Product Guide

Transceivers, Transponders, and Active Optical Cables

FINISAR®

Transceivers, Transponders, and Active Optical Cables

SFP (copper and optical; longwave, shortwave and WDM)

DATACOM applications using Fast Ethernet, Gigabit Ethernet, 1x/2x/4x Fibre Channel

TELECOM applications using OC-3/STM-1, OC-12/STM-4, OC-48/STM-16, EPON/GPON and Wireless/CPRI across all reaches

Features

- 3.3 V operating voltage
- Distances from very short links up to 100+ km
- Wide operating temperature range
- Metal enclosure for lower EMI
- Digital diagnostics
- Wireless CPRI compliant


SFP

SFP+/SFP28 (optical; longwave, shortwave, DWDM and tunable)

DATACOM applications using 10G and 25G Ethernet and 2x/4x/8x/16x/32x Fibre Channel (LW and SW)

TELECOM applications using either OC-192/STM-64, 10G Ethernet, or Wireless/CPRI

Features

- 3.3 V operating voltage
- Supports bit rates up to 28.05 Gb/s (LW, SW, and DWDM) and 11.3 Gb/s (Tunable)
- Distances from short links up to 80 km metro (LW, SW, and DWDM) and 80km (Tunable)
- Wide operating temperature range
- Digital diagnostics
- Wireless CPRI compliant (LW and SW)
- Bi-directional SFP+ transceiver available


SFP+/SFP28

CFP/CFP2/CFP4 (optical; longwave and shortwave)

DATACOM applications using 40G and 100G Ethernet

TELECOM applications using OTU3 and OTU4

Features

- Hot-pluggable, MSA-compliant CFP, CFP2 and CFP4 form factors
- Supports 39.8 Gb/s to 112 Gb/s aggregate bit rates
- Maximum link length of 100m on OM3 MMF, 150m on OM4 MMF, 10km on SMF, and 500km in Amplified DWDM Applications
- 3.3 V operating voltage


CFP/CFP2/CFP4

QSFP+/QSFP28 (optical; longwave and shortwave)

DATACOM applications using 40G and 100G Ethernet, 128G Fibre Channel and high-density 10G and 25G Ethernet

TELECOM applications using OTU3 and OTU4

Features

- Four-channel full-duplex transceiver module
- Hot-pluggable, MSA-compliant QSFP+ and QSFP28 form factors
- Maximum link length of 300m on OM3 MMF, 400m on OM4 MMF, and 40 km on SMF
- 3.3 V operating voltage

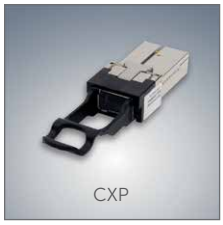

QSFP+/QSFP28

CXP (optical; shortwave)

DATACOM applications using 100G Ethernet and chassis interconnections

Features

- Twelve-channel full-duplex transceiver module
- Hot Pluggable CXP form factor
- Maximum link length of 100m on OM3 MMF and 150m on OM4 MMF
- Multirate capability: supports 1.06 Gb/s to 12.5 Gb/s per channel


CXP

Active Optical Cables

SFPwire	10 Gb/s SFP+ Active Optical Cable for 10G Ethernet
quadwire	40 Gb/s to 100 Gb/s Parallel Active Optical Cable for 40GbE and 100GbE, InfiniBand 4xQDR, Infiniband 4xFDR, Infiniband 4xEDR and Intel® Omni-Path Architecture
C.wire	150 Gb/s Parallel Active Optical Cable for 100GbE and InfiniBand 12xQDR


Active Optical Cables

Optical Engines (optical; shortwave)

DATACOM applications for inter-chassis connections

Features

- Twelve-channel full-duplex transceiver modules
- Maximum link length of 100m at 10 Gb/s on OM3 MMF or 70m at 25 Gb/s on OM4 MMF
- Multirate capability: supports 1 Gb/s up to 28.05 Gb/s per channel


Optical Engines

X2 (optical; longwave and shortwave)

DATACOM applications using 10G Ethernet

Features

- Supports bit rates up to 10.5 Gb/s
- Distances up to 10 km
- Digital diagnostics

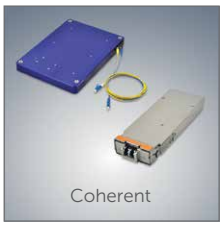

X2

Coherent (optical; longwave)

TELECOM 100Gb/s and 200Gb/s applications

Features

- Pluggable CFP2-ACO with analog interface
  - Analog host interface is compatible with any external DSP
  - Modulation format independent
- 5"x7" module supporting multiple modulation formats with internal DSP
  - Platform supports DP-BPSK, DP-QPSK, or DP-16QAM at up to 32Gbaud
  - Best in class OSNR performance


Coherent

Endurance Compact Transceivers (optical; longwave and shortwave)

Features

- Compact form-factor for high-density solutions
- Data rate flexibility including 1G and 10G Ethernet, Fast Ethernet, and 1x/2x/4x/8x Fibre Channel
- Board-mounted for an edge optical interface or internal mounting
- Designed for rugged applications


Endurance

XFP (optical; longwave, shortwave, DWDM, and tunable)

DATACOM applications using 10G Ethernet and 10x Fibre Channel

TELECOM applications using OC-192/STM-64

Features

- Supports bit rates up to 11.3 Gb/s
- Distances up to 200 km (LW, SW, and DWDM) and 80 km (Tunable)
- Digital diagnostics
- Wide operating temperature range versions available


XFP

SFF (optical; longwave and shortwave)

DATACOM applications using Gigabit Ethernet, 1x/2x/4x Fibre Channel

TELECOM applications using OC-3/STM-1, OC-12/STM-4 and OC-48/STM-16 across all reaches

Features

- Distances from very short links up to 80 km
- Wide operating temperature range
- Available in 2x5, 2x7 or 2x10. 2x7 and 2x10 incorporate digital diagnostics


SFF

Finisar's Patented Digital Diagnostics

Finisar's transceivers feature a microprocessor and diagnostics interface that provides performance information on the data link. Users can remotely monitor—in real-time—received optical power, transmitted optical power, laser bias current, transceiver input voltage and transceiver temperature of any transceiver in the network. These digital diagnostic functions provide network managers with a highly accurate, cost-effective tool for implementing reliable performance monitoring.

