



Driving the future of datacenters

*Making Fast Faster*



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## 400G--400G QSFP-DD DR4--CTD4XDR4CS1-01

### Overview

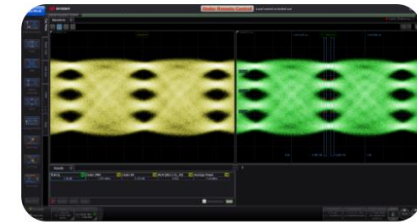
- This product is a 400Gbps QSFP-DD optical module designed for 0.5Km optical communication applications. The module converts 8 channels of 50Gbps (PAM4) electrical input data to 4 channels of parallel optical signals, each capable of 100Gbps operation for an aggregate data rate of 400Gbps.
- On the receiver side, the module converts 4 channels of parallel optical signals of 100Gbps each channel for an aggregate data rate of 400Gbps into 8 channels of 50Gbps (PAM4) electrical output data.
- An optical fiber cable with an MTP/MPO-12 connector can be plugged into the QSFP-DD DR4 module receptacle. Host FEC is required to support up to 0.5Km fiber transmission.

### Key Features

- Compliant to QSFP-DD MSA
- Parallel 4 Optical Lanes
- IEEE 802.3bs 400GBASE-DR4 Specification compliant
- Maximum power consumption 9.5W

### Applications

- 400G Ethernet
- Data Center Interconnect
- Infiniband Interconnect
- Enterprise Networking



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTD4XDR4CS1-01	400G QSFP-DD DR4	400G	1310nm	PIN	-2.9	4	-5.9	4	9.5	500m	0~70

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## 400G--400G QSFP-DD FR4--CTD4XFR4CS1-01

### Overview

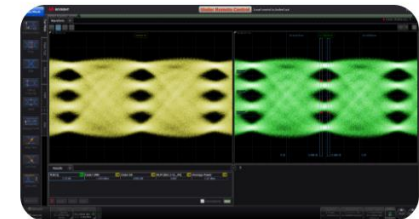
- This product is a 400Gbps QSFP-DD optical module designed for 2km optical communication applications. The module converts 8 channels of 50Gbps (PAM4) electrical input data to 4 channels of CWDM optical signals and multiplexes them into a single channel for 400Gbps optical transmission.
- on the receiver side, the module optically de-multiplexes a 400Gbps optical input into 4 channels of CWDM optical signals and converts them to 8 channels of 50Gbps (PAM4) electrical output data.
- The central wavelengths of the 4 CWDM channels are 1271, 1291, 1311 and 1331 nm as members of the CWDM wavelength grid defined in ITU-T G.694.2.
- Host FEC is required to support up to 2km fiber transmission.

### Key Features

- Compliant to QSFP-DD MSA
- 4 CWDM lanes MUX/DEMUX design
- 100G Lambda MSA 400G-FR4 Specification compliant
- Maximum power consumption 10W

### Applications

- 400G BASE-FR4 Ethernet
- Data Center Interconnect
- Infiniband Interconnect
- Enterprise Networking



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTD4XFR4CS1-01	400G QSFP-DD FR4	400G	EML CWDM	PIN	-3.3	3.5	-7.3	3.5	10	2km	0~70

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## 400G--400G QSFP-DD SR8--CTD4XSR8CS1-01

### Overview

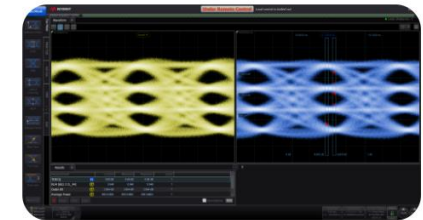
The 400G QSFP-DD SR8 Transceiver is designed to transmit and receive serial optical data links up to 53.125Gbps data rate(per channel) by PAM4 modulation format over multi-mode fiber.

### Key Features

- Up to 53.125Gbps data rate per channel by PAM4 modulation
- Support 400GAUI-8 electrical interface
- Integrated 850nm VCSEL array and PD array
- Single MPO16 connector receptacle optical interface compliant
- DDM function implemented
- Hot-pluggable QSFP-DD form factor
- Single +3.3V power supply
- Maximum link length of 100m on 16 core MPO OM4 (MMF) fiber
- Compliant with ROHS2.0

### Applications

- Data centers and Cloud Networks
- 400GE Interconnect Requirements.



