WTQ112400-DR4-500C

400G QSFP112 DR4 MPO Transceiver / Silicon photonics integrated solution with optical DSP CDR inside

Part Number WTQ112400-DR4-500C	Data Rate 425.0



1. Product Overview

Features

- Silicon photonics integrated solution with optical DSP CDR inside
- Hot-pluggable QSFP112 form factor
- 4x106.25 Gbps electrical interface
- Maximum link length 500m on SMF fiber with FEC
- MPO-12 APC connector
- +3.3V single power supply
- Power dissipation <12W
- Operating case temp Commercial: 0°C to +70 °C
- RoHS compliant

Applications

- Data centers and cloud networks
- 400G Ethernet
- Order Information
- Note1: Case Temperature
- Absolute Maximum Ratings
- Note1: No condensation
- Recommended Operating Conditions
- Electrical Characteristics
- Note1: FEC required on the host system to support maximum distance
- Optical Characteristics
- Functional Descriptione
- Figure 1 400G QSFP112 DR4 Block Diagramt

2. Ordering Information

Part No.	Bit Rate (Gbps)	Laser	Distance	Fiber Type	DDMI	Connector	Tempnote1
WTQ112400-DR4-500C	425.0	1310nm	500m	SMF	YES	MPO 1x12 APC	0℃~+70℃

3. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Supply Voltage	Vcc3	-0.3	-	+3.45	V	
Storage Temperature	Ts	-40	-	+85	°C	
Operating Humidity	RH	5	-	85	%	1
RX damage threshold, per Lane	PRdmg	+5	-	-	dBm	

4. Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	TC	0	-	+70	°C	
Power Supply Voltage	Vcc	3.135	3.3	3.45	V	
Power Dissipation	Pd	-	-	12	W	

5. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Units	Ref.
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Signaling Rate per Lane		53.125 ± 100 ppm	53.125 ± 100 ppm	53.125 ± 100 ppm	GBd	
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Signaling Rate per Lane		53.125 ± 100 ppm	53.125 ± 100 ppm	53.125 ± 100 ppm	GBd	
Operation	Operation	Operation	Operation	Operation	Operation	Operation
Supply Voltage	Vcc	3.135		3.45	V	
Supply Current	Icc			3.8	A	
Module total power	P			12	W	

6. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter	Transmitter
Signaling Rate per Lane		53.125 ± 100 ppm	53.125 ± 100 ppm	53.125 ± 100 ppm	GBd	
Lane Center Wavelengths (range)	L	1304.5		1317.5	nm	
Modulation Format		PAM4	PAM4	PAM4		
Side-mode Suppression ratio (SMSR)	SMSR	30			dB	
Average Launch Power, each lane		-2.9		4	dBm	
Outer Optical Modulation Amplitude, (OMA outer), each Lane	OMA	-0.8		4.2	dBm	
Launch power in OMA outer minus TDECQ		-2.2			dBm	
Transmitter and dispersion eye closure for PAM4 (TDECQ), each lane				3.4	dB	
Optical Extinction Ratio	ER	3.5			dB	

Parameter	Symbol	Min.	Typ.	Max.	Unit	Ref.
Optical Return Loss Tolerance				21.4	dB	
Receiver	Receiver	Receiver	Receiver	Receiver	Receiver	Receiver
Signaling Rate per Lane		53.125 ± 100 ppm	53.125 ± 100 ppm	53.125 ± 100 ppm	GBd	
Lane Center Wavelengths (Range)	L	1304.5		1317.5	nm	
Modulation Format		PAM4	PAM4	PAM4		
Average Receive Power, each Lane		-5.9		4	dBm	
Receive Power (OMA outer), each Lane				4.2	dBm	
Receiver Reflectance				-26	dB	
Stressed Receiver Sensitivity (OMA outer), each Lane				-1.9	dBm	
Receiver Sensitivity (OMA outer), each Lane				-4.4	dBm	

7. Pin Descriptions

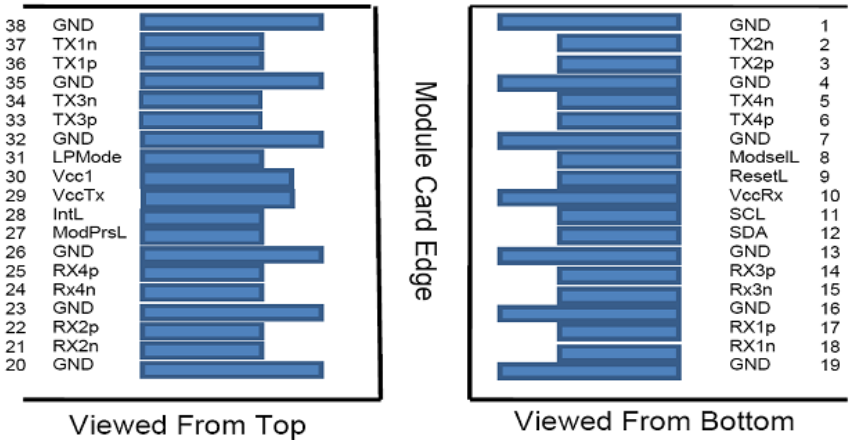
Pin	Symbol	Name/Description	Notes
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	

Pin	Symbol	Name/Description	Notes
19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc Tx	+3.3V Power supply transmitter	
30	Vcc1	+3.3V Power supply	
31	LPMode	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

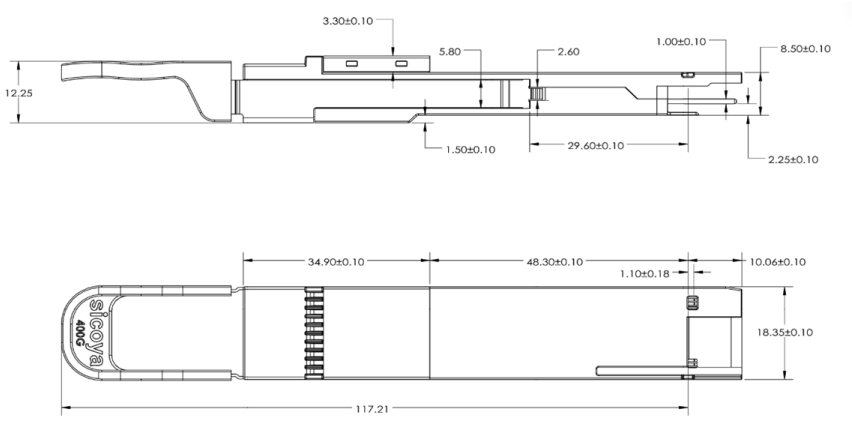
8. Revision History

Version	Initiated	Reviewed	Revision	Release Date
A0	Lynn	Luke	New Release	2023-12-17

9. Technical Figure 1



10. Technical Figure 2



11. Revision History

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