Technology Innovator.
Broad Product Portfolio.
Trusted Partner.

FINISAR®

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02/16

SFP

SFP+/SFP28

CFP/CFP2/CFP4

QSFP+/QSFP28

CXP

Active Optical Cables

Optical Engines

Coherent

XFP

X2

Endurance

SFF

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	Part Number	Rate Select	Media Type	Wavelength (nm)	Transmitter	Receiver	Data Rate (max)	Voltage Supply (V)	Optical Fast Ethernet	Optical Gigabit Ethernet	1x Fibre Channel	2x Fibre Channel	4x Fibre Channel	8x Fibre Channel	16x Fibre Channel	32x Fibre Channel	SONET OC-3	SONET OC-12	SONET OC-48	SONET OC-192	SONET OC-768	OTN OTU3	OTN OTU4	10x Fibre Channel	10G Ethernet	25G Ethernet	40G Ethernet	100G Ethernet	200G Ethernet	IB QDR	IB FDR	IB EDR	IB SDR	1000BASE-T	PON	Wireless CPRI†	Case Temperature Range (°C)	Connector	Module Type	Diagnostics	Reach
SFP	FCLF852xP2BTL		Copper	N/A	N/A	N/A	1.25 Gb/s	3.3																										●			- 40 to 85	RJ-45	Pluggable	N/A	100 m
	FTLF8519P3xNL		Multimode	850nm Band	VCSEL	PIN	2.125 Gb/s	3.3	■	●	●	●																								●	- 20 to 85	LC	Pluggable	Digital	550 m
	FTLF8519P3xTL		Multimode	850nm Band	VCSEL	PIN	2.125 Gb/s	3.3	■	●	●	●																								●	- 40 to 85	LC	Pluggable	Digital	550 m
	FTLF1217P2xTL		Multimode	1310nm Band	LED	PIN	200 Mb/s	3.3	●								■																				- 40 to 85	LC	Pluggable	Digital	2 km
	FTLF1318P2xTL		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	1.25 Gb/s	3.3		●	●																									●	0 to 70	LC	Pluggable	N/A	10 km
	FTLF1318P3xTL		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	1.25 Gb/s	3.3		●	●																									●	- 40 to 85	LC	Pluggable	Digital	10 km
	FTLF1419P1xCL		Single Mode	1310nm Band	DFB Laser	PIN	2.125 Gb/s	3.3		●	●	●																								●	- 10 to 70	LC	Pluggable	Digital	55 km
	FTLF1518P1xTL		Single Mode	1550nm	DFB Laser	PIN	1.25 Gb/s	3.3		●	●																									●	- 40 to 85	LC	Pluggable	Digital	90 km
	FTLF1519P1xCL		Single Mode	1550nm	DFB Laser	PIN	2.125 Gb/s	3.3		●	●	●																								●	- 10 to 70	LC	Pluggable	Digital	90 km
	FTLF1519P1xNL		Single Mode	1550nm	DFB Laser	PIN	2.125 Gb/s	3.3		●	●	●																								●	- 5 to 85	LC	Pluggable	Digital	90 km
	FTLF1619P1xCL		Single Mode	1550nm	DFB Laser	APD	2.125 Gb/s	3.3		●	●	●																								●	- 10 to 70	LC	Pluggable	Digital	115 km
	FTLF1323P1xTR		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	155 Mb/s	3.3	■								●																			●	- 40 to 85	LC	Pluggable	Digital	15 km
	FTLF1323P1xTL		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	155 Mb/s	3.3	■								●																			●	- 40 to 85	LC	Pluggable	Digital	40 km
	FTLF1523P1xTL		Single Mode	1550nm	DFB Laser	PIN	155 Mb/s	3.3	■								●																			●	- 40 to 85	LC	Pluggable	Digital	80 km
	FTLF1322P1xTR		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	622 Mb/s	3.3									●	●																		●	- 40 to 85	LC	Pluggable	Digital	15 km
	FTLF1422P1xTL		Single Mode	1310nm Band	DFB Laser	PIN	622 Mb/s	3.3										●																		●	- 40 to 85	LC	Pluggable	Digital	40 km
	FTLF1522P1xTL		Single Mode	1550nm	DFB Laser	PIN	622 Mb/s	3.3										●																		●	- 40 to 85	LC	Pluggable	Digital	80 km
	FTLF1321P1xTL		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	2.67 Gb/s	3.3	■	●	●	●					■	■	●																	●	- 40 to 85	LC	Pluggable	Digital	2 km
	FTLF1421P1xCL		Single Mode	1310nm Band	DFB Laser	PIN	2.67 Gb/s	3.3	■	●	●	●					■	■	●																	●	- 10 to 70	LC	Pluggable	Digital	15 km
	FTLF1421P1xTL		Single Mode	1310nm Band	DFB Laser	PIN	2.67 Gb/s	3.3	■	●	●	●					■	■	●																	●	- 40 to 85	LC	Pluggable	Digital	15 km
