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/10x/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/CFP8 (optical; longwave and shortwave)

DATACOM applications using 100G and 400G Ethernet

TELECOM applications using OTU4

Features

- Hot-pluggable, MSA-compliant CFP, CFP2, CFP4 and CFP8 form factors
- Supports 103.1 Gb/s to 425 Gb/s aggregate bit rates
- Maximum link length of 100m on OM3 MMF, 150m on OM4 MMF, 10km on SMF
- 3.3 V operating voltage


CFP/CFP2/CFP4/CFP8

QSFP+/QSFP28 (optical; longwave and shortwave)

DATACOM applications using 40G and 100G Ethernet and high-density 10G and 25G Ethernet

TELECOM applications using OTU3 and OTU4

Features

- Four-channel full duplex transceiver module
- Single-channel full duplex transceiver module (QSFP28 only)
- Hot-pluggable, MSA-compliant QSFP+ and QSFP28 form factors
- Maximum link length of 300m on OM3 MMF, 400m on OM4 MMF, and 40km on SMF (QSFP+ only)
- 3.3 V operating voltage
- Digital diagnostics
- Wireless CPRI compliant (LW and SW)
- I-Temp variants available


QSFP+/QSFP28

QSFP-DD (optical; longwave and shortwave)

DATACOM applications using 400G Ethernet and high-density 50G and 100G Ethernet

Features

- Four- or eight-channel full duplex transceiver module
- Hot-pluggable, MSA-compliant QSFP-DD form factor
- Maximum link length of 70m on OM3 MMF, 100m on OM4 MMF, and 10 km on SMF
- 3.3 V operating voltage
- Digital diagnostics


QSFP-DD

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 300m on OM3 MMF and 400m on OM4 MMF
- Multirate capability: supports 1.06 Gb/s to 12.5 Gb/s per channel


CXP

Active Optical Cables

SFPwire

SFP+ Active Optical Cable for 10G and 25G Ethernet. Also available with Connectivity Diagnostics.®

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. Also available with Connectivity Diagnostics.®


Active Optical Cables

C.wire

150 Gb/s Parallel Active Optical Cable for 100GbE and InfiniBand 12xQDR.

Optical Engines (optical; shortwave)

DATACOM applications for inter-chassis connections

Features

- Twelve-channel full-duplex transceiver modules
- Maximum link length
  100m at 10 Gb/s on OM3 MMF
  70m at 25 Gb/s on OM4 MMF
- Multirate capability: supports 1 Gb/s up to 28.1 Gb/s per channel


Optical Engines

Coherent Transceivers (optical; longwave)

TELECOM 100 Gb/s and 200 Gb/s applications

Features

- Pluggable CFP2-ACO and CFP4-ACO analog coherent optics modules
  - Highest density coherent interface
  - Enables "pay-as-you-grow" deployment of coherent optics
  - Analog interface is compatible with any external DSP
  - Modulation format independent, supports data rates > 200 Gb/s


Coherent

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

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/16x Fibre Channel
- Board-mounted for an edge optical interface or internal mounting
- Designed for rugged applications


Endurance

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 Digital Diagnostics

Finisar's transceivers feature a microprocessor and diagnostics interface that provide 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 patented digital diagnostic functions provide network managers with a highly accurate, cost-effective tool for implementing reliable performance monitoring.

Finisar's Connectivity Diagnostics®

Several of Finisar's products feature the Connectivity Diagnostics® suite of tools, which helps data center technicians quickly and intuitively find specific modules in a sea of sockets using a visual indicator. LynkFind® allows an operator to light up the pull-tab of the module at the far-end of a link by pressing the pull-tab of the near-end module. LynkGuardian® lights up the modules at both ends of a link when either module experiences a fault. LynkCommander® allows a network operations center to light up a module for easy identification on the data center floor. Together, these patented tools bring the intelligence normally available through data center monitoring software to a simple and intuitive visual indicator. The benefits to the data center operator enable faster installation and maintenance, easier troubleshooting, and simplified operations.

Finisar is Now Part of II-VI

Technology Innovator.
Broad Product Portfolio.
Trusted Partner.

