



Driving the future of datacenters

Making Fast Faster



Product Catalog



ColorChip
SystemOnGlass™



Power and performance for optimized mega-datacenters of the future

Company Profile

ColorChip brings high speed data transmission to the world's top mega datacenters and enterprises. We are the pioneering global leader of hyperscale single-mode solutions, leveraging our patented SystemOnGlass™ platform to deliver robust yet compact optical transceivers that support immense rates of data-intensive applications.

Headquartered in Israel, a privately held company founded in 2001, ColorChip boasts an impressive track record of first releases. We are committed to a unique blueprint-to-scale delivery approach, fully controlled from our wholly owned fab in Israel, through to our very own packaging and testing facility in Thailand. ColorChip is reinventing datacenter dynamics, making fast data flows much, much faster.

ColorChip's Corporation and Products' Certifications:



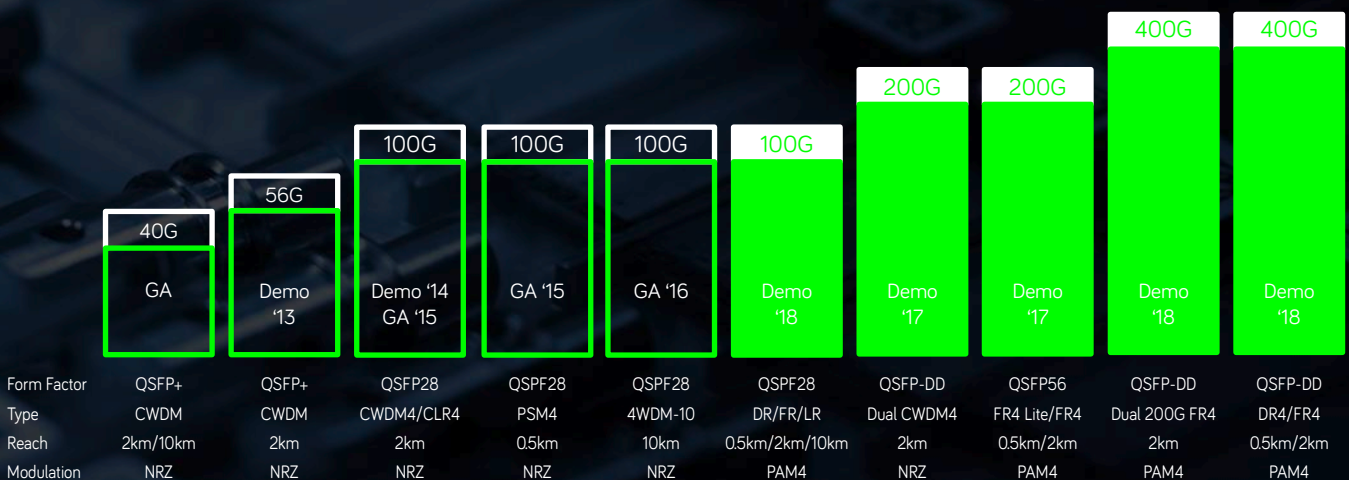
ColorChip was selected as Red Herring Top 100 Private Companies in Europe

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Scalability roadmap for ColorChip High Speed Transceivers

Moving data into the future, faster

40G → 400G @ QSFPx Form Factor



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40G QSFP+ LR4 Lite Transceiver

Overview

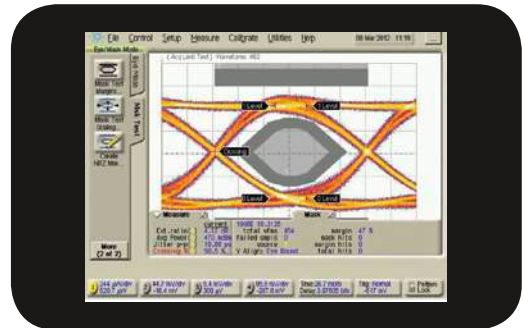
- 40Gbps hot pluggable transceiver in QSFP+ form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine combining uncooled 4 × 10Gbps CWDM DFB lasers with integrated MUX/DeMUX
- Built in digital diagnostics
- XLPI electrical interface
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- 40GBASE Ethernet links
- OTN, OTU-3
- QDR/DDR Infiniband links
- 40G Telecom connections
- Data Center interconnections

40GBASE QSFP+ LRL4

- Hot pluggable electrical interface based on IEEE 802.3ba standard and SFF-8436
- Supports 40Gb/s data rate links up to 2km over SMF
- Typical Power dissipation: 2.7W
- Single 3.3V power supply