	FTLF1421P1BTL-3G		Single Mode	1310nm Band	DFB Laser	PIN	3.07 Gb/s	3.3		■	■	■																								●	- 40 to 85	LC	Pluggable	Digital	15 km
	FTLF1521P1xCL		Single Mode	1550nm	DFB Laser	PIN	2.67 Gb/s	3.3	■	●	●	●					■	■	●																	●	0 to 70	LC	Pluggable	Digital	15 km
	FTLF1721P1xCL		Single Mode	1310nm Band	DFB Laser	APD	2.67 Gb/s	3.3	■	●	●	●					■	■	●																	●	- 10 to 70	LC	Pluggable	Digital	40 km
	FTLF1621P1xCL		Single Mode	1550nm	DFB Laser	APD	2.67 Gb/s	3.3		●	●	●					■	■	●																	●	- 10 to 70	LC	Pluggable	Digital	80 km
	FWLF1523P1C51 (OSC)		Single Mode	1511nm	DFB Laser	PIN	155 Mb/s	3.3	■								■																				- 20 to 70	LC	Pluggable	Digital	80 km
	FWLF1523P1N51 (OSC)		Single Mode	1511nm	DFB Laser	PIN	155 Mb/s	3.3	■								■																				- 20 to 85	LC	Pluggable	Digital	80 km
	FWLF15197Dxx(**)		Single Mode	1550nm CWDM	CWDM DFB Laser	PIN	1.25 Gb/s	3.3	■	●	●						■	■																		●	0 to 70	LC	Pluggable	Digital	80 km
	FWLF16197D-xx(**)		Single Mode	1550nm CWDM	CWDM DFB Laser	APD	1.25 Gb/s	3.3	■	●	●						■	■																		●	0 to 70	LC	Pluggable	Digital	100 km
	FWLF15217Dxx(**)		Single Mode	1550nm CWDM	CWDM DFB Laser	PIN	2.67 Gb/s	3.3	■	●	●	●					■	■	■																	●	0 to 70	LC	Pluggable	Digital	50 km
	FWLF16217D-xx(**)		Single Mode	1550nm CWDM	CWDM DFB Laser	APD	2.67 Gb/s	3.3	■	●	●	●					■	■	●																	●	0 to 70	LC	Pluggable	Digital	80 km
	FWLF1621P2Txx		Single Mode	1550nm CWDM	CWDM DFB Laser	APD	2.67 Gb/s	3.3	■	●	●	●					■	■	●																	●	- 40 to 85	LC	Pluggable	Digital	80 km
	FWLF1524P2Vxx	✓	Single Mode	1550nm CWDM	CWDM DFB Laser	PIN	4.25 Gb/s	3.3		●	●	●	●						●																	●	- 5 to 75	LC	Pluggable	Digital	40 km
	FWFL1625P2Lxx	✓	Single Mode	1550nm CWDM	CWDM DFB Laser	APD	4.25 Gb/s	3.3			●	●	●																							●	- 5 to 75	LC	Pluggable	Digital	80 km
	FWLF1632xx(**)		Single Mode	C-Band DWDM Fixed	DWDM DFB Laser	APD	2.67 Gb/s	3.3	■	●	●	●					■	■	●																	●	0 to 70	LC	Pluggable	Digital	120 km
	FWLF1631Rxx(**)		Single Mode	C-Band DWDM Fixed	DWDM DFB Laser	APD	2.67 Gb/s	3.3	■	●	●	●					■	■	●																	●	-5 to 70	LC	Pluggable	Digital	160 km
	FWLF1634RLxx		Single Mode	C-Band DWDM Fixed	DWDM DFB Laser	APD	4.25 Gb/s	3.3		■	●	●	●				■	■	■																	●	- 5 to 70	LC	Pluggable	Digital	80 km
	FTEN2x15P1xUN (EPON SFP-ONU)		Single Mode	BiDi 1310nm/1490nm	Fabry-Perot Laser	PIN	1.25 Gb/s	3.3																											●		- 20 to 70	SC	Pluggable	Digital	10 km
	FTEN2x15P1xUN-BC (EPON SFP-ONU)		Single Mode	BiDi 1310nm/1490nm	Fabry-Perot Laser	PIN	1.25 Gb/s	3.3																											●		- 30 to 85	SC	Pluggable	Digital	10 km
	FTEN2x17P1xUN (EPON SFP-ONU)		Single Mode	BiDi 1310nm/1490nm	DFB Laser	PIN	1.25 Gb/s	3.3																											●		- 20 to 70	SC	Pluggable	Digital	20 km+
	FTEN2x17P1xUN-BC (EPON SFP-ONU)		Single Mode	BiDi 1310nm/1490nm	DFB Laser	PIN	1.25 Gb/s	3.3																											●		- 30 to 85	SC	Pluggable	Digital	20 km+
	FTGN2117P2CxN (GPON SFP-ONU)		Single Mode	BiDi 1310nm/1490nm	DFB Laser	APD	2.5 Gb/s	3.3																											●		- 20 to 70	SC	Pluggable	Digital	20 km+
	FTGN2117P2TxN (GPON SFP-ONU)		Single Mode	BiDi 1310nm/1490nm	DFB Laser	APD	2.5 Gb/s	3.3																											●		- 40 to 85	SC	Pluggable	Digital	20 km+
	FTLF8524P3xNL		Multimode	850nm Band	VCSEL	PIN	3.7 Gb/s	3.3		■	■	■																								●	- 40 to 85	LC	Pluggable	Digital	300 m
	FTLF1324P2xTL		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	4.25 Gb/s	3.3		■	●	●	●																							●	- 40 to 85	LC	Pluggable	Digital	4 km
	FTLF1324P2xTV	✓	Single Mode	1310nm Band	Fabry-Perot Laser	PIN	4.25 Gb/s	3.3		●	●	●	●																							●	- 40 to 85	LC	Pluggable	Digital	4 km