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTD4XSR8CS1-01	400G QSFP-DD SR8	400G	850nm VCSEL	PIN	-6.5	4	-8.4	4	8	100m	0~70

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## 200G--200G QSFP56 FR4 lite--CTD2XFR4CS1-01

### Overview

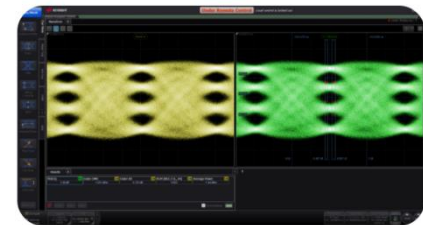
- The ColorChip 200G QSFP56 FR4 is a 4×50Gbps single mode fiber, hot pluggable optical transceiver. ColorChip's unique SystemOnGlass™ (SOGTM) technology enables the integration of 4 transmitters, 4 receivers and an optical MUX/DeMUX into a small form factor package that delivers a 200Gbps data link in a compact QSFP56 footprint.
- The optical connectivity is based on two Single mode Fiber (SMF) LC connectors, one for Tx and one for Rx. The Tx and Rx each consist of 4 50Gbps Coarse Wavelength Division Multiplex (CWDM) channels, whose wavelengths are in the 1310nm range. The 200G QSFP56 FR4 transceiver is designed for applications with a reach up to 2km and with the use of FEC.

### Key Features

- Compliant with IEEE Std 802.3bs
- Compliant with 200G-FR4 optical specifications
- Compliant with SFF-8679
- Compliant with CMIS4.0 Management interface specifications
- 4x53.125Gbps electrical interface (200GAUI-4)
- Up to 2km transmission on single mode fiber (SMF) with FEC
- Single +3.3V power supply
- Case temperature range: 0 ~ +70°C
- Duplex LC connector
- RoHS complaint

### Applications

- 200G BASE-FR4 Ethernet



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTD2XFR4CS1-01	200G QSFP56 FR4 lite	200G	DML CWDM	PIN	-4.2	4.7	-8.2	4.7	7	2km	0~70

# Making Fast Faster

## 200G--200G QSFP56 SR4--CTD2XSR4CS1-01

### Overview

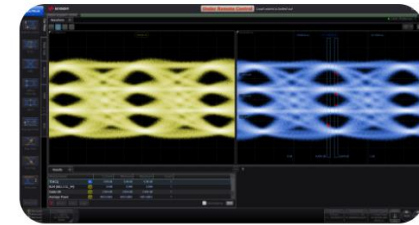
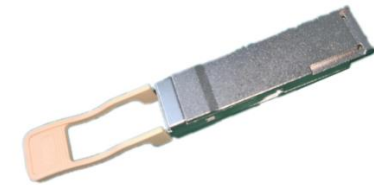
The ColorChip 200G QSFP56 SR4 is a 4×50Gbps multimode fiber, hot pluggable optical transceiver. The module integrates four parallel lanes with baud rate at 26.5625GBd PAM4 modulation each lane. It can transmit up to 70m on fiber OM3 fiber or 100m on OM4 fiber with FEC.

### Key Features

- Compliant with 200G-SR4 optical specifications
- 4x53.125Gbps electrical interface (200GAUI-4)
- Reach up to 70m on MMF(OM3)
- Reach up to 100m on MMF(OM4)
- Single +3.3V power supply
- Case temperature range: 0 ~ +70°C
- Maximum power consumption 4W
- Single MPO12 connector
- RoHS complaint

### Applications

- 200G BASE-SR4 Ethernet links
- Data centers



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTD2XSR4CS1-01	200G QSFP56 SR4	200G	850nm VCSEL	PIN	-6.5	4	-8.4	4	4	100m	0~70

# Making Fast Faster

## 100G--100G QSFP28 FR--CTQ1XFR1CS1-01

### Overview

The ColorChip CTQ1XFR1CS1-01 is designed for 2km optical communication applications. The module integrates one channel optical signal with center wavelength of 1310nm operating at 50Gbaud data rate. A DSP based gearbox is used to convert 4x25Gbps NRZ signals to 1x50Gbaud PAM4 signal. The DSP also integrate a 4-channel retimer and FEC block. The electrical interface is compliant with IEEE 802.3cd and QSFP28 MSA and optical interface is compliant to IEEE 802.3cd and 100G Lambda MSA with Duplex LC connector.