40G QSFP+ LR4 Lite Transceiver Typical Optical Eye

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gb/s)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Optical Modulation Amplitude (OMA) per Lane (dBm)	Extinction Ratio (dB)	Sensitivity (OMA) per Lane (dBm*)
40GBASE QSFP+ LR4 Lite	1270 / 1290 / 1310 / 1330	2.5 to 10.7	3.3 ± 5%	2.7	0 to 70	≤2	-5 to +3.5	>3.5	<-10.5

* Receiver OMA Sensitivity per lane (@ 10.3125Gb/s, PRBS 2³¹-1, BER = 10⁻¹²)

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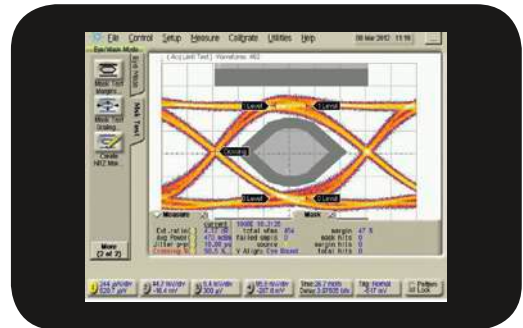
40G QSFP+ LR4 Transceiver

Overview

- 40Gbps hot pluggable transceiver in QSFP+ form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine combining uncooled 4 × 10Gbps CWDM DFB lasers with integrated MUX/DeMUX
- Built in digital diagnostics
- XLPI electrical interface
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- 40GBASE Ethernet links
- OTN, OTU-3
- QDR/DDR Infiniband links
- 40G Telecom connections
- Data Center interconnections



40G QSFP+ LR4 Transceiver Typical Optical Eye

40GBASE QSFP+ LR4

- Hot pluggable electrical interface based on IEEE 802.3ba standard and SFF-8436
- Supports 40Gb/s data rate links up to 10km over SMF
- Typical power dissipation: 2.7W
- Single 3.3V power supply

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gb/s)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Optical Modulation Amplitude (OMA) per Lane (dBm)	Extinction Ratio (dB)	Sensitivity (OMA) per Lane (dBm*)
40GBASE QSFP+ LR4	1270 / 1290 / 1310 / 1330	2.5 to 10.7	3.3 ± 5%	2.7	0 to 70	≤10	-4 to +3.5	>3.5	<-11.5

* Receiver OMA Sensitivity per lane (@ 10.3125Gb/s, PRBS 2³¹-1, BER = 10⁻¹²)

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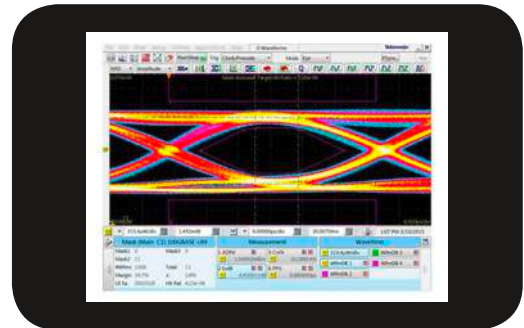
100G QSFP28 CWDM4 Lite Transceiver

Overview

- 100Gbps hot pluggable transceiver in QSFP28 form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine combining uncooled 4 × 25Gbps CWDM DFB lasers with integrated MUX/DeMUX
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 15 to 55°C

Applications

- 100G Ethernet links
- 100GE Enterprise switch and routers
- Carrier grade 100GE core routers
- Point-to-point and ring applications



100G QSFP28 CWDM4 Lite Transceiver Typical Optical Eye

100G QSFP28 CWDM4 Lite

- Supports up to 100Gb/s data rate links
- Based on QSFP28 baseline specifications
- Typical power dissipation: 2.6W
- Single 3.3V power supply

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gb/s)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Optical Modulation Amplitude (OMA) per Lane (dBm)	Extinction Ratio (dB)	Sensitivity (OMA) per Lane (dBm*)
100G QSFP28 CWDM4 Lite	1270 / 1290 / 1310 / 1330	25.78125	3.3 ± 5%	2.6	15 to 55	≤0.5	-5.0 to 2.5	>3.5	-9.5 (*)

*Receiver Sensitivity (OMA), each lane (max) for BER = 5 × 10⁻⁵

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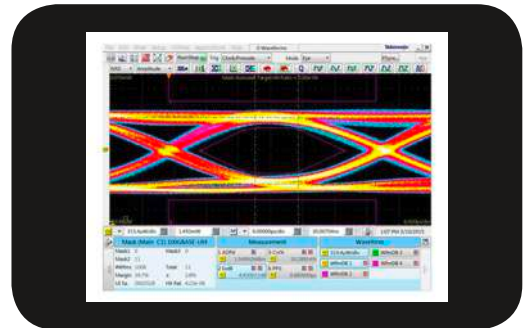
100G QSFP28 CWDM4 Transceiver