SFP+/SFP28	FTLF8528P3BCV	✓	Multimode	850nm Band	VCSEL	PIN	8.5 Gb/s	3.3			■	●	●	●																							- 5 to 70	LC	Pluggable	Digital	150 m (*)
	FTLF8528P3BNV	✓	Multimode	850nm Band	VCSEL	PIN	8.5 Gb/s	3.3			■	●	●	●																							- 5 to 70	LC	Pluggable	Digital	150 m (*)
	FTLF1428P2BNV	✓	Single Mode	1310nm Band	DFB Laser	PIN	8.5 Gb/s	3.3			■	●	●	●																							- 5 to 85	LC	Pluggable	Digital	10 km
	FTLF8529P4BCV	✓	Multimode	850nm Band	VCSEL	PIN	14.025 Gb/s	3.3					●	●	●																						0 to 70	LC	Pluggable	Digital	100 m
	FTLF8529P4BNV	✓	Multimode	850nm Band	VCSEL	PIN	14.025 Gb/s	3.3					●	●	●																						0 to 85	LC	Pluggable	Digital	100 m
	FTLF1429P3BNV	✓	Single Mode	1310nm Band	DFB Laser	PIN	14.025 Gb/s	3.3					●	●	●																						- 5 to 85	LC	Pluggable	Digital	10 km
	FTLF1429P3BCE	✓	Single Mode	1310nm Band	DFB Laser	PIN	14.025 Gb/s	3.3					●	●	●																						0 to 70	LC	Pluggable	Digital	25 km
	FTLF8532P4BCV	✓	Multimode	850nm Band	VCSEL	PIN	28.05 Gb/s	3.3						●	●	●																					0 to 70	LC	Pluggable	Digital	100 m
	FTLF8536P4BCL		Multimode	850nm Band	VCSEL	PIN	25.78 Gb/s	3.3																		●											0 to 70	LC	Pluggable	Digital	100 m
	FTLF1432P3BCV	✓	Single Mode	1310nm Band	DFB Laser	PIN	28.05 Gb/s	3.3						●	●	●																					0 to 70	LC	Pluggable	Digital	10 km
	FTLF1436P3BCL		Single Mode	1310nm Band	DFB Laser	PIN	25.78 Gb/s	3.3																		●											0 to 70	LC	Pluggable	Digital	10 km
	FTLX8574D3BCL		Multimode	850nm Band	VCSEL	PIN	10.5 Gb/s	3.3																●	●											●	-5 to 70	LC	Pluggable	Digital	300 m (*)
	FTLX8574D3BCV	✓	Multimode	850nm Band	VCSEL	PIN	10.3 Gb/s	3.3		●															●											●	-5 to 70	LC	Pluggable	Digital	300 m (*)
	FTLX8574D3BNL		Multimode	850nm Band	VCSEL	PIN	10.5 Gb/s	3.3																●	●											●	-5 to 85	LC	Pluggable	Digital	300 m (*)
	FTLX8573D3BTL		Multimode	850nm Band	VCSEL	PIN	10.5 Gb/s	3.3																●	●											●	- 40 to 85	LC	Pluggable	Digital	300 m (*)
	FTLX1371D3BCL		Mutimode	1310nm Band	Fabry-Perot Laser	Linear PIN	10.3 Gb/s	3.3																	●												- 5 to 70	LC	Pluggable	Digital	220 m (***)
	FTLX1370W3BTL		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	9.830 Gb/s	3.3																												●	- 40 to 85	LC	Pluggable	Digital	1.4 km
	FTLX1471D3BCL		Single Mode	1310nm Band	DFB Laser	PIN	10.5 Gb/s	3.3																●	●											●	- 5 to 70	LC	Pluggable	Digital	10 km
	FTLX1471D3BCV	✓	Single Mode	1310nm Band	DFB Laser	PIN	10.3 Gb/s	3.3		●															●											●	- 5 to 70	LC	Pluggable	Digital	10 km
	FTLX1471D3BNL		Single Mode	1310nm Band	DFB Laser	PIN	10.5 Gb/s	3.3																●	●											●	- 5 to 85	LC	Pluggable	Digital	10 km
	FTLX1471D3BTL		Single Mode	1310nm Band	DFB Laser	PIN	10.5 Gb/s	3.3																●	●											●	- 40 to 85	LC	Pluggable	Digital	10 km
	FTLX1472M3BxL	✓	Single Mode	1310nm Band	DFB Laser	PIN	11.3 Gb/s	3.3						●						●				●	●											●	- 5 to 85	LC	Pluggable	Digital	10 km
	FTLX1672y3BxL	✓	Single Mode	1550nm	EML	PIN	11.3 Gb/s	3.3						●						●				●	●											●	- 40 to 85	LC	Pluggable	Digital	40 km
	FTLX1772M3BCL	✓	Single Mode	1310nm Band	DFB Laser	APD	11.3 Gb/s	3.3						■						■				■	■											●	- 5 to 75	LC	Pluggable	Digital	40 km
	FTLX1871y3BxL	✓	Single Mode	1550nm	EML	APD	11.3 Gb/s	3.3						●						●				●	●											●	- 5 to 85	LC	Pluggable	Digital	80 km
	FTLX2071D3xx (Bi-Di)		Single Mode	BiDi 1271nm/1331nm	DFB Laser	PIN	10.5 Gb/s	3.3																●	●											●	- 40 to 85	LC	Pluggable	Digital	10 km