### Key Features

- Compliant with the QSFP28 MSA Technical Specifications
- Optical data rate 53.125GBd
- Electrical side support 4x25Gbps NRZ or 2x 53Gbps PAM4
- Maximum link length of 2km on Single Mode Fiber (SMF)
- Optical specifications are compliant with 100G-FR Technical Specifications
- Low speed electrical signal is compliant with SFF-8679
- High speed electrical signal is compliant with 802.3bm CAUI-4
- Digital diagnostic functions are available via the I2C interface, as specified by SFF-8636
- Cooled EML laser with central wavelengths of 1310nm
- Duplex LC receptacles
- ROHS Compliant

### Applications

- 100GBASE-FR Ethernet links
- Datacenter interconnects



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1XFR1CS1-01	100G QSFP28 FR	100G	EML 1310nm	PIN	-2.4	4	-6.4	4.5	4	2km	0~70

# Making Fast Faster

## 100G--100G QSFP28 DR--CTQ1XDR1CS1-01

### Overview

The ColorChip CTQ1XDR1CS1-01 is designed for 500m optical communication applications. The module integrates one channel optical signal with center wavelength of 1310nm operating at 50Gbaud data rate. A DSP based gearbox is used to convert 4x25Gbps NRZ signals to 1x50Gbaud PAM4 signal. The DSP also integrate a 4-channel retimer and FEC block. The electrical interface is compliant with IEEE 802.3cd and QSFP28 MSA and optical interface is compliant to IEEE 802.3cd and 100G Lambda MSA with Duplex LC connector.

### Key Features

- Compliant with the QSFP28 MSA Technical Specifications
- Optical data rate 53.125 GBd
- Electrical side support 4x25Gbps NRZ or 2x 53Gbps PAM4
- Maximum link length of 500m on Single Mode Fiber (SMF)
- Optical specifications are compliant with IEEE802.3cd 100GBASE-DR
- Low speed electrical signal is compliant with SFF-8679
- High speed electrical signal is compliant with 802.3bm CAUI-4
- Digital diagnostic functions are available via the I2C interface, as specified by SFF-8636
- Cooled EML laser with central wavelengths of 1310nm
- Duplex LC receptacles
- ROHS Compliant

### Applications

- 100GBASE-DR Ethernet links
- Datacenter interconnects



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1XDR1CS1-01	100G QSFP28 DR	100G	EML 1310nm	PIN	-2.9	4	-5.9	4	4	500m	0~70



# Making Fast Faster

## 100G--100G QSFP28 CWDM4--CTQ1XCW4CS3-01

### Overview

- The ColorChip 100G QSFP28 CWDM4 is a 4x25G single-mode fiber, hot pluggable optical transceiver. ColorChip's unique SystemOnGlas™ (SOG™) technology enables the integration of 4 transmitters, 4 receivers and an optical MUX/ DeMUX into a small form factor package that delivers a 100 Gbps data link in a compact QSFP28 footprint.
- The optical connectivity is based on two Single mode Fiber (SMF) LC connectors, one for Tx and one for Rx. The Tx and Rx each consist of 4 25Gbps CWDM channels, whose wavelengths are in the 1300nm range. The QSFP28 CWDM4 transceiver is designed for applications with a reach up to 2000m and with the use of FEC.

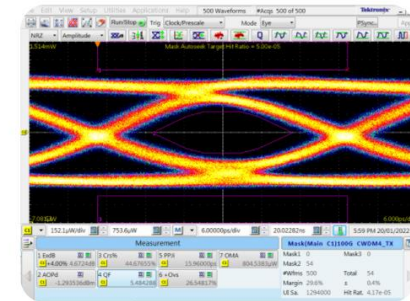


### Key Features

- High density interconnectivity
- Supports 100Gbps data rate links up to 2km on a Single mode Fiber (SMF)
- Industry standard QSFP28 form factor
- Power Dissipation < 3.5W
- Single 3.3V Power Supply

### Applications

- Data Center interconnections
- 100GBASE Ethernet links



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1XCW4CS3-01	100G QSFP28 CWDM4	100G	DML CWDM	PIN	-6.5	2.5	-11.5	2.5	3.5	2km	0~70

# Making Fast Faster

## 100G--100G QSFP28 CWDM4 lite--CTQ1XC4LP13-01

### Overview

- The ColorChip 100G QSFP28 CWDM4 Lite is a 4x25G single-mode fiber, hot pluggable optical transceiver. ColorChip's unique SystemOnGlass™ (SOGTM) technology enables the integration of 4 transmitters, 4 receivers and an optical MUX/ DeMUX into a small form factor package that delivers a 100 Gbps data link in a compact QSFP28 footprint.
- The optical connectivity is based on two Single mode Fiber (SMF) LC connectors, one for Tx and one for Rx. The Tx and Rx each consist of 4 25Gbps CWDM channels, whose wavelengths are in the 1300nm range. The QSFP28 CWDM4 Lite transceiver is designed for applications with a reach up to 500m and with the use of FEC.

