MATERIALS THAT MATTER

100G QSFP28 SR Transceivers

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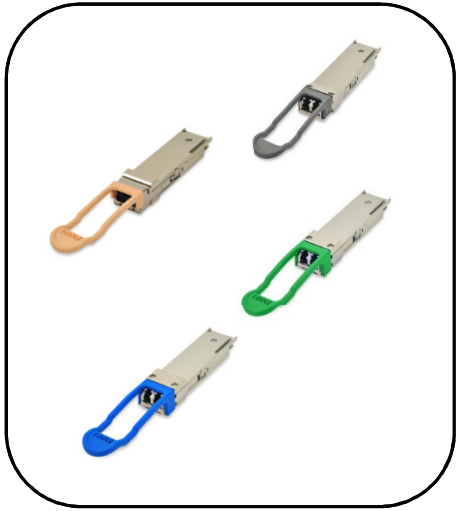
100G QSFP28 Finisar® Transceivers

	Parallel (MPO)	Duplex (LC)
Multimode	SR4/OTU4/32G FC/wireless Gen 2 • 70/100m • FTLC9555xEPM SR4 GEN3 • 70/100m • FTLC9558REPM No-FEC SR4 • 30/40/70/100m • FTLC9555NEPM Liquid Cooling SR4 • Pigtail attachment • FTLC9558REUM	SWDM4 • 75/100/150m • FTLC9152RGPL
Single Mode		LR4/OTU4 • 10km • FTLC1154xDPL CWDM4 [Lite] • 2km [500m] • FTLC1157RGPL DR/FR • FTLC4351RJPL eLR4 (4WDM-20) • 20km (w/FEC) • FTLC1154RDPLA eCWDM4 (4WDM-10) • 10km • FTLC1155RGPLA

Black = Production released

Blue = In development



Multimode distances refer to OM3/OM4/OM5
Single mode distances refer to SMF28

100G QSFP28 SR Finisar® Transceivers

- QSFP28 SR (≤ 300m) currently covers primarily 2 types of transceivers:
  - **SR4** (100m range, 4x25G NRZ Electrical, NRZ Optical). **Most common applications in datacenter TOR-Leaf switches. Also covers Enterprise, FC, Wireless etc.**
  - **SWDM4** (100m range, 4x25G Electrical, NRZ Optical, Wavelength Grid: 850, 880, 910, 940 nm). **Most common in Enterprise market.**

Why Duplex Multimode Fiber Matters

- **For Brownfield Applications:**
  - **Enterprise data centers have deployed a large amount of 10GE.**
  - **Primarily 10GBASE-SR over duplex MMF, using LC connectors.**

- **As they migrate from 10G to 40G/100G, most enterprise data centers want to maintain their existing fiber infrastructure.**
  - **SR4 however requires using 8 fibers instead of 2 fibers (duplex).**
  - **SR4 also requires new patch cords with MPO connectors (not LC).**
  - ***SWDM4 uses existing duplex MMF with LC connectors***

Many data centers want to upgrade from 10G to 40G and 100G
without changing their duplex MMF +LC infrastructure

100G QSFP28 SR4 Product Family

- QSFP28 SR4 family, with main part numbers shown in the below table.
  - More options available and please consult your PLM. For example, we provide bail latch versions of below transceivers.

Part Number	Supported data rate (per channel)	Maximum reach	Max. power consumption	Application
FTLC9558REPM	25.78G	70m/100m OM3/4	2.5W	Ethernet (recommended product for Ethernet only application)
FTLC9555REPM	25.78G	70/100m OM3/4	2.5W	Ethernet
FTLC9555FEPM	128GFC, 8G/16G FC compatible	70/100m OM3/4	2.5W	Ethernet, Fibre Channel
FTLC9555QEPM	10.3125G, 25.78G	70/100m OM3/4	2.5W	40G/100G Ethernet
FTLC9555REPM3	25.78G	70/100m OM3/4	2.5W	Ethernet, E-temp
FTLC9555WEPM	10.3125G, 24.33G, 25.78G	70/100m OM3/4	2.5W	Wireless, CPRI, eCPRI
FTLC9555NEPM	25.78G	30/50m OM3/4 if used without FEC	2.5W	Ethernet, InfiniBand, HPC, HFT
FTLC9558REUM	25.78G	70m/100m OM3/4	2.5W	Ethernet, Liquid Cooling

100G QSFP28 SR4 Transceiver Module

FTLC9555REPM (25/100G Ethernet)
FTLC9555QEPM (40G/100G Ethernet)
FTLC9555FEPM (8/16/32/128G Fibre Channel)
FTLC9555SEPM (25/100G Ethernet, OTU4)