	FTLX2471DC0xx (CWDM)		Single Mode	1310nm Band	CWDM DFB Laser	PIN	10.5 Gb/s	3.3																●	●												- 5 to 70	LC	Pluggable	Digital	10 km
	FTLX3971yTCxx	✓	Single Mode	C-Band DWDM Fixed	DWDM EML	APD	11.3 Gb/s	3.3		■	■	■	■	■						■				■	■											■	-40 to 85	LC	Pluggable	Digital	40 km
	FTLX6871MCC		Single Mode	C-Band DWDM Tunable	Tunable + InP MZM	Linear APD	11.3 Gb/s	3.3						■						●				●	●											●	- 5 to 70	LC	Pluggable	Digital	80 km
	FTLX6872MCC		Single Mode	C-Band DWDM Tunable	Tunable + InP MZM	Limiting APD	11.3 Gb/s	3.3						■						●				●	●											●	- 5 to 70	LC	Pluggable	Digital	80 km
	FTLX3871yCCxx	✓	Single Mode	C-Band DWDM Fixed	DWDM EML	APD	11.3 Gb/s	3.3						■						■				■	■											■	- 5 to 70	LC	Pluggable	Digital	80 km
	FTLF8526P3BNL		Multimode	850nm Band	VCSEL	PIN	6.144 Gb/s	3.3																												●	- 40 to 85	LC	Pluggable	Digital	300 m (*)
	FTLF1326P3BTL		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	6.144 Gb/s	3.3																												●	- 40 to 85	LC	Pluggable	Digital	2 km
	FTLF1426P2BTL		Single Mode	1310nm Band	DFB Laser	PIN	6.144 Gb/s	3.3																												●	- 40 to 85	LC	Pluggable	Digital	10/15 km
CFP/CFP2/CFP4	FTLC9141RENM (CFP4)		Multimode	850nm Band	4x VCSEL	PIN	103.1 Gb/s	3.3																				●									0 to 70	MPO(MTP12)	Pluggable	Digital	100 m (***)
	FTLC9141SENM (CFP4)		Multimode	850nm Band	4x VCSEL	PIN	112 Gb/s	3.3															●					●									0 to 70	MPO(MTP12)	Pluggable	Digital	100 m (***)
	FTLC1141RDNL (CFP4)		Single Mode	1310nm Band	4x DFB Laser	PIN	103.1 Gb/s	3.3																				●									0 to 75	LC	Pluggable	Digital	10 km
	FTLC1141SDNL (CFP4)		Single Mode	1310nm Band	4x DFB Laser	PIN	112 Gb/s	3.3															●					●									0 to 75	LC	Pluggable	Digital	10 km
	FTLC8221RFNM (CFP2)	✓	Multimode	850nm Band	10x VCSEL	PIN	103 Gb/s	3.3																●	■		■	●		●							0 to 70	MPO(MTP24)	Pluggable	Digital	300 m (**)
	FTLC8221SCNM (CFP2)		Multimode	850nm Band	10x VCSEL	PIN	112 Gb/s	3.3															●					●									0 to 70	MPO(MTP24)	Pluggable	Digital	100 m (**)
	FTLC1121RDNL (CFP2)		Single Mode	1310nm Band	4x DFB Laser	PIN	103.1 Gb/s	3.3																				●									0 to 70	LC	Pluggable	Digital	10 km
	FTLC1121SDNL (CFP2)		Single Mode	1310nm Band	4x DFB Laser	PIN	112 Gb/s	3.3															●					●									0 to 70	LC	Pluggable	Digital	10 km
	FTLQ8181EBLM (CFP)		Multimode	850nm Band	4x VCSEL	PIN	41.2 Gb/s	3.3																			●										0 to 70	MPO(MTP12)	Pluggable	Digital	100 m (*)
	FTLQ1381N7NL (CFP)	✓	Single Mode	1550nm	EML	PIN	44.6 Gb/s	3.3													●	●					●										0 to 70	LC	Pluggable	Digital	2 km
	FTLC8281RCNM (CFP)		Multimode	850nm Band	VCSEL	PIN	103.1 Gb/s	3.3																				●									0 to 70	MPO(MTP24)	Pluggable	Digital	100 m (*)
	FTLC8281SCNM (CFP)		Multimode	850nm Band	10x VCSEL	PIN	112 Gb/s	3.3															●					●									0 to 70	MPO(MTP24)	Pluggable	Digital	100 m (*)
	FTLC1183RDNx (CFP)	✓	Single Mode	1310nm Band	4x DFB Laser	PIN	103.1 Gb/s	3.3																				●									0 to 70	SC/LC	Pluggable	Digital	10 km
	FTLC1183SDNx (CFP)	✓	Single Mode	1310nm Band	4x DFB Laser	PIN	112 Gb/s	3.3															●					●									0 to 70	SC/LC	Pluggable	Digital	10 km
	FTLC5181S3NL (CFP)	✓	Single Mode	C-Band DWDM Tunable	Tunable + InP MZM	PIN	112 Gb/s	3.3															●					■									0 to 70	LC	Pluggable	Digital	30 km
QSFP+/QSFP28	FTL410QExC (QSFP+)		Multimode	850nm Band	4x VCSEL	PIN	41.2 Gb/s	3.3																	■		●			■							0 to 70	MPO (MTP12)	Pluggable	Digital	100 m
	FTL410QDxC (QSFP+)		Multimode	850nm Band	4x VCSEL	PIN	41.2 Gb/s	3.3																	●		●			■							0 to 70	MPO (MTP12)	Pluggable	Digital	300 m