II-VI

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FINISAR

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SFP

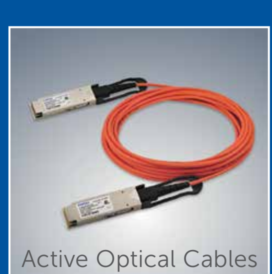

SFP+/SFP28


CFP/CFP2/CFP4/CFP8


QSFP+/QSFP28


QSFP-DD

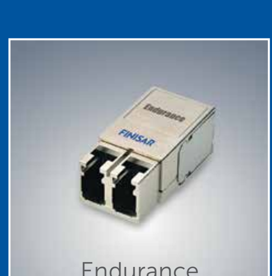

CXP


Active Optical Cables


Optical Engines


Coherent


XFP


Endurance


SFF

II-VI

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	Part Number	Rate Select	Media Type	Wavelength	Transmitter	Receiver	Data Rate (max)	Reach	Case Temperature Range (°C)	Voltage Supply (V)	Optical Fast Ethernet	Optical Gigabit Ethernet	1x Fibre Channel	2x Fibre Channel	4x Fibre Channel	8x Fibre Channel	10x Fibre Channel	16x Fibre Channel	32x Fibre Channel	SONET OC-3	SONET OC-12	SONET OC-48	SONET OC-192	OTN OTU3	OTN OTU4	10G Ethernet	25G Ethernet	40G Ethernet	100G Ethernet	200G Ethernet	400G Ethernet	IB SDR	IB QDR	IB FDR	IB EDR	SAS-3	1000BASE-T	PON	Wireless CPRI†	Connector	Module Type	Diagnostics
SFP	FCLF852xP2BTL		Copper	N/A	N/A	N/A	1.25 Gb/s	100 m	- 40 to 85	3.3																											●			RJ-45	Pluggable	N/A
	FTLF8519P3xNL		Duplex MMF	850nm Band	VCSEL	PIN	2.125 Gb/s	550 m	- 20 to 85	3.3	■	●	●	●																									●	LC	Pluggable	Digital
	FTLF8519P3xTL		Duplex MMF	850nm Band	VCSEL	PIN	2.125 Gb/s	550 m	- 40 to 85	3.3	■	●	●	●																									●	LC	Pluggable	Digital
	FTLF1217P2xTL		Duplex MMF	1310nm Band	LED	PIN	200 Mb/s	2 km	- 40 to 85	3.3	●									■																				LC	Pluggable	Digital
	FTLF1318P3xTL		Duplex SMF	1310nm Band	Fabry-Perot Laser	PIN	1.25 Gb/s	10 km	- 40 to 85	3.3		●	●																										●	LC	Pluggable	Digital
	FTLF1419P1xCL		Duplex SMF	1310nm Band	DFB Laser	PIN	2.125 Gb/s	55 km	- 10 to 70	3.3		●	●	●																									●	LC	Pluggable	Digital
	FTLF1518P1xTL		Duplex SMF	1550nm	DFB Laser	PIN	1.25 Gb/s	90 km	- 40 to 85	3.3		●	●																										●	LC	Pluggable	Digital
	FTLF1519P1xCL		Duplex SMF	1550nm	DFB Laser	PIN	2.125 Gb/s	90 km	- 10 to 70	3.3		●	●	●																									●	LC	Pluggable	Digital
	FTLF1519P1xNL		Duplex SMF	1550nm	DFB Laser	PIN	2.125 Gb/s	90 km	- 5 to 85	3.3		●	●	●																									●	LC	Pluggable	Digital
	FTLF1619P1xCL		Duplex SMF	1550nm	DFB Laser	APD	2.125 Gb/s	115 km	- 10 to 70	3.3		●	●	●																									●	LC	Pluggable	Digital
	FTLF1323P1xTR		Duplex SMF	1310nm Band	Fabry-Perot Laser	PIN	155 Mb/s	15 km	- 40 to 85	3.3	■									●																			●	LC	Pluggable	Digital
	FTLF1323P1xTL		Duplex SMF	1310nm Band	Fabry-Perot Laser	PIN	155 Mb/s	40 km	- 40 to 85	3.3	■									●																			●	LC	Pluggable	Digital
	FTLF1523P1xTL		Duplex SMF	1550nm	DFB Laser	PIN	155 Mb/s	80 km	- 40 to 85	3.3	■									●																			●	LC	Pluggable	Digital
	FTLF1322P1xTR		Duplex SMF	1310nm Band	Fabry-Perot Laser	PIN	622 Mb/s	15 km	- 40 to 85	3.3										●	●																		●	LC	Pluggable	Digital
	FTLF1422P1xTL		Duplex SMF	1310nm Band	DFB Laser	PIN	622 Mb/s	40 km	- 40 to 85	3.3											●																		●	LC	Pluggable	Digital
	FTLF1522P1xTL		Duplex SMF	1550nm	DFB Laser	PIN	622 Mb/s	80 km	- 40 to 85	3.3											●																		●	LC	Pluggable	Digital
	FTLF1321P1xTL		Duplex SMF	1310nm Band	Fabry-Perot Laser	PIN	2.67 Gb/s	2 km	- 40 to 85	3.3	■	●	●	●						■	■	●																	●	LC	Pluggable	Digital
	FTLF1421P1xCL		Duplex SMF	1310nm Band	DFB Laser	PIN	2.67 Gb/s	15 km	- 10 to 70	3.3	■	●	●	●						■	■	●																	●	LC	Pluggable	Digital
	FTLF1421P1xTL		Duplex SMF	1310nm Band	DFB Laser	PIN	2.67 Gb/s	15 km	- 40 to 85	3.3	■	●	●	●						■	■	●																	●	LC	Pluggable	Digital