Overview

- 100Gbps hot pluggable transceiver in QSFP28 form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine combining uncooled 4 × 25Gbps CWDM DFB lasers with integrated MUX/DeMUX
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- 100G Ethernet links
- 100GE Enterprise switch and routers
- Carrier grade 100GE core routers
- Point-to-point and ring applications



100G QSFP28 CWDM4 Transceiver Typical Optical Eye

100G QSFP28 CWDM4

- Supports up to 100Gb/s data rate links
- Based on 100G CWDM4 MSA baseline requirement and QSFP28 baseline specifications
- Typical power dissipation: 2.7W
- Single 3.3V power supply

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gb/s)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Optical Modulation Amplitude (OMA) per Lane (dBm)	Extinction Ratio (dB)	Sensitivity (OMA) per Lane (dBm*)
100G QSFP28 CWDM4	1270 / 1290 / 1310 / 1330	25.78125	3.3 ± 5%	2.7	0 to 70	≤2	-4.0 to 2.5	>3.5	-10 (*)

*Receiver Sensitivity (OMA), each lane (max) for BER = 5 × 10⁻⁵

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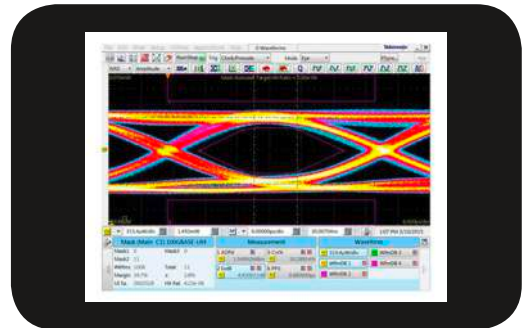
100G QSFP28 CLR4 Transceiver

Overview

- 100Gbps hot pluggable transceiver in QSFP28 form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine combining uncooled 4 × 25Gbps CWDM DFB lasers with integrated MUX/DeMUX
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- 100G Ethernet links
- 100GE Enterprise switch and routers
- Carrier grade 100GE core routers
- Point-to-point and ring applications



100G QSFP28 CLR4 Transceiver Typical Optical Eye

100G QSFP28 CLR4

- Supports up to 100Gb/s data rate links
- Based on CLR4 MSA baseline requirement and QSFP28 baseline specification
- Typical power dissipation: 2.7W
- Single 3.3V power supply

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gb/s)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Optical Modulation Amplitude (OMA) per Lane (dBm)	Extinction Ratio (dB)	Sensitivity (OMA) per Lane (dBm*)
100G QSFP28 CLR4	1270 / 1290 / 1310 / 1330	25.78125	3.3 ± 5%	2.7	0 to 70	≤2	-4.0 to 2.5	>3.5	-8.1 (*)

*Receiver Sensitivity (OMA), each lane (max) for BER = 1 × 10⁻¹²

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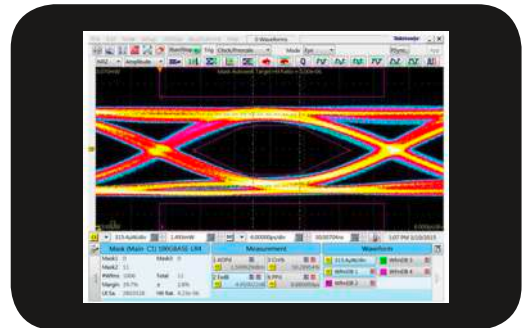
100G QSFP28 4WDM-10 10KM Transceiver

Overview

- 100Gbps hot pluggable transceiver in QSFP28 form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine combining uncooled 4 × 25Gbps CWDM DFB lasers with integrated MUX/DeMUX
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- 100G Ethernet links with up to 10km reach
- 100GE Enterprise switch and routers
- Carrier grade 100GE core routers
- Point-to-point and ring applications



100G QSFP28 4WDM-10 Transceiver Typical Optical Eye

100G QSFP28 4WDM-10

- Supports up to 100Gb/s data rate links
- Based on 100G 4WDM-10 MSA baseline requirement and QSFP28 baseline specification
- Typical power dissipation: 2.7W
- Single 3.3V power supply

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gb/s)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Optical Modulation Amplitude (OMA) per Lane (dBm)	Extinction Ratio (dB)	Sensitivity (OMA) per Lane (dBm*)
100G QSFP28 4WDM-10	1270 / 1290 / 1310 / 1330	25.78125	3.3 ± 5%	2.7	0 to 70	≤10	-4.0 to 2.5	>3.5	-11.5 (*)