	FTL410QE2N (QSFP+)		Multimode	850nm Band	4x VCSEL	PIN	41.2 Gb/s	3.3																	●		●			■							-5 to 85	MPO (MTP12)	Pluggable	N/A	100 m
	FTL414QB2C (QSFP+)		Multimode	850nm Band	4x VCSEL	PIN	56 Gb/s	3.3																	●		●			■	■						0 to 70	MPO (MTP12)	Pluggable	N/A	60 m
	FTL4C2QE1C (QSFP+)		Multimode	1310nm Band	4x DFB Laser	PIN	41.2 Gb/s	3.3							■																						0 to 70	LC	Pluggable	Digital	160 m
	FTL4C3QE1C (QSFP+)		Universal	1310nm Band	4x DFB Laser	PIN	41.2 Gb/s	3.3							■																						0 to 70	LC	Pluggable	Digital	1 km
	FTL4S1QE1C (QSFP+)		Multimode	850nm Band	4x VCSEL	PIN	41.2 Gb/s	3.3																			●										0 to 70	LC	Pluggable	Digital	300 m
	FTL4C1QL1C (QSFP+)		Single Mode	1310nm Band	4x DFB Laser	PIN	41.2 Gb/s	3.3																	■		■			■							0 to 70	LC	Pluggable	Digital	2 km
	FTL4C1QL1L (QSFP+)		Single Mode	1310nm Band	4x DFB Laser	PIN	41.2 Gb/s	3.3																	■		■			■							15 to 60	LC	Pluggable	Digital	2 km
	FTL4C1QE1C (QSFP+)		Single Mode	1310nm Band	4x DFB Laser	PIN	41.2 Gb/s	3.3																			●										0 to 70	LC	Pluggable	Digital	10 km
	FTL4C1QM1C (QSFP+)		Single Mode	1310nm Band	4x DFB Laser	PIN	44.6 Gb/s	3.3														●					●										0 to 70	LC	Pluggable	Digital	10 km
	FTL4E1QE1C (QSFP+)		Single Mode	1310nm Band	4x DFB Laser	APD	41.2 Gb/s	3.3														■					●										0 to 70	LC	Pluggable	Digital	40 km
	FTL4E1QM1C (QSFP+)		Single Mode	1310nm Band	4x DFB Laser	APD	44.6 Gb/s	3.3														■					●										0 to 70	LC	Pluggable	Digital	40 km
	FTL4P1QL1C (QSFP+)		Single Mode	1310nm Band	4x DFB Laser	PIN	41.2 Gb/s	3.3																	■		■			●							0 to 70	MPO (MTP12)	Pluggable	Digital	2 km
	FTL4P1QM1C (QSFP+)		Single Mode	1310nm Band	4x DFB Laser	PIN	44.6 Gb/s	3.3												●					●		●			●							0 to 70	MPO (MTP12)	Pluggable	Digital	10 km
	FTL4P1QE1C (QSFP+)		Single Mode	1310nm Band	4x DFB Laser	PIN	41.2 Gb/s	3.3																	●		●			●							0 to 70	MPO (MTP12)	Pluggable	Digital	10 km
	FTLC9551SEPM (QSFP28)		Multimode	850nm Band	4x VCSEL	PIN	103.1 Gb/s	3.3								●							●			●		●									1 to 70	MPO (MTP12)	Pluggable	Digital	100 m (***)
	FTLC9551REPM (QSFP28)		Multimode	850nm Band	4x VCSEL	PIN	103.1 Gb/s	3.3																		●		●									0 to 70	MPO (MTP12)	Pluggable	Digital	100 m (***)
	FTLC1152RGPL (QSFP28)		Single Mode	1310nm Band	4x DFB Laser	PIN	103.1 Gb/s	3.3																				●									0 to 70	LC	Pluggable	Digital	2 km
	FTLC1152SGPL (QSFP28)		Single Mode	1310nm Band	4x DFB Laser	PIN	112.2 Gb/s	3.3															●					●									0 to 70	LC	Pluggable	Digital	2 km
	FTLC1151RDPL (QSFP28)		Single Mode	1310nm Band	4x DFB Laser	PIN	103.1 Gb/s	3.3																				●									0 to 70	LC	Pluggable	Digital	10 km
	FTLC1151SDPL (QSFP28)		Single Mode	1310nm Band	4x DFB Laser	PIN	112.2 Gb/s	3.3															●					●				■					0 to 70	LC	Pluggable	Digital	10 km
CXP	FTLD10CE1C		Multimode	850nm Band	12x VCSEL	PIN	126 Gb/s	3.3																■	■		■	●		●			●				0 to 70	MPO (MTP24)	Pluggable	Digital	100 m (*)
	FTLD10CE3C		Multimode	850nm Band	12x VCSEL	PIN	135.6 Gb/s	3.3																■	■		■	●		●			●				0 to 70	MPO (MTP24)	Pluggable	Digital	100 m (*)
	FTLD10CD3C		Multimode	850nm Band	12x VCSEL	PIN	135.6 Gb/s	3.3																■	■		■	●		●			●				0 to 70	MPO (MTP24)	Pluggable	Digital	300m (*)
	FTLD12CL1C		Multimode	850nm Band	12x VCSEL	PIN	150 Gb/s	3.3																■	■		■	●		●			●				0 to 70	MPO (MTP24)	Pluggable	Digital	100 m (*)
	FTLD12CL3C		Multimode	850nm Band	12x VCSEL	PIN	150 Gb/s	3.3																■	■		■	●		●			●				0 to 70	MPO (MTP24)	Pluggable	Digital	100 m (*)