	FTLF1421P1BTL-3G		Duplex SMF	1310nm Band	DFB Laser	PIN	3.07 Gb/s	15 km	- 40 to 85	3.3		■	■	■																									●	LC	Pluggable	Digital
	FTLF1521P1xCL		Duplex SMF	1550nm	DFB Laser	PIN	2.67 Gb/s	15 km	0 to 70	3.3	■	●	●	●						■	■	●																	●	LC	Pluggable	Digital
	FTLF1721P1xCL		Duplex SMF	1310nm Band	DFB Laser	APD	2.67 Gb/s	40 km	- 10 to 70	3.3	■	●	●	●						■	■	●																	●	LC	Pluggable	Digital
	FTLF1621P1xCL		Duplex SMF	1550nm	DFB Laser	APD	2.67 Gb/s	80 km	- 10 to 70	3.3		●	●	●						■	■	●																	●	LC	Pluggable	Digital
	FWLF1523P1C51 (OSC)		Duplex SMF	1511nm	DFB Laser	PIN	155 Mb/s	80 km	- 20 to 70	3.3	■									■																				LC	Pluggable	Digital
	FWLF1523P1N51 (OSC)		Duplex SMF	1511nm	DFB Laser	PIN	155 Mb/s	80 km	- 20 to 85	3.3	■									■																				LC	Pluggable	Digital
	FWLF15197Dxx[2]		Duplex SMF	1550nm CWDM	CWDM DFB Laser	PIN	1.25 Gb/s	80 km	0 to 70	3.3	■	●	●							■	■																		●	LC	Pluggable	Digital
	FWLF16197D-xx[2]		Duplex SMF	1550nm CWDM	CWDM DFB Laser	APD	1.25 Gb/s	100 km	0 to 70	3.3	■	●	●							■	■																		●	LC	Pluggable	Digital
	FWLF15217Dxx[2]		Duplex SMF	1550nm CWDM	CWDM DFB Laser	PIN	2.67 Gb/s	50 km	0 to 70	3.3	■	●	●	●						■	■	■																	●	LC	Pluggable	Digital
	FWLF16217D-xx[2]		Duplex SMF	1550nm CWDM	CWDM DFB Laser	APD	2.67 Gb/s	80 km	0 to 70	3.3	■	●	●	●						■	■	●																	●	LC	Pluggable	Digital
	FWLF1524P2Vxx	✓	Duplex SMF	1550nm CWDM	CWDM DFB Laser	PIN	4.25 Gb/s	40 km	- 5 to 75	3.3		●	●	●	●							●																	●	LC	Pluggable	Digital
	FWLF1625P2Lxx	✓	Duplex SMF	1550nm CWDM	CWDM DFB Laser	APD	4.25 Gb/s	80 km	- 5 to 75	3.3			●	●	●																								●	LC	Pluggable	Digital
	FWLF1632xx[2]		Duplex SMF	C-Band DWDM Fixed	DWDM DFB Laser	APD	2.67 Gb/s	120 km	0 to 70	3.3	■	●	●	●						■	■	●																	●	LC	Pluggable	Digital
	FTEN2x15P1xUN-BC (EPON SFP-ONU)		Single SMF	Bidi 1310nm/1490nm	Fabry-Perot Laser	PIN	1.25 Gb/s	10 km	- 30 to 85	3.3																													●		SC	Pluggable	Digital
	FTEN2x17P1xUN-BC (EPON SFP-ONU)		Single SMF	Bidi 1310nm/1490nm	DFB Laser	PIN	1.25 Gb/s	20 km+	- 30 to 85	3.3																													●		SC	Pluggable	Digital
	FTLF8524P3xNL		Duplex MMF	850nm Band	VCSEL	PIN	3.7 Gb/s	300 m	- 40 to 85	3.3		■	■	■																									●	LC	Pluggable	Digital
SFP+/SFP28	FTLF8526W4BTL		Duplex MMF	850nm Band	VCSEL	PIN	6.144 Gb/s	300 m[1]	- 40 to 85	3.3																													●	LC	Pluggable	Digital
	FTLF1426P2BTL		Duplex SMF	1310nm Band	DFB Laser	PIN	6.144 Gb/s	10/15 km	- 40 to 85	3.3																													●	LC	Pluggable	Digital
	FTLF8528P3BxV	✓	Duplex MMF	850nm Band	VCSEL	PIN	8.5 Gb/s	150 m[1]	- 5 to 85	3.3			■	●	●	●																								LC	Pluggable	Digital
	FTLF1428P3BNV	✓	Duplex SMF	1310nm Band	DFB Laser	PIN	8.5 Gb/s	10 km	- 5 to 85	3.3			■	●	●	●																								LC	Pluggable	Digital
	FTLX8574D3Bx[5]	✓	Duplex MMF	850nm Band	VCSEL	PIN	10.3 Gb/s	300 m[1]	-5 to 85	3.3		●														●													●	LC	Pluggable	Digital
	FTLX8574D3BxL[5]		Duplex MMF	850nm Band	VCSEL	PIN	10.5 Gb/s	300 m[1]	-5 to 85	3.3							●									●													●	LC	Pluggable	Digital
	FTLX8573D3BTL		Duplex MMF	850nm Band	VCSEL	PIN	10.5 Gb/s	300 m[1]	- 40 to 85	3.3							●									●													●	LC	Pluggable	Digital
	FTLX1371D3BCL		Duplex SMF	1310nm Band	Fabry-Perot Laser	Linear PIN	10.3 Gb/s	220 m[3]	- 5 to 70	3.3																●														LC	Pluggable	Digital