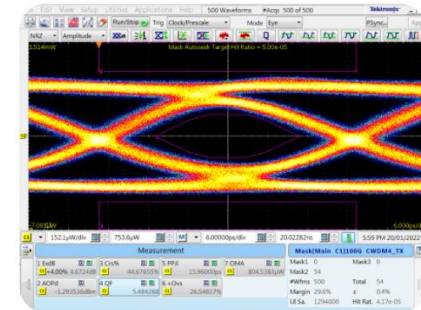


### Key Features

- High density interconnectivity
- Supports 100Gbps data rate links up to 2km on a Single mode Fiber (SMF)
- Industry standard QSFP28 form factor
- Power Dissipation < 3.5W
- Single 3.3V Power Supply

### Applications

- Data Center interconnections
- 100GBASE Ethernet links



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1XC4LP13-01	100G QSFP28 CWDM4 lite	100G	DML CWDM	PIN	-6.5	2.5	-11.5	2.5	3.5	500m	15~55

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## 100G--100G QSFP28 4WDM-10--CTQ1X4C1CS3-01

### Overview

- The ColorChip 100G QSFP28 4WDM-10 is a 4x25G single-mode fiber, hot pluggable optical transceiver. ColorChip's unique SystemOnGlass™ (SOGTM) technology enables the integration of 4 transmitters, 4 receivers and an optical MUX/ DeMUX into a small form factor package that delivers a 100 Gbps data link in a compact QSFP28 footprint.
- The optical connectivity is based on two Single mode Fiber (SMF) LC connectors, one for Tx and one for Rx. The Tx and Rx each consist of 4 25Gbps CWDM channels, whose wavelengths are in the 1300nm range. The QSFP28 4WDM-10 transceiver is designed for applications with a reach up to 10km and with the use of FEC.

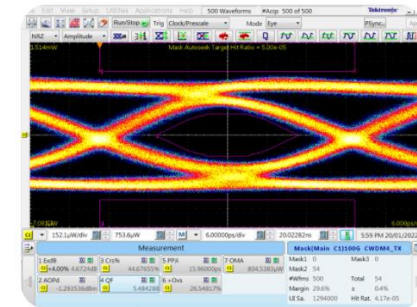


### Key Features

- High density interconnectivity
- Supports 100Gbps data rate links up to 10km
- on a Single mode Fiber (SMF)
- Industry standard QSFP28 form factor
- Power Dissipation < 3.5W
- Single 3.3V Power Supply

### Applications

- Data Center interconnections
- 100GBASE Ethernet links



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1X4C1CS3-01	100G QSFP28 4WDM-10	100G	DML CWDM	PIN	-6.5	2.5	-13	2.5	3.5	10km	0~70

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## 40/100G--40G and 100G QSFP28 CWDM4--CTQ1MCW4CS3-01

### Overview

- The ColorChip 100G QSFP28 CWDM4 is a 4x25G single-mode fiber, hot pluggable optical transceiver. ColorChip's unique SystemOnGlas™ (SOGTM) technology enables the integration of 4 transmitters, 4 receivers and an optical MUX/ DeMUX into a small form factor package that delivers a 100 Gbps data link in a compact QSFP28 footprint.
- The optical connectivity is based on two Single mode Fiber (SMF) LC connectors, one for Tx and one for Rx. The Tx and Rx each consist of 4 25Gbps CWDM channels, whose wavelengths are in the 1300nm range. The QSFP28 CWDM4 transceiver is designed for applications with a reach up to 2000m and with the use of FEC.

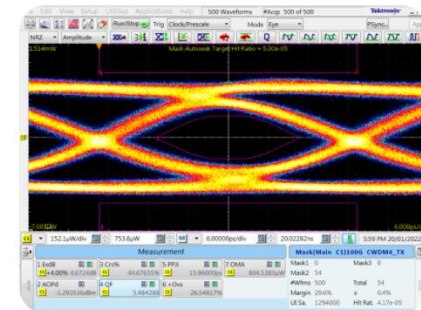


### Key Features

- High density interconnectivity
- Supports 100Gbps data rate links up to 2km on a Single mode Fiber (SMF)
- Industry standard QSFP28 form factor
- Power Dissipation < 3.5W
- Single 3.3V Power Supply

### Applications

- Data Center interconnections
- 100GBASE Ethernet links



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1MCW4CS3-01	40G and 100G QSFP28 CWDM4	40/100G	DML CWDM	PIN	-6.5	2.5	-11.5	2.5	3.5	100G 2km 40G 10km	0~70

