



Optical Transmission Components

2018

Data Links | Active Devices

Putting your communication needs in the spotlight

Sumitomo Electric Industries, the market leader in optical and wireless components, provides communication system equipment companies with the broadest array of high-performance optical and wireless communication products, technical expertise, and unmatched service and support.

Focusing on advancing your capabilities

Our extensive product portfolio provides support for established and emerging communications standards, from 100G, 200G, 400Gb/s and beyond. Our products support data center, client, telecom and access markets.

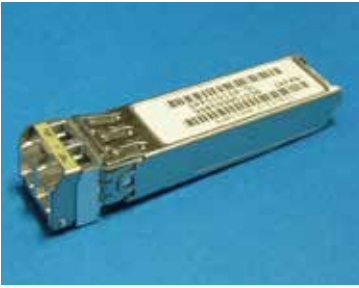
These products, as well as our flexibility in meeting customer requirements, play an essential part in supporting the global communications infrastructure, helping customers shorten design cycles and get to market faster.

Our advanced technology is the result of world-class research and manufacturing capabilities in optical and mobile technologies. Product development, manufacturing, quality assurance, sales engineering and purchasing activities, also serve to expand and strengthen our product portfolio.

Helping customers evolving requirements

We are committed to remaining at the forefront of bandwidth demands to meet customer evolving requirements in high speed communications. Our focus on vertical integration from fab to finished product ensures exceptional quality, optimum integration, advanced technology, and industry-leading levels of reliability.

SFP+ Transceivers



- Hot pluggable
- High-quality optical subassemblies and duplex LC receptacles
- 1310 nm DFB for 10 km transmission
- 1550 nm EML for 40 and 80 km transmission
- CWDM and DWDM EA-EML
- SFP+ MSA compliant
- 2-wire interface for management and diagnostics
- Standard and extended temperature ranges available
- Low power consumption

SFP+ Single-Mode Transceivers

Part No.	Type	Distance	Temp (°C)
SPP5300LR	10GbE	10km	0 to 70
SPP5300NV	SONET SR-1 / 10GbE-LR	10km	0 to 70
SPP5300LR-M	10GbE	10km	-5 to 85
SPP5300NV-M	SONET SR-1 / 10GbE-LR	10km	-5 to 85
SPP5300LR-W	10GbE	10km	-40 to 85
SPP5300NV-W	SONET SR-1 / 10GbE-LR	10km	-40 to 85
SPP5200ER	10GbE	40km	0 to 70
SPP5200SV	SONET IR-2 / 10GbE-ER	40km	0 to 70
SPP5200ER-M	10GbE	40km	-5 to 85
SPP5200SV-M	SONET IR-2 / 10GbE-ER	40km	-5 to 85
SPP5200ER-W	10GbE	40km	-40 to 85
SPP5200SV-W	SONET IR-2 / 10GbE-ER	40km	-40 to 85
SPP5100ZX	10GbE-ZR	80km	0 to 70
SPP5110ZR	10GbE-ZR(Linear Rx)	80km	0 to 70

SFP+ CWDM and DWDM Transceivers

Part No.	Type	Distance	Temp (°C)
SPP5200CP	10GbE-ER	40 km CWDM	0 to 70
SPP5100CA	10GbE-ZR	70 km CWDM	0 to 70
SPP5100DE	10GbE-ER	40 km DWDM	0 to 70
SPP5110DM	10GbE-ZR	70 km DWDM Linear	0 to 70
SPP5100DA	10GbE-ZR	70 km DWDM Rx	0 to 70

SFP+ Transceivers, continued

- Compliant to SFP+ MSA, SFF8432
- Optimized for the mobile fronthaul and remote PHY applications
- I-temp option is available
- Duplex LC receptacle
- Low power dissipation

SFP+ and SFP28 CPRI Transceivers

Part No.	Data Rate	Distance	Temp (°C)
SPP5300LH	CPRI 8 / 10GbE	10 km	0 to 70, -40 to 85
SPP5200EH	CPRI 8 / 10GbE	20 km	0 to 70, -40 to 85
SPP5200DP	10GbE	20 km DWDM	0 to 70, -40 to 85
SPP5200DA	CPRI 8 / 10GbE	40 km DWDM	0 to 70, -40 to 85
SPP5200DL	10GbE	70 km DWDM	0 to 70, -40 to 85
SPP5200DM	10GbE (Linear Rx)	70 km DWDM	0 to 70, -40 to 85

XFP Transceivers



- Hot pluggable
- In-house high quality optical sub-assemblies and duplex LC receptacles
- 1310 nm DFB for 10 km transmission
- 1550 nm EML for 40 and 80km transmission
- CWDM and DWDM EA-EML
- XFP MSA compliant
- 2-wire interface for digital diagnostics and management
- Multiprotocol: SONET, 10 GbE