*Receiver Sensitivity (OMA), each lane (max) for BER = 5 × 10⁻⁶

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100G QSFP28 PSM4 Transceiver

Overview

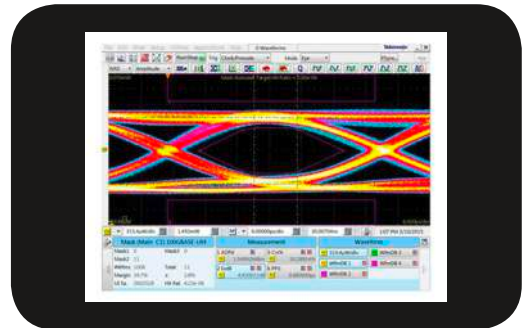
- 100Gbps hot pluggable transceiver in QSFP28 form factor
- Optical connectivity based on integrated MPO connector
- Optical engine using uncooled 4 × 25Gbps DFB lasers
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- Data Center Interconnections
- 100G Ethernet links
- 100GE Enterprise switch and routers
- Carrier grade 100GE core routers
- Point-to-point and ring applications

100G QSFP28 PSM4

- Supports up to 100Gb/s data rate links
- Based on 100G PSM4 MSA baseline requirement and QSFP28 baseline specifications
- Typical power dissipation: 2.7W
- Single 3.3V power supply



100G QSFP28 PSM4 Transceiver Typical Optical Eye

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gb/s)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Optical Modulation Amplitude (OMA) per Lane (dBm)	Extinction Ratio (dB)	Sensitivity (OMA) per Lane (dBm*)
100G QSFP28 PSM4	1304.5 - 1317.5	25.78125	3.3 ± 5%	2.7	0 to 70	≤0.5	-4.0 to 2.5	>3.5	-10 (*)

*Receiver Sensitivity (OMA), each lane (max) for BER = 5 × 10⁻⁵

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100G QSFP28 DR Transceiver (Roadmap)

Overview

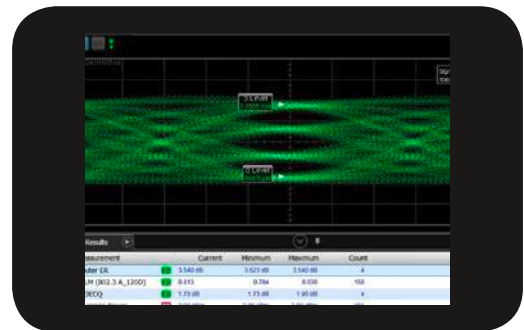
- 100Gbps hot pluggable transceiver in QSFP28 form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine using uncooled 100 Gbps EML
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- Data Center Interconnections
- 100GBASE Ethernet links

100G QSFP28 DR

- Supports up to 100Gb/s data rate links over 500m on Single Mode Fiber (SMF)
- Based on QSFP28 baseline specifications
- Typical power dissipation: <3.5W
- Single 3.3V power supply



100G QSFP28 DR Transceiver Typical Optical Eye

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gbaud)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Outer Optical Modulation Amplitude (OMA _{outer}) per Lane (dBm)	Extinction Ratio (dB)	Average Receive Power (min) (dBm) (*)
100G QSFP28 DR	1304.5 - 1317.5	53.125	3.3 ± 5%	<3.5	0 to 70	≤0.5	-0.3 to 4.2	>3.5	-5.4

(*) Average receive power, each lane (min) is informative

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100G QSFP28 FR Transceiver (Roadmap)

Overview

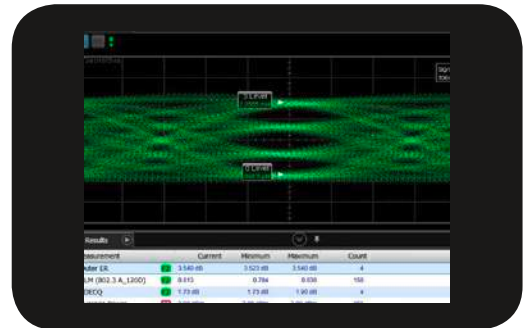
- 100Gbps hot pluggable transceiver in QSFP28 form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine using uncooled 100 Gbps EML
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- Data Center Interconnections
- 100GBASE Ethernet links

100G QSFP28 FR

- Supports up to 100Gb/s data rate links over 2km Single Mode Fiber (SMF)
- Based on 100G Single Lambda MSA specification for 100G FR
- Typical power dissipation: <3.5W
- Single 3.3V power supply