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## 40/100G--40G and 100G QSFP28 CWDM4 lite--CTQ1MC4LP13-01

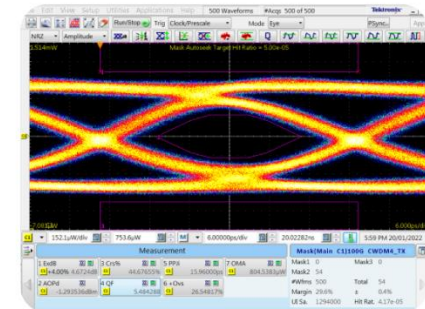
### Overview

- The ColorChip 100G QSFP28 CWDM4 Lite is a 4x25G single-mode fiber, hot pluggable optical transceiver. ColorChip's unique SystemOnGlass™ (SOGTM) technology enables the integration of 4 transmitters, 4 receivers and an optical MUX/ DeMUX into a small form factor package that delivers a 100 Gbps data link in a compact QSFP28 footprint.
- The optical connectivity is based on two Single mode Fiber (SMF) LC connectors, one for Tx and one for Rx. The Tx and Rx each consist of 4 25Gbps CWDM channels, whose wavelengths are in the 1300nm range. The QSFP28 CWDM4 Lite transceiver is designed for applications with a reach up to 500m and with the use of FEC.



### Key Features

- High density interconnectivity
- Supports 100Gbps data rate links up to 2km on a Single mode Fiber (SMF)
- Industry standard QSFP28 form factor
- Power Dissipation < 3.5W
- Single 3.3V Power Supply



### Applications

- Data Center interconnections
- 100GBASE Ethernet links

PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1MC4LP13-01	40G and 100G QSFP28 CWDM4 lite	40/100G	DML CWDM	PIN	-6.5	2.5	-11.5	2.5	3.5	100G 500m 40G 2km	15~55

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## 100G--100G QSFP28 CLR4--CTQ1XCR4CS1-01

### Overview

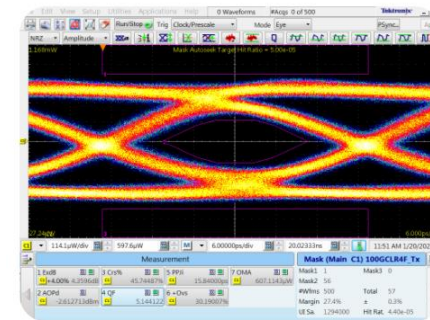
- The ColorChip 100G QSFP28 CLR4 is a 4x25G single-mode fiber, hot pluggable optical transceiver. ColorChip's unique SystemOnGlass™ (SOG™) technology enables the integration of 4 transmitters, 4 receivers and an optical MUX/ DeMUX into a small form factor package that delivers a 100 Gbps data link in a compact QSFP28 footprint.
- The optical connectivity is based on two Single mode Fiber (SMF) LC connectors, one for Tx and one for Rx. The Tx and Rx each consist of 4 25Gbps CWDM channels, whose wavelengths are in the 1300nm range. The QSFP28 CLR4 transceiver is designed for applications with a reach up to 2Km

### Key Features

- High density interconnectivity
- Supports 100Gbps data rate links up to 2km on a Single mode Fiber (SMF)
- Industry standard QSFP28 form factor
- Power Dissipation < 3.5W
- Single 3.3V Power Supply

### Applications

- Data Center interconnections
- 100GBASE Ethernet links



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1XCR4CS1-01	100G QSFP28 CLR4	100G	DML CWDM	PIN	-6.5	2.5	-10.5	2.5	3.5	2km	0~70

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## 100G--100G QSFP28 LR4--CTQ1XLR4CS1-01

### Overview

- The ColorChip C100Q100LR402E
- QSFP28 LR4 is a 4x25G single-mode fiber, hot pluggable optical transceiver. ColorChip's unique SystemOnGlass™ (SOG™) technology enables the integration of 4 transmitters, 4 receivers and an optical MUX/ DeMUX into a small form factor package that delivers up to 112 Gbps data link in a compact QSFP28 footprint.
- The optical connectivity is based on two Single mode Fiber (SMF) LC connectors, one for Tx and one for Rx. The Tx and Rx each consist of 4 25Gbps LAN-WDM channels, whose wavelengths are in the 1300nm range. The QSFP28 LR4 transceiver is designed for applications with a reach up to 10Km.