	FTLX1370W3BTL		Duplex SMF	1310nm Band	Fabry-Perot Laser	PIN	9.830 Gb/s	1.4 km	- 40 to 85	3.3																													●	LC	Pluggable	Digital
	FTLX1475D3BxV[5]	✓	Duplex SMF	1310nm Band	DFB Laser	PIN	10.3 Gb/s	10 km	- 5 to 85	3.3		●														●													●	LC	Pluggable	Digital
	FTLX1475D3BxL[5]		Duplex SMF	1310nm Band	DFB Laser	PIN	10.5 Gb/s	10 km	- 40 to 85	3.3							●									●													●	LC	Pluggable	Digital
	FTLX1472M3BxL	✓	Duplex SMF	1310nm Band	DFB Laser	PIN	11.3 Gb/s	10 km	- 40 to 85	3.3						●	●						●			●													●	LC	Pluggable	Digital
	FTLX2072D3xx (Bidirectional)		Single SMF	Bidi 1271nm/1331nm	DFB Laser	PIN	10.5 Gb/s	10 km	- 40 to 85	3.3							●									●													●	LC	Pluggable	Digital
	FTLX2672D3xx (Bidirectional)		Single SMF	Bidi 1271nm/1331nm	DFB Laser	PIN	10.5 Gb/s	20/30 km	- 40 to 85	3.3							●									●													●	LC	Pluggable	Digital
	FTLX2471DC0xx		Duplex SMF	1310nm Band	CWDM DFB Laser	PIN	10.5 Gb/s	10 km	- 5 to 70	3.3							●									●														LC	Pluggable	Digital
	FTLX1672y3BxL[5]	✓	Duplex SMF	1550nm	EML	PIN	11.3 Gb/s	40 km	- 40 to 85	3.3		■	■	■	■	●	●						●			●													●	LC	Pluggable	Digital
	FTLX1772M3BCL	✓	Duplex SMF	1310nm Band	DFB Laser	APD	11.3 Gb/s	40 km	- 5 to 75	3.3						■	■						■			■													●	LC	Pluggable	Digital
	FTLX1871y3BxL[5]	✓	Duplex SMF	1550nm	EML	APD	11.3 Gb/s	80 km	- 5 to 85	3.3						●	●						●			●													●	LC	Pluggable	Digital
	FTLX3971yTCxx	✓	Duplex SMF	C-Band DWDM Fixed	DWDM EML	APD	11.3 Gb/s	40 km	-40 to 85	3.3		■	■	■	■	■	■						■			■													■	LC	Pluggable	Digital
	FTLX3671yTCxx	✓	Duplex SMF	C-Band DWDM Fixed	DWDM EML	PIN	11.3 Gb/s	40 km	-40 to 85	3.3		■	■	■	■	■	■						■			■													■	LC	Pluggable	Digital
	FTLX6871MCC		Duplex SMF	C-Band DWDM Tunable	Tunable + InP MZM	Linear APD	11.3 Gb/s	80 km	- 5 to 70	3.3						■	●						●			●													●	LC	Pluggable	Digital
	FTLX6872MCC		Duplex SMF	C-Band DWDM Tunable	Tunable + InP MZM	Limiting APD	11.3 Gb/s	80 km	- 5 to 70	3.3						■	●						●			●													●	LC	Pluggable	Digital
	FTLX6672MCC		Duplex SMF	C-Band DWDM Tunable	Tunable + InP MZM	PIN	11.3 Gb/s	40 km	- 5 to 70	3.3						■	●						●			●													●	LC	Pluggable	Digital
	FTLX6871MNC		Duplex SMF	C-Band DWDM Tunable	Tunable + InP MZM	Linear APD	11.3 Gb/s	80 km	- 5 to 85	3.3						■	●						●			●													●	LC	Pluggable	Digital
	FTLX6872MNC		Duplex SMF	C-Band DWDM Tunable	Tunable + InP MZM	Limiting APD	11.3 Gb/s	80 km	- 5 to 85	3.3						■	●						●			●													●	LC	Pluggable	Digital
	FTLX6875MCC		Duplex SMF	C-Band DWDM Tunable	Tunable + InP MZM, High Pwr	Linear APD	11.3 Gb/s	80 km	- 5 to 70	3.3						■	●						●			●													●	LC	Pluggable	Digital
	FTLB8611P3xC (Bidirectional)		Single SMF	C-Band DWDM Tunable	Tunable + InP MZM	Limiting APD	11.3 Gb/s	30 km	- 5 to 85	3.3						■	●						●			●													●	LC	Pluggable	Digital
	FTLX3871yCCxx	✓	Duplex SMF	C-Band DWDM Fixed	DWDM EML	APD	11.3 Gb/s	80 km	- 5 to 70	3.3						■	■						■			■													■	LC	Pluggable	Digital
	FTLF8529P4BxV[5]	✓	Duplex MMF	850nm Band	VCSEL	PIN	14.025 Gb/s	100 m	0 to 85	3.3					●	●		●																						LC	Pluggable	Digital
	FTLF1429P3BxV[5]	✓	Duplex SMF	1310nm Band	DFB Laser	PIN	14.025 Gb/s	10 km	- 5 to 85	3.3					●	●		●																						LC	Pluggable	Digital
	FTLF1429P3BCE	✓	Duplex SMF	1310nm Band	DFB Laser	PIN	14.025 Gb/s	25 km	0 to 70	3.3					●	●		●																						LC	Pluggable	Digital
	FTLF8532P4BxV	✓	Duplex MMF	850nm Band	VCSEL	PIN	28.05 Gb/s	100 m	0 to 85	3.3						●		●	●																				LC	Pluggable	Digital