100G QSFP28 FR Transceiver Typical Optical Eye

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gbaud)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Outer Optical Modulation Amplitude (OMA _{outer}) per Lane (dBm)	Extinction Ratio (dB)	Average Receive Power (min) (dBm) (*)
100G QSFP28 FR	1304.5 - 1317.5	53.125	3.3 ± 5%	<3.5	0 to 70	≤2.0	-0.2 to 4.2	>3.5	-6.4

(*) Average receive power, each lane (min) is informative

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100G QSFP28 LR Transceiver (Roadmap)

Overview

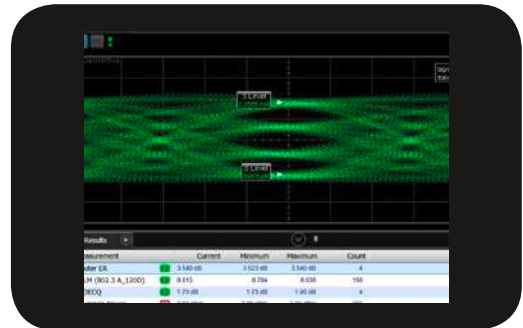
- 100Gbps hot pluggable transceiver in QSFP28 form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine using uncooled 100 Gbps EML
- Built in digital diagnostics
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- Data Center Interconnections
- 100GBASE Ethernet links

100G QSFP28 LR4

- Supports up to 100Gb/s data rate links over 10km on Single Mode Fiber (SMF)
- Based on 100G single lambda MSA specification for 100G LR and on QSFP28 baseline specification
- Typical power dissipation: <3.5W
- Single 3.3V power supply



100G QSFP28 LR Transceiver Typical Optical Eye

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gbaud)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Outer Optical Modulation Amplitude (OMA _{outer}) per Lane (dBm)	Extinction Ratio (dB)	Average Receive Power (min) (dBm) (*)
100G QSFP28 LR	1304.5 - 1317.5	53.125	3.3 ± 5%	3.5	0 to 70	≤10.0	0.7 to 4.7	>3.5	-7.7

(*) Average receive power, each lane (min) is informative

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200G QSFP56 FR4-Lite Transceiver (Roadmap)

Overview

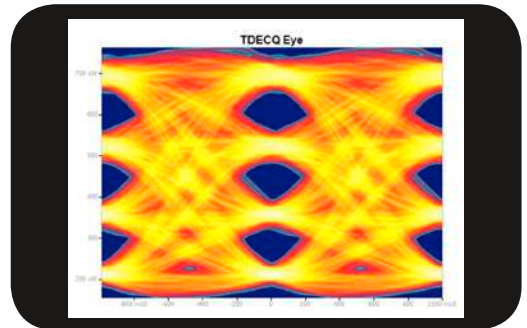
- 200Gbps hot pluggable transceiver in QSFP56 form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine combining uncooled 4 × 25Gbps CWDM DFB's with integrated MUX/DeMUX
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- 200G Ethernet links

200G QSFP56 FR4-Lite

- Supports up to 200Gb/s data rate links over 500m SMF
- Based on QSFP56 baseline specifications
- Typical power dissipation: 5W
- Single 3.3V power supply



200G QSFP56 FR4-Lite Transceiver Typical Optical Eye

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gbaud)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Outer Optical Modulation Amplitude (OMA _{outer}) per Lane (dBm)	Extinction Ratio (dB)	Average Receive Power (min) (dBm) (*)
200G QSFP56 FR4 Lite	1270 / 1290 / 1310 / 1330	26.5625	3.3 ± 5%	5	0 to 70	≤0.5	TBD	>3.5	TBD

(*) Average receive power, each lane (min) is informative

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200G QSFP56 FR4 Transceiver (Roadmap)

Overview

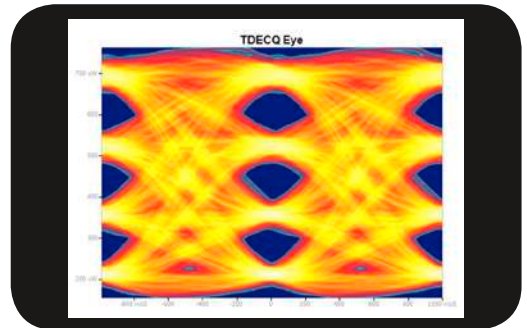
- 200Gbps hot pluggable transceiver in QSFP56 form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine combining uncooled 4 × 25Gbps CWDM EML's with integrated MUX/DeMUX
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- 200G Ethernet links