### Key Features

- Compliant with the QSFP28 MSA Technical Specifications.
- Supports operation for a data rate of 103.1Gbps.
- Maximum link length of 10km on Single Mode Fiber (SMF).
- Optical specifications are compliant with IEEE802.3ba 100GBASE-LR4.
- Low speed electrical signal is compliant with SFF-8679.
- High speed electrical signal is compliant with 802.3bm CAUI-4.
- Digital diagnostic functions are available via the I2C interface, as specified by SFF-8636.
- 4x25Gbps DFB-based LAN-WDM transmitter with central wavelengths of 4 channels 1295.56, 1300.05, 1304.58 and 1309.14 nm.
- Duplex LC receptacles.
- ROHS Compliant.

### Applications

- 100GBASE-LR4 Ethernet links



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1XLR4CS1-01	100G QSFP28 LR4	100G	DML LWDM	PIN	-4.3	4.5	-10.6	4.5	3.5	10km	0~70

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## 100/112G--100G and 112G QSFP28 LR4--CTQ1MLR4CS1-01

### Overview

- The ColorChip QSFP28 LR4 is a 4x28G single-mode fiber, hot pluggable optical transceiver. ColorChip's unique SystemOnGlass™ (SOG™) technology enables the integration of 4 transmitters, 4 receivers and an optical MUX/ DeMUX into a small form factor package that delivers up to 112 Gbps data link in a compact QSFP28 footprint.
- The optical connectivity is based on two Single mode Fiber (SMF) LC connectors, one for Tx and one for Rx. The Tx and Rx each consist of 4 28Gbps LAN-WDM channels, whose wavelengths are in the 1300nm range. The QSFP28 LR4 transceiver is designed for applications with a reach up to 10Km.

### Key Features

- Compliant with the QSFP28 MSA Technical Specifications.
- Supports 103.1Gbps and 112Gbps data rates.
- Maximum link length of 10km on Single Mode Fiber (SMF).
- Optical specifications are compliant with IEEE802.3ba 100GBASE-LR4 and OTU4 4I1-9D1F requirements specified in ITU-T.
- Low speed electrical signal is compliant with SFF-8679.
- High speed electrical signal is compliant with 802.3bm CAUI-4.
- Digital diagnostic functions are available via the I2C interface, as specified by SFF-8636.
- 4x28Gbps DFB-based LAN-WDM transmitter with central wavelengths of 4 channels 1295.56, 1300.05, 1304.58 and 1309.14 nm.
- Duplex LC receptacles.
- ROHS Compliant.

### Applications

- 100GBASE-LR4 Ethernet links
- OTN OTU4 4I1-9D1F



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1MLR4CS1-01	100G and 112G QSFP28 LR4	100/112G	DML LWDM	PIN	-4.3	4.5	-10.6	4.5	3.5	10km	0~70



# Making Fast Faster

## 100G--100G QSFP28 SR4 --CTQ1XSR4CS1-01

### Overview

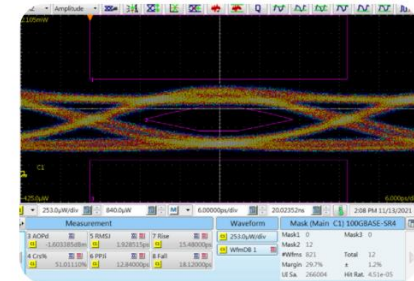
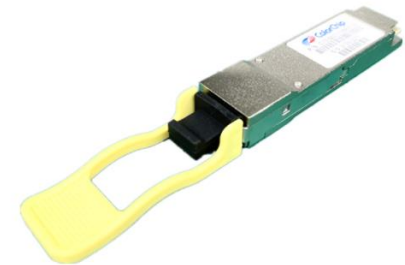
- The ColorChip 100G QSFP28 SR4 is a 4×25Gbps multimode fiber, hot pluggable optical transceiver. The module integrates four parallel lanes with data rate at 25.78Gbps each lane. It can transmit up to 70m on fiber OM3 fiber or 100m on OM4 fiber with FEC.

### Key Features

- Compliant with IEEE Std 802.3bm
- Compliant with SFF-8665
- Transmission data rate up to 25.78125 Gbps Data rate per channel
- High Reliability 850nm VCSEL technology
- Electrically hot-pluggable
- Single +3.3V power supply
- Case temperature range: 0 ~ +70°C
- Maximum power consumption 2.5W
- Single MPO12 connector
- RoHS complaint

### Applications

- 100GBASE-SR4 Ethernet links
- Data centers



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1XSR4CS1-01	100G QSFP28 SR4	100G	850nm VCSEL	PIN	-8.4	2.4	-10.3	2.4	2.5	100m	0~70