	FTLF1432P3BCV	✓	Duplex SMF	1310nm Band	DFB Laser	PIN	28.05 Gb/s	10 km	0 to 70	3.3						●		●	●																				LC	Pluggable	Digital
	FTLF1432P3BCE	✓	Duplex SMF	1310nm Band	DFB Laser	PIN	28.05 Gb/s	25 km	0 to 70	3.3						●	●	●																					LC	Pluggable	Digital
	FTLF8536P4BCx	✓	Duplex MMF	850nm Band	VCSEL	PIN	25.78 Gb/s	100 m	0 to 70	3.3																	●												LC	Pluggable	Digital
	FTLF8536P4BNx	✓	Duplex MMF	850nm Band	VCSEL	PIN	25.78 Gb/s	100 m	0 to 85	3.3																■	●											●	LC	Pluggable	Digital
	FTLF8536W4BTV	✓	Duplex MMF	850nm Band	VCSEL	PIN	25.78 Gb/s	100 m	-40 to 85	3.3																■	●											●	LC	Pluggable	Digital
	FTLF8538P4BCL		Duplex MMF	850nm Band	VCSEL	PIN	25.78 Gb/s	30/50/70 m[4]	0 to 70	3.3																	●												LC	Pluggable	Digital
	FTLF8540P4BCL	✓	Duplex MMF	850nm Band	VCSEL	PIN	25.78 Gb/s	300 m	0 to 70	3.3																	●												LC	Pluggable	Digital
	FTLF1336W4BTV	✓	Duplex SMF	1310nm Band	FP Laser	PIN	25.78 Gb/s	300 m	-40 to 85	3.3																■	●											●	LC	Pluggable	Digital
	FTLF1436P3BCL		Duplex SMF	1310nm Band	DFB Laser	PIN	25.78 Gb/s	10 km	0 to 70	3.3																	●												LC	Pluggable	Digital
	FTLF1436W4BTV	✓	Duplex SMF	1310nm Band	DFB Laser	PIN	25.78 Gb/s	10 km	-40 to 85	3.3																■	●											●	LC	Pluggable	Digital
	FTLF3436W4BTxx	✓	Duplex SMF	CWDM 1310nm Band	DFB Laser	PIN	25.78 Gb/s	10 km	-40 to 85	3.3																■	●											●	LC	Pluggable	Digital
	FTLB2021P4Txx (Bidirectional)	✓	Single SMF	Bidi 1270nm/1330nm	DFB Laser	PIN	25.78 Gb/s	10 km	-40 to 85	3.3																■	●											●	LC	Pluggable	Digital
CFP/CFP2/CFP4/CFP8	FTCD1324E1BCL (CFP8)		Duplex SMF	1310nm Band	8x LWDM DFB Laser	PIN	425 Gb/s	2 km	0 to 70	3.3																					●								LC	Pluggable	Digital
	FTCD1314E1BCL (CFP8)		Duplex SMF	1310nm Band	8x LWDM DFB Laser	PIN	425 Gb/s	10 km	0 to 70	3.3																					●								LC	Pluggable	Digital
	FTLC1141RDNL (CFP4)		Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	103.1 Gb/s	10 km	0 to 75	3.3																			●										LC	Pluggable	Digital
	FTLC1141SDNL (CFP4)		Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	112 Gb/s	10 km	0 to 75	3.3															●				●										LC	Pluggable	Digital
	FTLC8221RFNM (CFP2)	✓	Parallel MMF	850nm Band	10x VCSEL	PIN	103 Gb/s	300 m[2]	0 to 70	3.3							●									■		■	●				●						MPO(MTP24)	Pluggable	Digital
	FTLC8221SCNM (CFP2)		Parallel MMF	850nm Band	10x VCSEL	PIN	112 Gb/s	100 m[2]	0 to 70	3.3															●				●										MPO(MTP24)	Pluggable	Digital
	FTLC1122RDNL (CFP2)		Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	103.1 Gb/s	10 km	0 to 70	3.3																			●										LC	Pluggable	Digital
	FTLC1122SDNL (CFP2)		Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	112 Gb/s	10 km	0 to 70	3.3															●				●										LC	Pluggable	Digital
	FTLC8281RCNM (CFP)		Parallel MMF	850nm Band	10x VCSEL	PIN	103.1 Gb/s	100 m[1]	0 to 70	3.3																			●										MPO(MTP24)	Pluggable	Digital
	FTLC8281SCNM (CFP)		Parallel MMF	850nm Band	10x VCSEL	PIN	112 Gb/s	100 m[1]	0 to 70	3.3															●				●										MPO(MTP24)	Pluggable	Digital
	FTLC1183RDNx (CFP)	✓	Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	103.1 Gb/s	10 km	0 to 70	3.3																			●										SC/LC	Pluggable	Digital
	FTLC1183SDNx (CFP)	✓	Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	112 Gb/s	10 km	0 to 70	3.3															●				●										SC/LC	Pluggable	Digital