200G QSFP56 FR4

- Supports up to 200Gb/s data rate links over 2km SMF
- Based on IEEE P802.3bs standard for 200G FR4 and on QSFP656 baseline specification
- Typical power dissipation: 3.5W
- Single 3.3V power supply



200G QSFP56 FR4 Transceiver Typical Optical Eye

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gbaud)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Outer Optical Modulation Amplitude (OMA _{outer}) per Lane (dBm)	Extinction Ratio (dB)	Average Receive Power (min) (dBm) (*)
200G QSFP56 FR4	1270 / 1290 / 1310 / 1330	26.5625	3.3 ± 5%	3.5	0 to 70	≤2.0	-0.7 to 4.5	>3.5	-7.7

(*) Average receive power, each lane (min) is informative

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200G QSFP56 LR4 Transceiver (Roadmap)

Overview

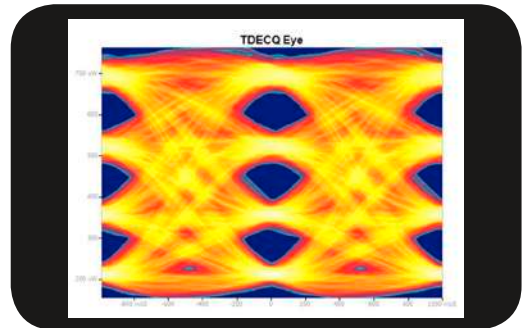
- 200Gbps hot pluggable transceiver in QSFP56 form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine combining uncooled 4 × 25Gbps CWDM EML's with integrated MUX/DeMUX
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- 200G Ethernet links

200G QSFP56 LR4

- Supports up to 200Gb/s data rate links over 10km SMF
- Based on CWDM wavelength grid and on QSFP56 baseline specifications
- Typical power dissipation: 3.5W
- Single 3.3V power supply



200G QSFP56 LR4 Transceiver Typical Optical Eye

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gbaud)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Outer Optical Modulation Amplitude (OMA _{outer}) per Lane (dBm)	Extinction Ratio (dB)	Average Receive Power (min) (dBm) (*)
200G QSFP56 LR4	1270 / 1290 / 1310 / 1330	26.5625	3.3 ± 5%	3.5	0 to 70	≤100	TBD	>3.5	TBD

(*) Average receive power, each lane (min) is informative

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400G QSFP-DD DR4 Transceiver (Roadmap)

Overview

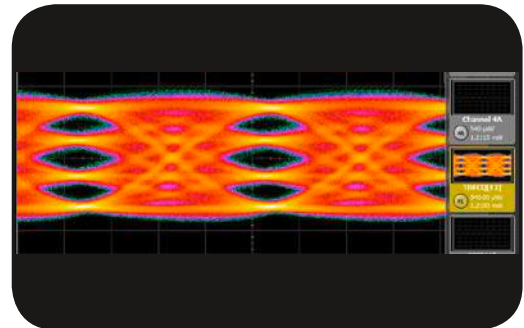
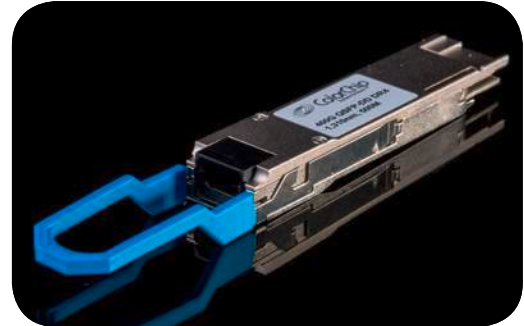
- 400Gbps hot pluggable transceiver in QSFP-DD form factor
- Optical connectivity based on integrated MPO connector
- Optical engine use 4 uncooled 100 Gbps EML's
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- 400G Ethernet links

400G QSFP-DD DR4

- Supports up to 400Gb/s data rate links over 500m SMF
- Based on QSFP-DD baseline specifications
- Typical power dissipation: 10W (Gen1), 7W (Gen2)
- Single 3.3V power supply



400G QSFP-DD DR4 Transceiver Typical Optical Eye

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gbaud)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Outer Optical Modulation Amplitude (OMA _{outer}) per Lane (dBm)	Extinction Ratio (dB)	Average Receive Power (min) (dBm) (*)
400G QSFP-DD DR4 (Gen1)	1304.5 - 1317.5	53.125	3.3 ± 5%	10	0 to 70	≤0.5	-0.3 to 4.2	>3.5	-5.4
400G QSFP-DD DR4 (Gen2)	1304.5 - 1317.5	53.125	3.3 ± 5%	7	0 to 70	≤0.5	-0.3 to 4.2	>3.5	-5.4

