Temperature	TS	-40		85	ºC	
Storage Ambient Humidity	HA	0		85	%	
Maximum Supply Voltage	VCC	-0.5		3.6	V	
Lead Soldering Temperature/Time	TSOLD			260/10	ºC/sec	1
Lead Soldering Temperature/Time	TSOLD			360/10	ºC/sec	2

4. Recommended Operating Conditions

Data Rate Specifications	Symbol	Min.	Typ.	Max.	Unit	Ref.
Supply Voltage	Vcc	3.13	3.3	3.47	V	
Baud Rate (per channel) PAM4	BR		26.5625		GBd	1
Operating Case Temperature	Tc	0		70	℃	
Link distance on OM3 MMF	d			70	meters	
Link distance on OM4 MMF	d			100	meters	

5. Optical Parameters

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Transmitter (per lane)	Transmitter (per lane)	Transmitter (per lane)	Transmitter (per lane)	Transmitter (per lane)	Transmitter (per lane)	Transmitter (per lane)
Average Output Power per lane	POUT	-6.5		4	dBm	
Outer Optical Modulation Amplitude per lane	OMAOUT	-4.5		3	dBm	
Extinction Ratio	ER	3			dB	
Center Wavelength	λC	840		860	nm	
RMS Spectral Width	σ			0.6	nm	
Launch power in OMAOUT minus TDECQ	PTDECQ	-5.9			dBm	
Transmitter and dispersion eye closure (each lane)	TDECQ			4.5	dB	
Transmitter OFF Output Power	POff			-30	dBm	
Optical Return Loss Tolerance	ORLT			12	dB	
Receiver (per lane)	Receiver (per lane)	Receiver (per lane)	Receiver (per lane)	Receiver (per lane)	Receiver (per lane)	Receiver (per lane)
Input Optical Wavelength	λIN	840		860	nm	
Average Receive Power per lane	Pin	-8.4		4	dBm	
Receiver Power (OMAOUT) each lane	ROMA			3	dBm	
Rx Sensitivity (OMAOUT) per lane (SECQ=1.4 dB)	RSENS			-6.5	dBm	1
Stressed Rx Sensitivity (OMA) per lane	SRSENS			-3	dBm	
Damage threshold	PDT	5			dBm	
Receiver Reflectance	Rfl			-12	dB	

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
LOS Assert	LOSA	-30			dBm	
LOS De-Assert	LOSD			-9	dBm	
LOS Hysteresis	LOSH	0.5			dB	

6. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Supply Voltage	VCC1, VCCTX, VCCRX	3.15		3.45	V	
Power Dissipation	Pd			6	W	
Transmitter (per Lane)	Transmitter (per Lane)	Transmitter (per Lane)	Transmitter (per Lane)	Transmitter (per Lane)	Transmitter (per Lane)	Transmitter (per Lane)
Input different impedance	Rin	90	100	110	Ω	
Single ended input voltage tolerance	VinT	-0.3		4.0	V	
Differential Input Voltage Amplitude	Vin,pp			900	mV	
Receiver (per Lane)	Receiver (per Lane)	Receiver (per Lane)	Receiver (per Lane)	Receiver (per Lane)	Receiver (per Lane)	Receiver (per Lane)
Error Bit Rate	BER			2.4E-4		
Output different impedance	Rout	90	100	110	Ω	
Single-ended output voltage	VoutR	-0.3		4.0	V	
Differential Output Voltage Amplitude	Vout,pp			900	mV	

7. Pin Descriptions

PIN	Logic	Symbol	Name/Description	Notes
1		GND	Ground	1
2	CML-I	Tx2n	Transmitter Inverted Data Input	
3	CML-I	Tx2p	Transmitter Non-Inverted Data Input	
4		GND	Ground	1
5	CML-I	Tx4n	Transmitter Inverted Data Input	
6	CML-I	Tx4p	Transmitter Non-Inverted Data Input	
7		GND	Ground	1
8	LVTTL-I	ModSe1L	Module Select	
9	LVTTL-I	ResetL	Module Reset	
10		Vcc Rx	+3.3V Power supply receiver	
11	LVCMOS-I	SCL	2-wire serial interface clock	