	Part Number	Rate Select	Media Type	Wavelength	Transmitter	Receiver	Data Rate (max)	Reach	Case Temperature Range (°C)	Voltage Supply (V)	Optical Fast Ethernet	Optical Gigabit Ethernet	1x Fibre Channel	2x Fibre Channel	4x Fibre Channel	8x Fibre Channel	10x Fibre Channel	16x Fibre Channel	32x Fibre Channel	SONET OC-3	SONET OC-12	SONET OC-48	SONET OC-192	OTN OTU3	OTN OTU4	10G Ethernet	25G Ethernet	40G Ethernet	100G Ethernet	200G Ethernet	400G Ethernet	IB SDR	IB QDR	IB FDR	IB EDR	SAS-3	1000BASE-T	PON	Wireless CPRI†	Connector	Module Type	Diagnostics
QSFP+/QSFP28/QSFP-DD	FTCD1333E1PCL (QSFP-DD)		Duplex SMF	1310nm Band	8x LWDM DFB Laser	PIN	425 Gb/s	2 km	0 to 70	3.3																					●								LC	Pluggable	Digital
	FTCD1323E1PCL (QSFP-DD)		Duplex SMF	1310nm Band	8x LWDM DFB Laser	PIN	425 Gb/s	10 km	0 to 70	3.3																					●								LC	Pluggable	Digital
	FTLC9152RGPL (QSFP28)[3]		Duplex MMF	850nm Band	4x SWDM VCSEL	PIN	103.1 Gb/s	100 m[3]	0 to 70	3.3																			●										LC	Pluggable	Digital
	FTLC9558REPM (QSFP28)[3]		Parallel MMF	850nm Band	4x VCSEL	PIN	103.1 Gb/s	100 m[3]	0 to 70	3.3																	●		●										MPO (MTP12)	Pluggable	Digital
	FTLC9555REPM (QSFP28)[2, 3]		Parallel MMF	850nm Band	4x VCSEL	PIN	103.1 Gb/s	100 m[3]	0 to 70[2]	3.3																	●		●										MPO (MTP12)	Pluggable	Digital
	FTLC9555QEPM (QSFP28)		Parallel MMF	850nm Band	4x VCSEL	PIN	103.1 Gb/s	100 m[3]	0 to 70	3.3																	●	●	●										MPO (MTP12)	Pluggable	Digital
	FTLC9555NEPM (QSFP28)[4]		Parallel MMF	850nm Band	4x VCSEL	PIN	103.1 Gb/s	30/50/70 m[4]	0 to 70	3.3																	●		●						●					MPO (MTP12)	Pluggable	Digital
	FTLC9555SEPM (QSFP28)		Parallel MMF	850nm Band	4x VCSEL	PIN	112.2 Gb/s	100 m[3]	0 to 70	3.3									■						●		●		●										MPO (MTP12)	Pluggable	Digital
	FTLC9555FEPM (QSFP28)	✓	Parallel MMF	850nm Band	4x VCSEL	PIN	112.2 Gb/s	100 m[3]	0 to 70	3.3						●	■	■	●						■		●		●										MPO (MTP12)	Pluggable	Digital
	FTLC9555WEPM (QSFP28)[2, 3]		Parallel MMF	850nm Band	4x VCSEL	PIN	103.1 Gb/s	100 m[3]	-10 to 75[2]	3.3																■	●		●										●	MPO (MTP12)	Pluggable	Digital
	FTLC1155RGPL (QSFP28)		Duplex SMF	1310nm Band	4x CWDM DFB Laser	PIN	103.1 Gb/s	2 km	0 to 70	3.3																			●										LC	Pluggable	Digital
	FTLC1155RGPL4 (QSFP28)		Duplex SMF	1310nm Band	4x CWDM DFB Laser	PIN	103.1 Gb/s	2 km	- 40 to 85	3.3																			●										LC	Pluggable	Digital
	FTLC1155RGPL6 (QSFP28)		Duplex SMF	1310nm Band	4x CWDM DFB Laser	PIN	103.1 Gb/s	500 m	15 to 60	3.3																			●										LC	Pluggable	Digital
	FTLC1155WGPLC (QSFP28)		Duplex SMF	1310nm Band	4x CWDM DFB Laser	PIN	103.1 Gb/s	10 km	- 20 to 85	3.3																			●										●	LC	Pluggable	Digital
	FTLC1155RGPLA (QSFP28)		Duplex SMF	1310nm Band	4x CWDM DFB Laser	PIN	103.1 Gb/s	10 km	0 to 70	3.3																			●										LC	Pluggable	Digital
	FTLC1155RGPLD (QSFP28)		Duplex SMF	1310nm Band	4x CWDM DFB Laser	PIN	103.1 Gb/s	10 km	- 40 to 85	3.3																			●										LC	Pluggable	Digital
	FTLC1154RDPL (QSFP28)		Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	103.1 Gb/s	10 km	0 to 70	3.3																			●										LC	Pluggable	Digital
	FTLC1154RDPL4 (QSFP28)		Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	103.1 Gb/s	10 km	- 40 to 85	3.3																			●										LC	Pluggable	Digital
	FTLC1154RDPL6 (QSFP28)		Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	103.1 Gb/s	2 km	15 to 60	3.3																			●										LC	Pluggable	Digital
	FTLC1154RDPLA (QSFP28)		Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	103.1 Gb/s	20 km	0 to 70	3.3																			●										LC	Pluggable	Digital
	FTLC1154RDPLD (QSFP28)		Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	103.1 Gb/s	20 km	- 40 to 85	3.3																			●										LC	Pluggable	Digital
	FTLC1154SDPL (QSFP28)		Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	112.2 Gb/s	10 km	0 to 70	3.3															●				●						■					LC	Pluggable	Digital
	FTLC1154SDPL4 (QSFP28)		Duplex SMF	1310nm Band	4x LWDM DFB Laser	PIN	112.2 Gb/s	10 km	- 40 to 85	3.3															●				●						■					LC	Pluggable	Digital
	FTLC4351RJPL (QSFP28)		Duplex SMF	1310nm Band	1x EML	PIN	103.1 Gb/s	2 km	0 to 70	3.3																			●										LC	Pluggable	Digital
	FTLC4351RHPL (QSFP28)		Duplex SMF	1310nm Band	1x EML	PIN	103.1 Gb/s	500 m	0 to 70	3.3																			●										LC	Pluggable	Digital