(*) Average receive power, each lane (min) is informative

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400G QSFP-DD FR4 Transceiver (Roadmap)

Overview

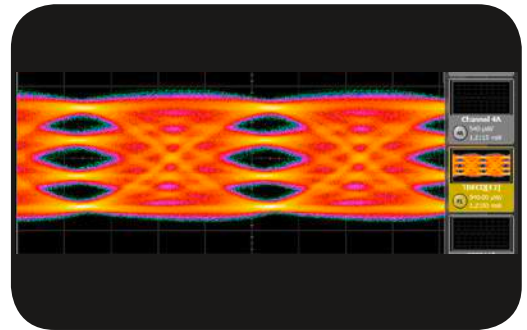
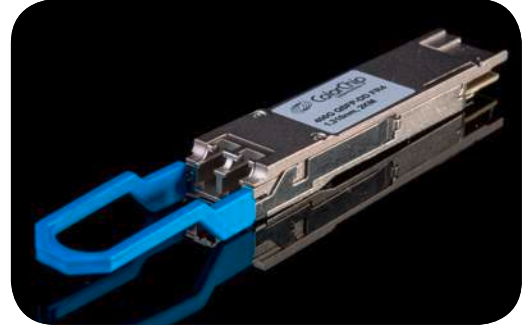
- 400Gbps hot pluggable transceiver in QSFP-DD form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine combining uncooled 4 × 100 Gbps CWDM EML's with integrated MUX/DeMUX
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- 400G Ethernet links

400G QSFP-DD FR4

- Supports up to 400Gb/s data rate links over 2km SMF
- Based on 100G Single Lambda MSA specification for 400G FR4 and on QSFP-DD baseline specification
- Typical power dissipation: 10W (Gen1), 7W (Gen2)
- Single 3.3V power supply



400G QSFP-DD FR4 Transceiver Typical Optical Eye

Code	General Specifications						Transmitter		Receiver
	Wavelength (nm)	Data Rate per Lane (Gbaud)	Supply Voltage (V)	Typical Power Consumption (W)	Operating Case Temperature (°C)	Reach (km)	Outer Optical Modulation Amplitude (OMA _{outer}) per Lane (dBm)	Extinction Ratio (dB)	Average Receive Power (min) (dBm) (*)
400G QSFP-DD FR4 (Gen1)	1270 /1290 / 1310 / 1330	53.125	3.3 ± 5%	10	0 to 70	≤2.0	-0.3 to 3.7	>3.5	-7.3
400G QSFP-DD FR4 (Gen2)	1270 /1290 / 1310 / 1330	53.125	3.3 ± 5%	7	0 to 70	≤2.0	-0.3 to 3.7	>3.5	-7.3

(*) Average receive power, each lane (min) is informative

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400G QSFP-DD LR4 Transceiver (Roadmap)

Overview

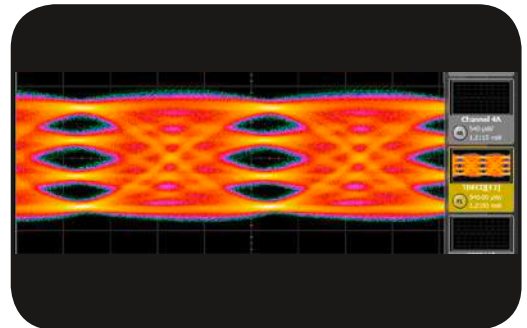
- 400Gbps hot pluggable transceiver in QSFP-DD form factor
- Optical connectivity based on two SMF LC connectors
- Optical engine combining uncooled 4 × 100 Gbps CWDM EML's with integrated MUX/DeMUX
- Built in digital diagnostics – Transmitter Power Monitoring (TPM) and Receive Signal Strength Indicator (RSSI)
- RoHS-6 compliant
- Operating case temperature range of 0 to 70°C

Applications

- 400G Ethernet links

400G QSFP-DD LR4

- Supports up to 400Gb/s data rate links over 10km SMF
- Based on 100G Single-Lambda MSA proposal and on QSFP-DD baseline specification
- Typical power dissipation: 10W (Gen1), 7W (Gen2)
- Single 3.3V power supply



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400G QSFP-DD LR4 (Gen1)	1270 /1290 / 1310 / 1330	53.125	3.3 ± 5%	10	0 to 70	10.0	TBD	>3.5	TBD
400G QSFP-DD LR4 (Gen2)	1270 /1290 / 1310 / 1330	53.125	3.3 ± 5%	7	0 to 70	10.0	TBD	>3.5	TBD