PIN	Logic	Symbol	Name/Description	Notes
12	LVCMOS-I/O	SDA	2-wire serial interface data	
13		GND	Ground	1
14	CML-O	Rx3p	Receiver Non-Inverted Data Output	
15	CML-O	Rx3n	Receiver Inverted Data Output	
16		GND	Ground	1
17	CML-O	Rx1p	Receiver Non-Inverted Data Output	
18	CML-O	Rx1n	Receiver Inverted Data Output	
19		GND	Ground	1
20		GND	Ground	1
21	CML-O	Rx2n	Receiver Inverted Data Output	
22	CML-O	Rx2p	Receiver Non-Inverted Data Output	
23		GND	Ground	1
24	CML-O	Rx4n	Receiver Inverted Data Output	
25	CML-O	Rx4p	Receiver Non-Inverted Data Output	
26		GND	Ground	1
27	LVTTL-O	ModPrSL	Module Present	
28	LVTTL-O	IntL	Interrupt	
29		Vcc Tx	+3.3V Power supply transmitter	
30		Vcc1	+3.3V Power Supply	
31	LVTTL-I	LPMode	Low Power Mode	
32		GND	Ground	1
33	CML-I	Tx3p	Transmitter Non-Inverted Data Input	
34	CML-I	Tx3n	Transmitter Inverted Data Input	
35		GND	Ground	1
36	CML-I	Tx1p	Transmitter Non-Inverted Data Input	
37	CML-I	Tx1n	Transmitter Inverted Data Input	
38		GND	Ground	1

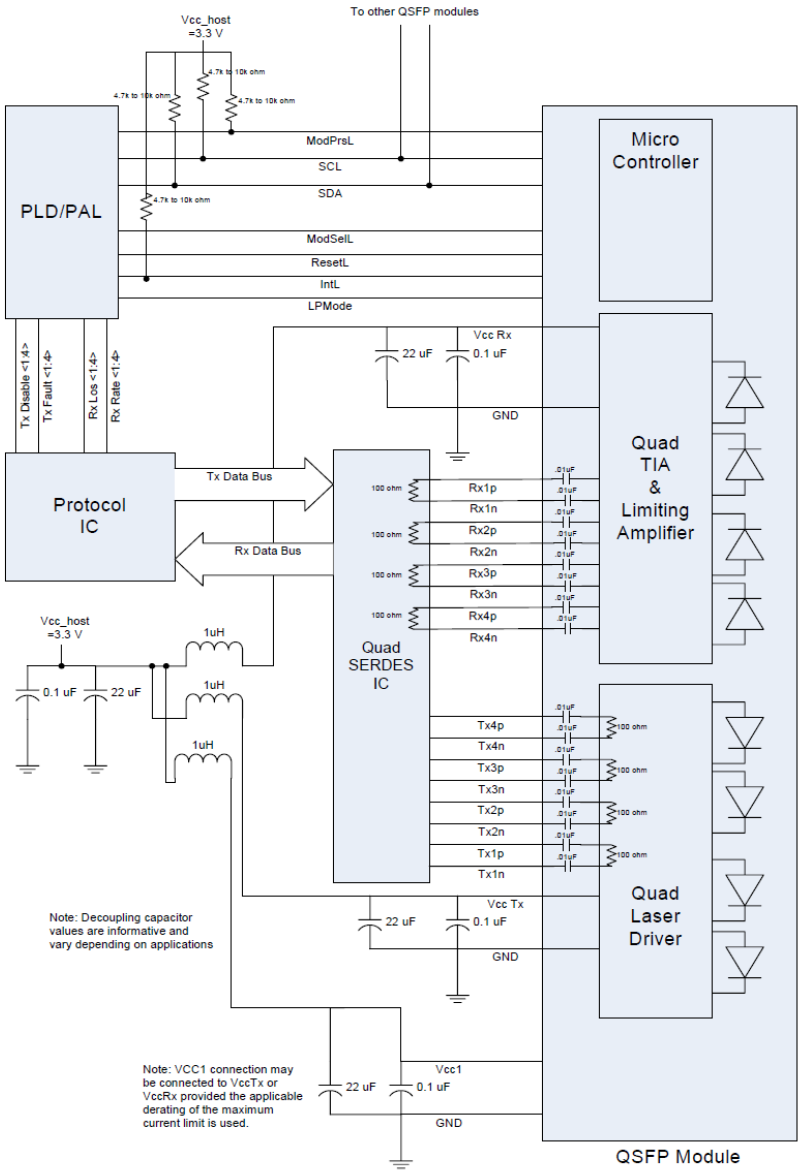
8. Digital Diagnostics Memory Map

2-Wire Serial Address 1010000x
Lower Page 00h
0 Identifier
1- 2 Status
3- 21 Interrupt Flags
22- 33 Free Side Device Monitors
34- 81 Channel Monitors
82- 85 Reserved
86- 98 Control
99 Reserved
100-104 Hardware Interrupt Pin Masks
105-106 Vendor Specific
107 Reserved
108-110 Free Side Device Properties
111-112 Assigned for use by PCI Express
113 Free Side Device Properties
114-118 Reserved
119-122 Password Change Entry Area (Optional)
123-126 Password Entry Area (Optional)
127 Page Select Byte