Active Optical Cables	SFPwire (SFP+ based AOC)		Multimode	850nm Band	VCSEL	PIN	10.3 Gb/s	3.3																■	●												0 to 70	N/A	SFP+ AOC	N/A	30 m
	Quadwire (40G QSFP-based AOC)		Multimode	850nm Band	4x VCSEL	PIN	42 Gb/s	3.3																	●		●			●							0 to 70	N/A	QSFP+ AOC	Digital	300 m
	Quadwire Fanout (40G QSFP to 4xSFP+ AOC)		Multimode	850nm Band	4x VCSEL	PIN	42 Gb/s	3.3																	●					●							0 to 70	N/A	QSFP+/SFP+ AOC	Digital	30 m
	Quadwire (56G QSFP-based AOC)		Multimode	850nm Band	4x VCSEL	PIN	56 Gb/s	3.3							●										●		●			●	●						0 to 70	N/A	QSFP+ AOC	Digital	100 m
	Quadwire (100G QSFP28-based AOC)		Multimode	850nm Band	4x VCSEL	PIN	112 Gb/s	3.3								■							■					●		●	●	●					0 to 70	N/A	QSFP28 AOC	Digital	100 m
	C.wire (CXP-based AOC)		Multimode	850nm Band	12x VCSEL	PIN	168 Gb/s	3.3							●										●		●	●		●	●						0 to 70	N/A	CXP AOC	Digital	150 m
Optical Engines	FBOTD10SL1C00 (10G BOA)		Multimode	850nm Band	12x VCSEL	PIN	12 x 10.5 Gb/s	3.3		■	■	■	■	■					■	■	■	■	■	■	■		■	■		■	■		■			■	0 to 70	Multiple	Board-mount	Digital	100 m
	FBOTD25FL2C00 (25G BOA)		Multimode	850nm Band	12x VCSEL	PIN	12 x 28.05 Gb/s	2.5, 3.3		■	■	■	■	■	■	■			■	■	■	■	■	■	■	■	■	■		■	■	■	■			■	0 to 70	Multiple	Board-mount	Digital	70 m
Coherent	FTLC3311x3LL (5"x7" 200G)		Single Mode	C/L-Band DWDM Tunable	Tunable DP-QPSK/16QAM	Coherent	256 Gb/s	12															●					■	■								-5 to 70	LC/SC	320 PIN	Digital	2,000 km
	FTLC3321x3NL (CFP2-ACO)		Single Mode	C/L-Band DWDM Tunable	Tunable DP-QPSK/16QAM	Coherent	256 Gb/s	3.3															■					■	■								-5 to 70	LC	Pluggable	Digital	2,000 km
XFP	FTLX8512D3BCL		Multimode	850nm Band	VCSEL	PIN	10.5 Gb/s	3.3						●										●	●												0 to 70	LC	Pluggable	Digital	300 m (*)
	FTLX8512D3BTL		Multimode	850nm Band	VCSEL	PIN	10.5 Gb/s	3.3						●										●	●												- 40 to 85	LC	Pluggable	Digital	300 m (*)
	FTLX1413D3BCL		Single Mode	1310nm Band	DFB Laser	PIN	11.3 Gb/s	3.3						●										●	●												0 to 70	LC	Pluggable	Digital	10 km
	FTLX1413D3BTL		Single Mode	1310nm Band	DFB Laser	PIN	11.3 Gb/s	3.3						●										●	●												- 40 to 85	LC	Pluggable	Digital	10 km
	FTLX1413M3BCL		Single Mode	1310nm Band	DFB Laser	PIN	11.3 Gb/s	3.3						●						●				●	●												0 to 70	LC	Pluggable	Digital	10 km
	FTLX1413M3BTL		Single Mode	1310nm Band	DFB Laser	PIN	11.3 Gb/s	3.3						●						●				●	●												- 40 to 85	LC	Pluggable	Digital	10 km
	FTLX1612M3BCL		Single Mode	1550nm	EML	PIN	11.3 Gb/s	3.3, 5						●						●				●	●												- 5 to 75	LC	Pluggable	Digital	40 km
	FTLX1612M3BTL		Single Mode	1550nm	EML	PIN	11.3 Gb/s	3.3, 5						●						●				●	●												- 40 to 85	LC	Pluggable	Digital	40 km
	FTLX1812M3BCL		Single Mode	1550nm	EML	APD	11.3 Gb/s	3.3, 5						●						●				●	●												- 5 to 70	LC	Pluggable	Digital	80 km
	FTLX1812M3BTL		Single Mode	1550nm	EML	APD	11.3 Gb/s	3.3, 5						●						●				●	●												- 40 to 85	LC	Pluggable	Digital	80 km
	FTLX3613M3xx		Single Mode	C-Band DWDM Fixed	DWDM EML	PIN	11.3 Gb/s	3.3, 5						●						●				●	●												- 5 to 70	LC	Pluggable	Digital	40 km
	FTLX3912M3xx		Single Mode	C-Band DWDM Fixed	DWDM EML	APD	11.3 Gb/s	3.3, 5						●						●				●	●												0 to 70	LC	Pluggable	Digital	40 km
	FTLX3813F3xx		Single Mode	C-Band DWDM Fixed	DWDM EML	APD	8.8 Gb/s	3.3, 5						●																							- 5 to 70	LC	Pluggable	Digital	80 km
	FTLX3813M3xx		Single Mode	C-Band DWDM Fixed	DWDM EML	APD	11.3 Gb/s	3.3, 5						●						●				●	●												0 to 70	LC	Pluggable	Digital	80 km
	FTLX3815M3xx		Single Mode	C-Band DWDM Fixed	Tunable + InP MZM	APD	11.3 Gb/s	3.3, 5						■						●				●	●												0 to 70	LC	Pluggable	Digital	80 km