	FTL410QE4C (QSFP+)		Parallel MMF	850nm Band	4x VCSEL	PIN	41.2 Gb/s	100 m	0 to 70	3.3																■		●					■						MPO (MTP12)	Pluggable	Digital
	FTL410QD4C (QSFP+)		Parallel MMF	850nm Band	4x VCSEL	PIN	41.2 Gb/s	300 m	0 to 70	3.3																●		●					■						MPO (MTP12)	Pluggable	Digital
	FTL410QE2N (QSFP+)		Parallel MMF	850nm Band	4x VCSEL	PIN	41.2 Gb/s	100 m	-5 to 85	3.3																●		●					■						MPO (MTP12)	Pluggable	Limited
	FTL414QB2C (QSFP+)		Parallel MMF	850nm Band	4x VCSEL	PIN	56 Gb/s	60 m	0 to 70	3.3																●		●					■	■					MPO (MTP12)	Pluggable	Limited
	FTL4C2QE2C (QSFP+)		Duplex SMF	1310nm Band	4x CWDM DFB Laser	PIN	41.2 Gb/s	160 m	0 to 70	3.3								■																						LC	Pluggable	Digital
	FTL4C3QE2C (QSFP+)		Duplex SMF/MMF	1310nm Band	4x CWDM DFB Laser	PIN	41.2 Gb/s	1 km	0 to 70	3.3								■																						LC	Pluggable	Digital
	FTL4S1QE1C (QSFP+)		Duplex MMF	850nm Band	4x SWDM VCSEL	PIN	41.2 Gb/s	240 m[1]	0 to 70	3.3																		●											LC	Pluggable	Digital
	FTL4S1QE2C (QSFP+)		Duplex MMF	850nm Band	4x SWDM VCSEL	PIN	41.2 Gb/s	300 m[1]	0 to 70	3.3																		●											LC	Pluggable	Digital
	FTL4C1QL2C (QSFP+)[5]		Duplex SMF	1310nm Band	4x CWDM DFB Laser	PIN	41.2 Gb/s	2 km	0 to 70	3.3																■		■					■						LC	Pluggable	Digital
	FTL4C1QE2C (QSFP+)[5]		Duplex SMF	1310nm Band	4x CWDM DFB Laser	PIN	41.2 Gb/s	10 km	0 to 70	3.3																		●											LC	Pluggable	Digital
	FTL4C1QM2C (QSFP+)		Duplex SMF	1310nm Band	4x CWDM DFB Laser	PIN	44.6 Gb/s	10 km	0 to 70	3.3														●				●											LC	Pluggable	Digital
	FTL4E1QE1C (QSFP+)		Duplex SMF	1310nm Band	4x CWDM DFB Laser	APD	41.2 Gb/s	40 km	0 to 70	3.3														■				●											LC	Pluggable	Digital
	FTL4E1QM1C (QSFP+)		Duplex SMF	1310nm Band	4x CWDM DFB Laser	APD	44.6 Gb/s	40 km	0 to 70	3.3														■				●											LC	Pluggable	Digital
CXP	FTLD10CE3C		Parallel MMF	850nm Band	12x VCSEL	PIN	135.6 Gb/s	100 m[1]	0 to 70	3.3							■									■		■	●			●	●						MPO (MTP24)	Pluggable	Digital
	FTLD10CD3C		Parallel MMF	850nm Band	12x VCSEL	PIN	135.6 Gb/s	300 m[1]	0 to 70	3.3							■									■		■	●			●	●						MPO (MTP24)	Pluggable	Digital
	FTLD12CL3C		Parallel MMF	850nm Band	12x VCSEL	PIN	150 Gb/s	100 m[1]	0 to 70	3.3							■									■		■	●			●	●						MPO (MTP24)	Pluggable	Digital
Active Optical Cables	SFPwire (10G SFP+ based AOC)		Duplex MMF	850nm Band	VCSEL	PIN	10.3 Gb/s	30 m	0 to 70	3.3							■									●														N/A	SFP+ AOC	Digital
	SFPwire (25G SFP+ based AOC)		Duplex MMF	850nm Band	VCSEL	PIN	25.78 Gb/s	30 m	0 to 70	3.3																■	●													N/A	SFP+ AOC	Digital
	Quadwire (40G QSFP-based AOC)		Parallel MMF	850nm Band	4x VCSEL	PIN	42 Gb/s	300 m	0 to 70	3.3																●		●					●			■				N/A	QSFP+ AOC	Digital
	Quadwire Fanout (40G QSFP to 4xSFP+ AOC)		Duplex/Parallel MMF	850nm Band	4x VCSEL	PIN	42 Gb/s	30 m	0 to 70	3.3																●							●						N/A	QSFP+/SFP+ AOC	Digital
	Quadwire (56G QSFP-based AOC)		Parallel MMF	850nm Band	4x VCSEL	PIN	56 Gb/s	100 m	0 to 70	3.3								●								●		●					●	●						N/A	QSFP+ AOC	Digital
	Quadwire (100G QSFP28-based AOC)		Parallel MMF	850nm Band	4x VCSEL	PIN	112 Gb/s	100 m	0 to 70	3.3									■						■				●				●	●	●					N/A	QSFP28 AOC	Digital
	Quadwire Fanout (100G QSFP28 to 4xSFP28 AOC)		Duplex/Parallel MMF	850nm Band	4x VCSEL	PIN	112 Gb/s	100 m	0 to 70	3.3							■									■	●													N/A	QSFP28/SFP28 AOC	Digital
	C.wire (CXP-based AOC)		Parallel MMF	850nm Band	12x VCSEL	PIN	150 Gb/s	100 m	0 to 70	3.3								●								●		●	●				●	●						N/A	CXP AOC	Digital
Optical Engines	FBOTD10SL1C00 (with heatsink)		Parallel MMF	850nm Band	12x VCSEL	PIN	12 x 11.3 Gb/s	100 m	0 to 70	3.3		■	■	■	■	■	■					■	■	■	■	■		■	■			■	■	■					■	MT	Board-mount	Digital
	FBOTD10FL1C00 (flat-top)		Parallel MMF	850nm Band	12x VCSEL	PIN	12 x 11.3 Gb/s	100 m	0 to 70	3.3		■	■	■	■	■	■					■	■	■	■	■		■	■			■	■	■					■	MT	Board-mount	Digital
	FBOTD25FL3C00 (Finisar pinout)		Parallel MMF	850nm Band	12x VCSEL	PIN	12 x 25 Gb/s	70 m	0 to 70	3.3		■	■	■	■	■	■					■	■	■	■	■	■	■	■				■	■	■				■	MT	Board-mount	Digital
	FBOTD25MT3C00 (MBOM pinout)		Parallel MMF	850nm Band	12x VCSEL	PIN	12 x 25 Gb/s	70 m	0 to 70	3.3		■	■	■	■	■	■					■	■	■	■	■	■	■	■				■	■	■				■	MT	Board-mount	Digital
Coherent	FTLC3322x3NL (CFP2-ACO)		Duplex SMF	C-Band DWDM Tunable	Tunable DP-QPSK/16QAM	Coherent	256 Gb/s	2,000 km	-5 to 70	3.3															■				■	■										LC	Pluggable	Digital