(*) Average receive power, each lane (min) is informative

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Product offering

	Data Rate	Module	Data Rate per Lane	Wave-length (nm)	Form Factor	Reach (km)	Connector Type	Supply Voltage (V)	Typ. Power Dissipation (W)	Temp. Range (°C)
NRZ	40G	LR4 Lite	10.3125 GB/s	1270 - 1330	QSFP+	2	Duplex LC	3.3	3.0	0 to 70
		LR4	10.3125 GB/s	1270 - 1330	QSFP+	10	Duplex LC	3.3	3.0	0 to 70
	100G	CWDM4 Lite	25.78125 GB/s	1270 - 1330	QSFP28	0.5	Duplex LC	3.3	2.6	15 to 55
		PSM4	25.78125 GB/s	1310	QSFP28	0.5	MPO	3.3	2.7	0 to 70
		CWDM4	25.78125 GB/s	1270 - 1330	QSFP28	2	Duplex LC	3.3	2.7	0 to 70
		CLR4	25.78125 GB/s	1270 - 1330	QSFP28	2	Duplex LC	3.3	2.7	0 to 70
		4WDM-10	25.78125 GB/s	1270 - 1330	QSFP28	10	Duplex LC	3.3	2.7	0 to 70
PAM4	100G	DR	53.125 Gbaud	1310	QSFP28	0.5	Duplex LC	3.3	<3.5	0 to 70
		FR	53.125 Gbaud	1310	QSFP28	2	Duplex LC	3.3	<3.5	0 to 70
		LR	53.125 Gbaud	1310	QSFP28	10	Duplex LC	3.3	<3.5	0 to 70
	200G	FR4-Lite	26.5625 Gbaud	1270 - 1330	QSFP56	0.5	Duplex LC	3.3	5 (Gen1)	0 to 70
		FR4	26.5625 Gbaud	1270 - 1330	QSFP56	2	Duplex LC	3.3	5 (Gen1) 3.5 (Gen2)	0 to 70
		LR4 ^(*)	26.5625 Gbaud	1270 - 1330	QSFP56	10	Duplex LC	3.3	3.5	0 to 70
	400G	DR4	53.125 Gbaud	1310	QSFP-DD	0.5	MPO	3.3	10 (Gen1) 7 (Gen2)	0 to 70
		FR4	53.125 Gbaud	1270 - 1330	QSFP-DD	2	Duplex LC	3.3	10 (Gen1) 7 (Gen2)	0 to 70
		LR4 ^(*)	53.125 Gbaud	1270 - 1330	QSFP-DD	10	Duplex LC	3.3	10 (Gen1) 7 (Gen2)	0 to 70

(*) ColorChip's 200G LR4 and 400G LR4 offerings are based on the CWDM4 grid



Technology

Wafer Scale Ion Exchange Process Wiring ideal waveguides, quickly, effortlessly

ColorChip's Planar-Lightwave-Circuit technology is based on the Ion-Exchange in glass fabrication method to generate Single Mode Fiber-like optical waveguides inside a proprietary glass substrate. To generate a specific geometric structure, a photolithography mask is used to create the waveguide on the glass surface, where the region that remains exposed defines the waveguide structure. The waveguides are then created due to the unique behavior of the glass substrate at very high temperatures. Some ions diffuse into the substrate and replace the glass sodium ions. Thus the name, Ion Exchange.

SystemOnGlass™: Photonic Integration, Perfected Hybrid, multilane optical heads

SystemOnGlass™ is ColorChip's patented hybrid photonic integrated circuit, fusing both active and passive components together.

In an automated process, our advanced proprietary placement machines are used to mount active optical components onto the unique glass substrate that has embedded circular waveguides. The result is a compact optical head that has multiple benefits, featuring an excellent integration with best of breed components and ultimate scalability across data rates. The same platform has been at the heart of ColorChip's entire line of high performance transceivers.

Automated Industrialized Optics Fully controlled production ecosystem

Running unique manufacturing methods, ColorChip not only develops advanced optical communication solutions but also vertically integrates and fabricates our core PLC technology in our wholly owned and operated fab center. We built automated assembly lines based on proprietary scalable machines, for our full control of the entire production phase, including cutting edge optical engine and transceiver integration, as well robust automated test stations.

With hundreds of thousands of optical transceivers produced in the same production lines, ColorChip boasts limitless manufacturability that addresses the pressing need for high speed data flow.



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ColorChip Corporation LTD.

Tavor Building 1 | P.O. Box 158 | New Industrial Park | Yokne'am 2069203 | Israel

T: +972 4 630 0200 | F: +972 4 630 0260 | www.color-chip.com | info@color-chip.com