# Making Fast Faster

## 100/112G--100G and 112G QSFP28 SR4--CTQ1MSR4CS1-01

### Overview

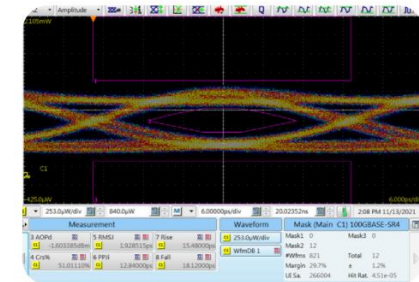
- The ColorChip C100Q001SR402F QSFP28 SR4 is a 4×28Gbps multimode fiber, hot pluggable optical transceiver. The module integrates four parallel lanes with data rate at up to 28Gbps each lane. It can transmit up to 70m on fiber OM3 fiber or 100m on OM4 fiber with FEC.

### Key Features

- Compliant with IEEE Std 802.3bm
- Compliant with SFF-8665
- Supports 100Gbps and 112Gbps dual data rates.
- Transmission data rate up to 28Gbps Data rate per channel
- High Reliability 850nm VCSEL technology
- Electrically hot-pluggable
- Single +3.3V power supply
- Case temperature range: 0 ~ +70°C
- Maximum power consumption 2.5W
- Single MPO12 connector
- RoHS complaint

### Applications

- 100GBASE-SR4 Ethernet links
- Data centers
- OTN OTU4 4I1-9D1F



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ1MSR4CS1-01	100G and 112G QSFP28 SR4	100/112G	850nm VCSEL	PIN	-8.4	2.4	-10.3	2.4	2.5	100m	0~70

# Making Fast Faster

## 40G--40G QSFP+ LR4--CTQ40LR4CS2-01

### Overview

- The ColorChip 40G QSFP+ LR4 is a 4×10G single-mode fiber, hot pluggable optical transceiver. ColorChip's unique
- SystemOnGlass™ (SOG™) technology enables the integration of 4 transmitters, 4 receivers and an optical MUX/ DeMUX into a small form factor package that delivers a 40Gbps data link in a compact QSFP+ footprint.
- The optical connectivity is based on two Single mode Fiber (SMF) LC connectors, one for Tx and one for Rx. The Tx and Rx each consist of 4 10Gbps CWDM channels, whose wavelengths are in the 1300nm range. The QSFP+ LR4 transceiver is designed for applications with a reach up to 10km.
- The LR4 transceiver is based on proprietary ColorChip PLC technology, using surface mounted opto-electronic devices with no free space elements. The unique design of the optical engine facilitates unparalleled compactness while maintaining Telcordia robustness.

### Key Features

- High density interconnectivity
- Supports 40Gbps data rate links up to 10km on a Single mode Fiber (SMF)
- Industry standard QSFP+ form factor Single 3.3V Power Supply

### Applications

- Data Center interconnections 40GBASE Ethernet links
- 40G Telecom connections QDR/DDR Infiniband links



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CTQ40LR4CS2-01	40G QSFP+ LR4	40G	DML CWDM	PIN	-7	2.3	-13.7	2.3	3.5	10km	0~70

# Making Fast Faster

## 400G--400G QSFP56-DD AOC--CAD4X0xxCS1-01

### Overview

- The ColorChip 400G QSFP56-DD AOC is 2\* 8×50Gbps with multimode fiber connected, hot pluggable active optical cable. The either end module integrates eight parallel lanes with 26.5625GBd PAM4 modulation each lane.

### Key Features

- Up to 53.125Gbps data rate per channel by PAM4 modulation
- Support 40G AU-I-8 electrical interface
- Integrated 850nm VCSEL array and PD array
- DDM function implemented
- Hot-pluggable QSFP-DD form factor
- Single +3.3V power supply
- Compliant with ROHS2.0

### Applications

- Data centers and Cloud Networks



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CAD4X0xxCS1-01	400G QSFP56-DD AOC	400G	850nm VCSEL	PIN	NA	NA	NA	NA	8 each end	1~100m	0~70

# Making Fast Faster

## 400G--400G QSFP-DD to QSFP56 2\*200G AOC--CAD4XFxxCS1-01

### Overview

The ColorChip 400G QSFP56-DD to QSFP56 2\*200G AOC is 1\* 8×50Gbps to 2\* 4×50Gbps with multimode fiber connected each end, hot pluggable active optical cable. The module integrates eight parallel lanes on 400G end and four parallel lanes on each 200G end with 26.5625GBd PAM4 modulation each lane.