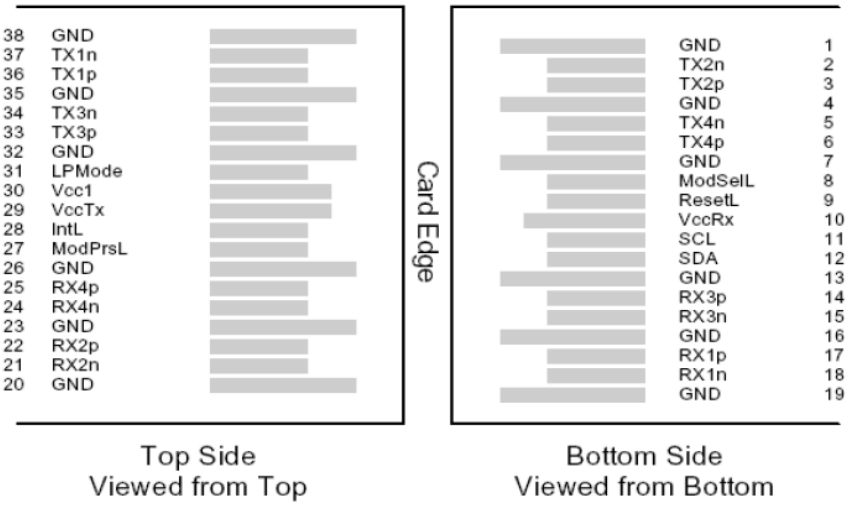
Upper Page 00h	Optional Page 01h	Optional Page 02h	Optional Page 03h
128 Identifier	128 CC_APPS	128-255 User EEPROM Data	128-175 Free Side Device Thresholds
129-191 Base ID Fields	129 AST Table Length (TL)		
	130-131 Application Code Entry 0		
	132-133 Application Code Entry 1		
	134-253 other entries		176-223 Channel Thresholds
192-223 Extended ID			224 Tx EQ & Rx Emphasis Magnitude ID
224-255 Vendor Specific ID			225 RX output amplitude indicators
			226-241 Channel Controls
			242-251 Channel Monitor Masks
	254-255 Application Code Entry TL		252-255 Reserved

FIGURE 6-1 COMMON MEMORY MAP

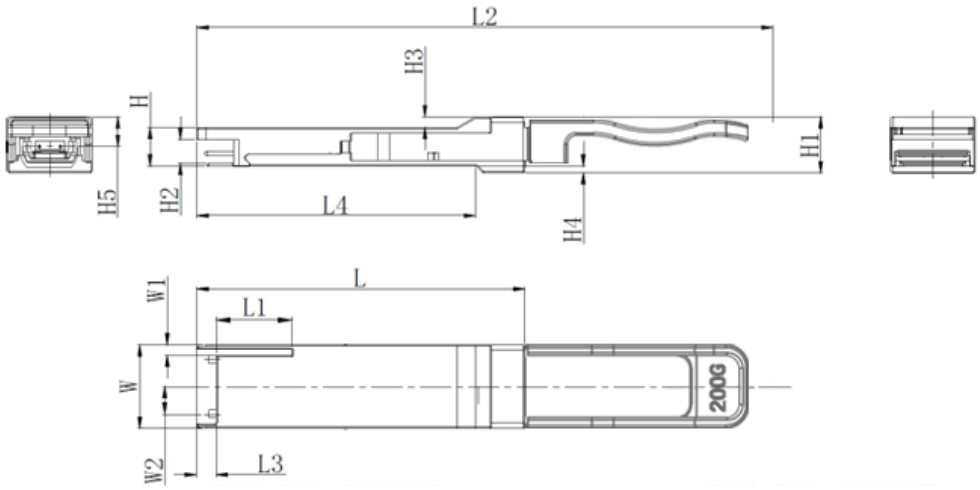
9. Electrical Interface



10. Pin Diagram



11. Mechanical Specifications



12. Revision History

Version	Date	Description	Prepared by
V6	2025	Unified WincoTek datasheet format	WincoTek
V6.1	2026-10-23	Engineering and format review	WincoTek