MPO receptacle

PRODUCT BASICS

- QSFP28 module form factor, per SFF-8665
- Standard interfaces defined by IEEE 802.3bm & T.11 FC-PI-6P
  - 4x25G/28G parallel optics architecture
  - 4x25G/28G retimed electrical I/O (CAUI-4)
  - 100m reach on OM4 MMF and 70m on OM3, assuming RS-FEC on the host
- Maximum power dissipation 2.5W
- Operating case temperature range 0°C to 70°C
- I2C management interface (same as QSFP+)

PRODUCT FEATURES

- Finisar VCSEL and PIN arrays to ensure high quality optics
- Can be used to fan-out to four shortwave 25GE SFP28 modules
- Available in Ethernet single rate (REPM) and dual rate (QEPM), FC (FEPM), and OTU4 (SEPM) versions
- Full digital diagnostics capability

AVAILABILITY

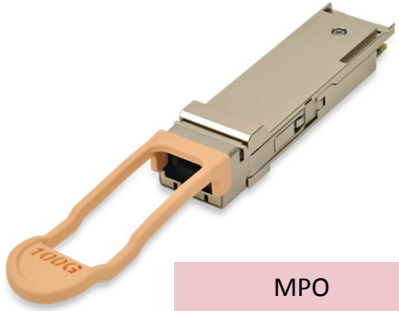
- **Production Released**

APPLICATIONS

- 25/100G Ethernet
- 40/100G Ethernet
- OTN OTU4
- 128G Fibre Channel

100G QSFP28 SR4 Wireless/E-Temp Transceiver

FTLC9555REPM3 (25/100G Ethernet, extended temperature)
FTLC9555WEPM (25/100G Ethernet, 10/24/25G CPRI)



MPO receptacle

PRODUCT BASICS

- QSFP28 module form factor, per SFF-8665
- Standard interfaces defined by IEEE 802.3bm
  - 4x25G parallel optics architecture
  - 4x25G retimed electrical I/O (CAUI-4)
  - 100m reach on OM4 MMF and 70m on OM3, assuming RS-FEC on the host
- Maximum power dissipation <2.5W
- Extended temperature range
  - 0°C to 85°C operating case temperature for FTLC9555REPM3
  - -10°C to 75°C operating case temperature for FTLC9555WEPM
  - Cold start at -40°C without damage
- Pre-FEC BER: 5E-5
- I2C management interface (same as QSFP+)

PRODUCT FEATURES

- Finisar VCSEL and PIN arrays to ensure high quality optics
- Can be used to fan-out to four shortwave 25GE SFP28 modules
- Carries both Ethernet and CPRI traffic
  - CPRI capability includes eCPRI

AVAILABILITY

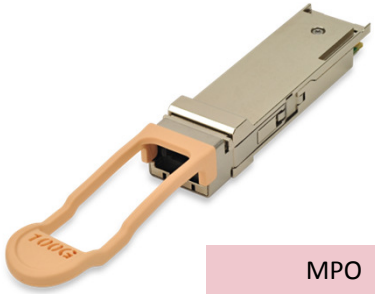
- **Production Released**

APPLICATIONS

- 40G/100G Ethernet
- 25/100G Ethernet
- 24G CPRI wireless
- 25G eCPRI wireless

100G QSFP28 SR4 Transceiver – Ethernet Only

FTLC9558REPM (25/100G Ethernet)



MPO receptacle

PRODUCT BASICS

- QSFP28 module form factor, per SFF-8665
- Standard interfaces defined by IEEE 802.3bm
  - 4x25G/28G parallel optics architecture
  - 4x25G/28G retimed electrical I/O (CAUI-4)
  - 100m reach on OM4 MMF and 70m on OM3, assuming RS-FEC on the host
- Maximum power dissipation 2.5W
- Operating case temperature range 0°C to 70°C
- I2C management interface (same as QSFP+)

PRODUCT FEATURES

- Finisar VCSEL and PIN arrays to ensure high quality optics
- Can be used to fan-out to four shortwave 25GE SFP28 modules
- Full digital diagnostics capability

AVAILABILITY

- **Production Released**

APPLICATIONS

- 25/100G Ethernet

Pigtailed 100G QSFP28 SR4 Transceiver for Liquid Cooling

FTLC9558REUM (100G Ethernet, Liquid Cooling)

MPO connector

PRODUCT BASICS

- QSFP28 module form factor, per SFF-8665
- Standard interfaces defined by IEEE 802.3bm
  - 4x25G/28G parallel optics architecture
  - 4x25G/28G retimed electrical I/O (CAUI-4)
  - 100m reach on OM4 MMF and 70m on OM3, assuming RS-FEC on the host
- Maximum power dissipation 2.5W
- Operating case temperature range 0°C to 60°C
- I2C management interface (same as QSFP+)