	FTLX4213M3BCL		Single Mode	1550nm	CML™	APD	10.5 Gb/s	3.3, 5												●				●	●												- 5 to 70	LC	Pluggable	Digital	120 km
	FTLX4213xxxxxx		Single Mode	C/L-Band DWDM Fixed	CML™	APD	11.3 Gb/s	3.3, 5												●				●	●												- 5 to 70	LC	Pluggable	Digital	200 km
	FTLX5813P3Cxxx		Single Mode	C-Band DWDM Tunable	Narrow Tunable	APD	11.3 Gb/s	3.3, 5						■						●				●	●												- 5 to 70	LC	Pluggable	Digital	80 km
	FTLX6611MCC		Single Mode	C-Band DWDM Tunable	Tunable + InP MZM	PIN	11.3 Gb/s	3.3, 5						■						●				●	●												- 5 to 70	LC	Pluggable	Digital	40 km
	FTLX6624MCC		Single Mode	C-Band DWDM Tunable	Tunable + InP MZM	PIN	11.3 Gb/s	3.3, 5						■						●				●	●												- 5 to 70	LC	Pluggable	Digital	40 km
	FTLX6811MCC		Single Mode	C-Band DWDM Tunable	Tunable + InP MZM	APD	11.3 Gb/s	3.3, 5						■						●				●	●												- 5 to 70	LC	Pluggable	Digital	80 km
	FTLX6824MCC		Single Mode	C-Band DWDM Tunable	Tunable + InP MZM	APD	11.3 Gb/s	3.3, 5						■						●				●	●												- 5 to 70	LC	Pluggable	Digital	80 km
	FTLX6824MNC		Single Mode	C-Band DWDM Tunable	Tunable + InP MZM	APD	11.3 Gb/s	3.3, 5						■						●				●	●												- 5 to 85	LC	Pluggable	Digital	80 km
	FTLX6825MCC		Single Mode	C-Band DWDM Tunable	Tunable + InP MZM	APD	11.3 Gb/s	3.3, 5						■						●				●	●												- 5 to 70	LC	Pluggable	Digital	80 km
X2	FTLX8541E2		Multimode	850nm Band	VCSEL	PIN	10.3 Gb/s	1.2, 3.3, 5																	●												0 to 70	SC	Pluggable	Digital	300 m (*)
	FTLX1442E2		Single Mode	1310nm Band	DFB Laser	PIN	10.3 Gb/s	1.2, 3.3, 5																	●												0 to 70	SC	Pluggable	Digital	10 km
Endurance	FTE85xxxx	✓	Multimode	850nm Band	VCSEL	PIN	14.025 Gb/s	3.3	■	●	●	●	●	●	●										●												-40 to 85	LC	Endurance	Digital	550 m
	FTE14xxxx	✓	Single Mode	1310nm Band	DFB Laser	PIN	10 Gb/s	3.3	■	●	●	●	●	●											●												-40 to 85	LC	Endurance	Digital	10 km
SFF	FTLF8519F2xCL		Multimode	850nm Band	VCSEL	PIN	2.125 Gb/s	3.3	■	●	●	●																									0 to 70	LC	2x5	N/A	550 m
	FTLF8519F2xNL		Multimode	850nm Band	VCSEL	PIN	2.125 Gb/s	3.3	■	●	●	●																									- 10 to 85	LC	2x5	N/A	550 m
	FTLF8519F2xTL		Multimode	850nm Band	VCSEL	PIN	2.125 Gb/s	3.3	■	●	●	●																									- 40 to 85	LC	2x5	N/A	550 m
	FTLF8524E2xNV	✓	Multimode	850nm Band	VCSEL	PIN	4.25 Gb/s	3.3		■	●	●	●																								- 10 to 85	LC	2x7	Digital	550 m
	FTLF1319F1xTL		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	2.125 Gb/s	3.3		●	●	●																									- 40 to 85	LC	2x5	N/A	10 km
	FTLF1321S1xTL		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	2.67 Gb/s	3.3		●	●	●					■	■	●																		- 40 to 85	LC	2x10	Analog & Digital	2 km
	FTLF1421S1xCL		Single Mode	1310nm Band	DFB Laser	PIN	2.67 Gb/s	3.3		●	●	●					■	■	●																		- 10 to 70	LC	2x10	Analog & Digital	15 km
	FTLF1721S1xCL		Single Mode	1310nm Band	DFB Laser	APD	2.67 Gb/s	3.3		●	●	●					■	■	●																		- 10 to 70	LC	2x10	Analog & Digital	40 km
	FTLF1621S1xCL		Single Mode	1550nm	DFB Laser	APD	2.67 Gb/s	3.3		●	●	●					■	■	●																		- 10 to 70	LC	2x10	Analog & Digital	80 km
	FTLF1323F2xTR		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	155 Mb/s	3.3	■								●																				- 40 to 85	LC	2x5	N/A	15 km
	FTLF1322F2xTR		Single Mode	1310nm Band	Fabry-Perot Laser	PIN	622 Mb/s	3.3									●	●																			- 40 to 85	LC	2x5	N/A	15 km

(*) Using OM3 multimode fiber (**) Extended case temperature ranges and reaches are available upon request (***) 100m using OM4 multimode fiber and FEC Compliant ● Compatible ■ †Wireless CPRI include the following data rates (Gb/s): 1.23, 3.07, 4.92, 6.14, 9.83