### Key Features

- Active optical cable with breakout from QSFP-DD 400G to two QSFP56 200G
- Up to 53.125Gbps data rate per channel by PAM4 modulation
- Integrated 850nm VCSEL array and PD array
- DDM function implemented
- Hot-pluggable
- Low power dissipation: <8W on QSFP-DD end, <4W on QSFP56 end
- Commercial operating case temperature range: 0°C to 70 °C
- Compliant with ROHS2.0



### Applications

- Data centers and Cloud Networks

PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CAD4XFxxCS1-01	400G QSFP-DD to QSFP56 2*200G AOC	400G	850nm VCSEL	PIN	NA	NA	NA	NA	8(400G end) 4(200G end)	1~100m	0~70

# Making Fast Faster

## 200G--200G QSFP56 AOC--CAD2X0xxCS1-01

### Overview

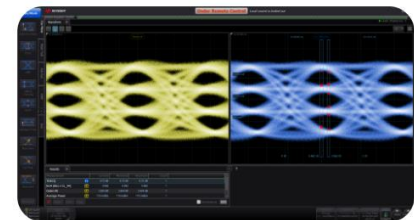
- The ColorChip 200G QSFP56 AOC is 2\* 4×50Gbps with multimode fiber connected, hot pluggable active optical cable. The either end module integrates four parallel lanes with 26.5625GBd PAM4 modulation each lane.

### Key Features

- Up to 50Gbps data rate per channel by PAM4 modulation
- Support 200GAUI-4 electrical interface
- Integrated 850nm VCSEL array and PD array
- Single +3.3V power supply
- Case temperature range: 0 ~ +70°C
- Hot-pluggable QSFP form factor
- RoHS complaint

### Applications

- Data centers and Cloud Networks



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CAD2X0xxCS1-01	200G QSFP56 AOC	200G	850nm VCSEL	PIN	NA	NA	NA	NA	4 each end	1~100m	0~70

# Making Fast Faster

## 200G--200G QSFP56 to QSFP56 2\*100G AOC--CAD2XFxxCS1-01

### Overview

- The ColorChip 200G QSFP56 to QSFP 2\*100G AOC is 1\* 4×50Gbps to 2\* 2×50Gbps with multimode fiber connected each end, hot pluggable active optical cable. The module integrates four parallel lanes on 200G end and two parallel lanes on each 100G end with 26.5625GBd PAM4 modulation each lane.

### Key Features

- Active optical cable with breakout from QSFP56 200G to two QSFP56 100G
- Up to 53.125Gbps data rate per channel PAM4 modulation
- Integrated 850nm VCSEL array and PD array
- DDM function implemented
- Hot-pluggable
- Low power dissipation: : <4W on 200G end, <3W on 100G end
- Commercial operating case temperature range: 0°C to 70 °C
- Compliant with ROHS2.0

### Applications

- Data centers and Cloud Networks
- 200G InfiniBand HDR systems



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CAD2XFxxCS1-01	200G QSFP56 to QSFP56 2*100G AOC	200G	850nm VCSEL	PIN	NA	NA	NA	NA	4(200G end) 3(100G end)	1~100m	0~70

# Making Fast Faster

## 100G--100G QSFP28 AOC--CAQ1X0xxCS1-01

### Overview

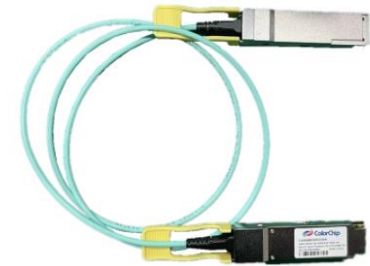
- The ColorChip 100G QSFP28 AOC is 2\* 4×25Gbps with multimode fiber connected, hot pluggable active optical cable. The either end module integrates four parallel lanes with bit rate at 25.78125Gbps each lane.

### Key Features

- Compliant with IEEE Std 802.3bm
- Compliant with SFF-8665
- Full duplex 4 channel 850nm parallel active optical cable
- Transmission data rate up to 25.78125 Gbps Data rate per channel
- High Reliability 850nm VCSEL technology
- Electrically hot-pluggable
- Single +3.3V power supply
- Case temperature range: 0 ~ +70°C
- Maximum power consumption 2.5W per cable end
- RoHS complaint

### Applications

- 100G BASE-SR4 Ethernet links
- Data centers



PN	Product Description	Data Rate(Gbit/s)	TX	RX	TX_Min (dBm)	TX_Max (dBm)	RX_Min (dBm)	RX_Max (dBm)	Power Consumption (W)	Reach	Temperature (deg C)
CAQ1X0xxCS1-01	100G QSFP28 AOC	100G	850nm VCSEL	PIN	NA	NA	NA	NA	2.5 each end	1~100m	0~70