	FTLC3341x3NL (CFP4-ACO)		Duplex SMF	C-Band DWDM Tunable	Tunable DP-QPSK/16QAM	Coherent	256 Gb/s	2,000 km	-5 to 70	3.3															■				■	■										LC	Pluggable	Digital
XFP	FTLX8512D3BCL		Duplex MMF	850nm Band	VCSEL	PIN	10.5 Gb/s	300 m[1]	0 to 70	3.3						●	●									●														LC	Pluggable	Digital
	FTLX8512D3BTL		Duplex MMF	850nm Band	VCSEL	PIN	10.5 Gb/s	300 m[1]	- 40 to 85	3.3						●	●									●														LC	Pluggable	Digital
	FTLX1413D3BCL		Duplex SMF	1310nm Band	DFB Laser	PIN	10.5 Gb/s	10 km	0 to 70	3.3						●	●									●														LC	Pluggable	Digital
	FTLX1413D3BTL		Duplex SMF	1310nm Band	DFB Laser	PIN	11.3 Gb/s	10 km	- 40 to 85	3.3						●	●									●														LC	Pluggable	Digital
	FTLX1413M3BCL		Duplex SMF	1310nm Band	DFB Laser	PIN	11.3 Gb/s	10 km	0 to 70	1.5						●	●						●			●														LC	Pluggable	Digital
	FTLX1413M3BTL		Duplex SMF	1310nm Band	DFB Laser	PIN	11.3 Gb/s	10 km	- 40 to 85	3.3						●	●						●			●														LC	Pluggable	Digital
	FTLX1612M3BCL		Duplex SMF	1550nm	EML	PIN	11.3 Gb/s	40 km	- 5 to 75	3.3, 5						●	●						●			●														LC	Pluggable	Digital
	FTLX1612M3BTL		Duplex SMF	1550nm	EML	PIN	11.3 Gb/s	40 km	- 40 to 85	3.3, 5						●	●						●			●														LC	Pluggable	Digital
	FTLX1812M3BCL		Duplex SMF	1550nm	EML	APD	11.3 Gb/s	80 km	- 5 to 70	3.3, 5						●	●						●			●														LC	Pluggable	Digital
	FTLX1812M3BTL		Duplex SMF	1550nm	EML	APD	11.3 Gb/s	80 km	- 40 to 85	3.3, 5						●	●						●			●														LC	Pluggable	Digital
	FTLX3815M3xx		Duplex SMF	C-Band DWDM Fixed	Tunable + InP MZM	APD	11.3 Gb/s	80 km	0 to 70	3.3, 5						■	●						●			●														LC	Pluggable	Digital
	FTLX6624MCC		Duplex SMF	C-Band DWDM Tunable	Tunable + InP MZM	PIN	11.3 Gb/s	40 km	- 5 to 70	3.3, 5						■	●						●			●														LC	Pluggable	Digital
	FTLX6824MCC		Duplex SMF	C-Band DWDM Tunable	Tunable + InP MZM	APD	11.3 Gb/s	80 km	- 5 to 70	3.3, 5						■	●						●			●														LC	Pluggable	Digital
	FTLX6824MNC		Duplex SMF	C-Band DWDM Tunable	Tunable + InP MZM	APD	11.3 Gb/s	80 km	- 5 to 85	3.3, 5						■	●						●			●														LC	Pluggable	Digital
	FTLX6825MCC		Duplex SMF	C-Band DWDM Tunable	Tunable + InP MZM, High Pwr	APD	11.3 Gb/s	80 km	- 5 to 70	3.3, 5						■	●						●			●														LC	Pluggable	Digital
Endurance	FTE85xxxx	✓	Duplex MMF	850nm Band	VCSEL	PIN	14.025 Gb/s	550 m	-40 to 85	3.3	■	●	●	●	●	●		●								●														LC	Endurance	Digital
	FTE14xxxx	✓	Duplex SMF	1310nm Band	DFB Laser	PIN	10 Gb/s	10 km	-40 to 85	3.3	■	●	●	●	●	●										●														LC	Endurance	Digital
SFF	FTLF8519F2xCL		Duplex MMF	850nm Band	VCSEL	PIN	2.125 Gb/s	550 m	0 to 70	3.3	■	●	●	●																										LC	2x5	N/A
	FTLF8519F2xNL		Duplex MMF	850nm Band	VCSEL	PIN	2.125 Gb/s	550 m	- 10 to 85	3.3	■	●	●	●																										LC	2x5	N/A
	FTLF8519F2xTL		Duplex MMF	850nm Band	VCSEL	PIN	2.125 Gb/s	550 m	- 40 to 85	3.3	■	●	●	●																										LC	2x5	N/A
	FTLF8524E2xNV	✓	Duplex MMF	850nm Band	VCSEL	PIN	4.25 Gb/s	550 m	- 10 to 85	3.3		■	●	●	●																								LC	2x7	Digital
	FTLF1319F1xTL		Duplex SMF	1310nm Band	Fabry-Perot Laser	PIN	2.125 Gb/s	10 km	- 40 to 85	3.3		●	●	●																										LC	2x5	N/A
	FTLF1321S1xTL		Duplex SMF	1310nm Band	Fabry-Perot Laser	PIN	2.67 Gb/s	2 km	- 40 to 85	3.3		●	●	●						■	■	●																		LC	2x10	Analog & Digital
	FTLF1421S1xCL		Duplex SMF	1310nm Band	DFB Laser	PIN	2.67 Gb/s	15 km	- 10 to 70	3.3		●	●	●						■	■	●																		LC	2x10	Analog & Digital
	FTLF1721S1xCL		Duplex SMF	1310nm Band	DFB Laser	APD	2.67 Gb/s	40 km	- 10 to 70	3.3		●	●	●						■	■	●																		LC	2x10	Analog & Digital
	FTLF1621S1xCL		Duplex SMF	1550nm	DFB Laser	APD	2.67 Gb/s	80 km	- 10 to 70	3.3		●	●	●						■	■	●																		LC	2x10	Analog & Digital
	FTLF1323F2xTR		Duplex SMF	1310nm Band	Fabry-Perot Laser	PIN	155 Mb/s	15 km	- 40 to 85	3.3	■									●																				LC	2x5	N/A
	FTLF1322F2xTR		Duplex SMF	1310nm Band	Fabry-Perot Laser	PIN	622 Mb/s	15 km	- 40 to 85	3.3										●	●																				LC	2x5	N/A

[1] Using OM3 multimode fiber. [2] Extended case temperature ranges and reaches are available upon request. [3] 100m using OM4 multimode fiber and FEC. [4] 30m/50m/70m OM3 MMF for FEC Free, Firecode FEC and RS-FEC respectively. [5] Other operating case temp. range options are available. Compliant ● Compatible ■ †Wireless CPRI include the following data rates (Gb/s): 1.23, 3.07, 4.92, 6.14, 9.83, 24.33

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