PRODUCT FEATURES

- Finisar VCSEL and PIN arrays to ensure high quality optics
- Reliable design to enable liquid immersion environment
- Pigtail attachment for MPO connection

AVAILABILITY

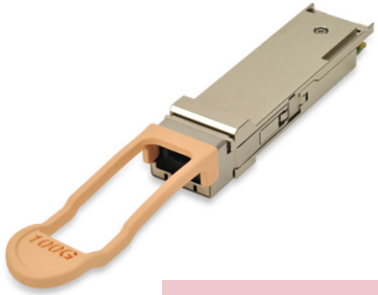
- **Production Released**

APPLICATIONS

- 100G Ethernet
- Liquid Immersion Environment
- MPO Connectivity

100G QSFP28 SR4 No/Low FEC Transceiver

FTLC9555NEPM (25/100G Ethernet)



MPO receptacle

PRODUCT BASICS

- Enhanced optical interface capable of operation with our without RS-FEC on host
  - 40m reach on OM4 MMF and 30m on OM3, with *no FEC* on the host (1E-12 BER)
  - 70m reach on OM4 MMF and 50m on OM3, with *Clause 74 (Firecode) FEC* on the host (1E-8 pre-FEC BER)
  - 100m reach on OM4 MMF and 70m on OM3, with *Clause 91 (RS) FEC* on the host (5E-5 pre-FEC BER)
- QSFP28 module form factor, per SFF-8665
- Standard 4x25G retimed CAUI-4 electrical interface
  - 4x25G parallel optics architecture
  - 4x25G retimed electrical I/O (CAUI-4)
- Maximum power dissipation <2.5W
- Operating case temperature range 0°C to 70°C
- Standard I2C management interface

PRODUCT FEATURES

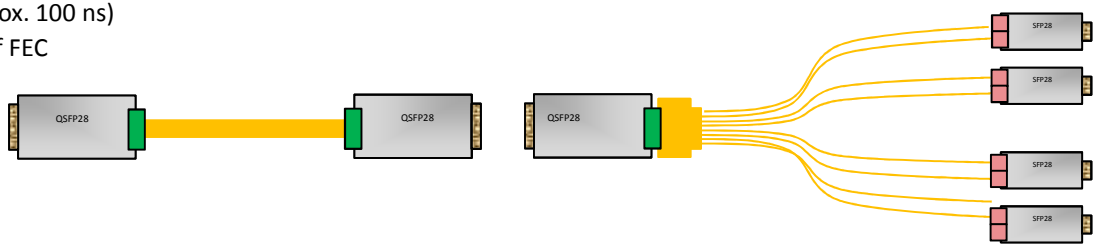
- Interoperable and compliant with standard 100GBASE-SR4
- Finisar VCSEL and PIN arrays to ensure high quality optics
- Can be used to fan-out to four shortwave 25GE SFP28 modules (FTLF8538P4BCL)
- Allows host to avoid the latency of FEC (approx. 100 ns)
- Allows host to avoid the power dissipation of FEC

AVAILABILITY

- **Production Released**

APPLICATIONS

- 25/100G Ethernet
- InfiniBand EDR
- Omni-Path



100G QSFP28 SWDM4 Transceiver

Part Number	Supported data rate (per channel)	Maximum reach	Max. power consumption	Application	Notes
FTLC9152RGPL	25.78G	75/100/150m OM3/4/5	3.5W	Ethernet	Duplex MMF

100G QSFP28 SWDM4 Transceiver

100G QSFP28 SWDM4 Transceiver

FTLC9152RGPL (100G Ethernet)

PRODUCT BASICS

- 100G over one MMF fiber pair (duplex MMF)
- QSFP28 module form factor, per SFF-8665
- 4x25G duplex optical interface using the SWDM4™ wavelength grid
  - Shortwave WDM in the 850nm region
- 4x25G/28G retimed electrical I/O (IEEE CAUI-4)
- Product reach (requires standard RS-FEC support on the host):
  - 75m on OM3
  - 100m on OM4
  - 150m on OM5 MMF
- Maximum power dissipation <3.5W
- Operating case temperature range 0°C to 70°C
- I2C management interface (same as QSFP+)

swdm4™

Duplex LC receptacles

PRODUCT FEATURES

- Operates over traditional Tx and Rx fibers (not BiDi)
- Simple NRZ modulation and mature technology
- Finisar SWDM VCSEL and PIN arrays to ensure high quality optics
- Internal CDR ICs
- Full digital diagnostics capability

APPLICATIONS

- 100G Ethernet

AVAILABILITY

- **Production Released**

More information on SWDM4 can be found at:
https://optical.communications.ii-vi.com/swdm
and http://www.swdm.org/

MATERIALS THAT MATTER