XFP Single-Mode Transceivers

Part No.	Type	Distance	Temp (°C)
SXP3104LX	10GbE-LR	10 km	0 to 70
SXP3104LX-M	10GbE-LR	10 km	-5 to 85
SXP3104LX-W	10GbE-LR	10 km	-40 to 85
SXP3104NV	SONET SR-1 / 10GbE-LR	10 km	0 to 70
SXP3104NV-M	SONET SR-1 / 10GbE-LR	10 km	-5 to 85
SXP3104NV-W	SONET SR-1 / 10GbE-LR	10 km	-40 to 85
SXP3104EX	10GbE-ER	40 km	0 to 70
SXP3104EX-M	10GbE-ER	40 km	-5 to 85
SXP3104EX-W	10GbE-ER	40 km	-40 to 85
SXP3104SV	SONET IR-2 / 10GbE-ER	40 km	0 to 70
SXP3104SV-M	SONET IR-2 / 10GbE-ER	40 km	-5 to 85
SXP3104SV-W	SONET IR-2 / 10GbE-ER	40 km	-40 to 85
SXP3104ZX	10GbE-ZR	80 km	-5 to 70
SCP3104ZX-M	10GbE-ZR	80 km	-5 to 85
SXP3104LV	SONET LR-2 / 10GbE-ZR	80 km	-5 to 70
SXP3104LV-M	SONET LR-2 / 10GbE-ZR	80 km	-5 to 85

25G SFP Transceivers



- Connecting solutions for data centers
- 25G SFP28 1310nm 10km and 40km
- Duplex LC optical receptacle
- SMF Cable Type
- Commercial temperature range

25G SFP Transceivers

Part No.	Data Rate	Distance	Temp (°C)
SEP6100LR	25GbE	10 km	0 to 70, -5 to 85
SEP6100ER	25GbE	40 km	0 to 70, -5 to 85
SEP6100LH	CPRI 10 (24.33Gbps)	10 km	0 to 70, -40 to 85
SEP6100EH	CPRI 10 (24.33Gbps)	20 km	0 to 70, -40 to 85

100G CFP Transceivers



- Hot Pluggable
- CFP MSA-compatible transceivers
- 10 and 40 km over SMF
- MDIO for management and diagnostic monitor
- IEEE802.3 100GBASE-LR4/ER4
- Duplex SC or LC receptacle

CFP Transceivers

Part No.	Type	Distance	Temp (°C)
SCF1002L4LN	100GbE-LR4	10 km	0 to 70
SCF1012L4LN	100GbE-LR4 and 411-9D1F (Dual Rate)	10 km	0 to 70
SCF1001E4LN	100GbE-ER4	40 km	0 to 70
SCF1011E4LN	100GbE-ER4 and 4L1-9C1F (Dual Rate)	40 km	0 to 70

100G CFP4 Transceivers



- Hot pluggable
- 10km over SMF, duplex LC optical receptacle
- CFP4 MSA compliant transceivers
- MDIO interface for management and diagnostic monitor
- Pull-tab and Bail option available
- IEEE802.3 100GBASE-LR4 and ITU-T OTU4

CFP4 Transceivers

Part No.	Type	Distance	Temp (°C)
SFF1401L4LN	100GbE-LR4	10 km	0 to 70
SFF1411L4LN	100GbE-LR4 and 411-9D1F (Dual Rate)	10 km	0 to 70

100G QSFP28 Transceivers



- Hot Pluggable
- Ideal for Network Aggregation
- 10km/20km over SMF transmission
- QSFP28 MSA compliant
- 2 wire interface for management and diagnostic monitor
- Pull-tab and Bail options available
- IEEE802.3 100GBASE-LR4/ER4, ITU-T OTU4 and 4WDM-20/40MSA

QSFP28 Transceivers

Part No.	Type	Distance	Temp (°C)
SQF1002L4LN	100GbE-LR4 and 4WDM-20	10km, 20km (4WDM-20)	0 to 70
SQF1002L4LW	100GbE-LR4 and 4WDM-20	10km, 20km (4WDM-20)	-40 to 85C
SQF1012L4LN	100GbE-LR4 and 411-9D1F (Dual Rate), 4WDM-20	10km, 20km (4WDM-20)	0 to 70
SQF1000ELLN	4WDM-40	40km	0 to 70

10 Gb/s EML TOSA



- EML with built-in cooler in compact package
- Low power consumption
- High wavelength stability
- Full line-up covering IR-2, LR-2, CWDM, and DWDM applications
- Variety of optical interfaces, including LC, SC, and pigtail
- Available XMD-MSA compliant TOSA with FPC (8-pin)

10 Gb/s EML TOSAs

Series Part No.	Peak Wavelength (nm)	Pf (dBm), Min.	Extinction Ratio (dB), Min.	TEC Power (W) Max.	Case Temp (°C)	Dispersion (ps/nm)	Dispersion Penalty (dB)
ELD5406QK-M	1530 ~ 1565	-1	8.2	1.1	0 to 90	800	2
ELD5406QK-N	1530 to 1565	0	9	1.5	0 to 90	1600	2
ELD5406QK-Pxx	1528.77 to 1563.05*	-1	8.2	1.9	0 to 90	800	2
ELD5406QK-Fx	1471 to 1611**	-0.5	8.2	2.0	0 to 90	800	2
ELD5406QK-Gx	1471 to 1611**	0.5	9	2.0	0 to 90	1400	2
ELD5406QK-Jx	1471 to 1611**	-0.5	8.2	2.0	-40 to 90	800	2
ELD5406QK-Kx	1471 to 1611**	0.5	9	2.0	-40 to 90	1400	2
ELD5406QK-Qxx	1528.77 to 1563.05*	0	9	2.0	0 to 90	1600	2
ELD5406QK-R	1530 to 1565	-1	9	1.1	-40 to 90	800	2
ELD5406QK-S	1530 to 1565	0	9	1.5	-40 to 90	1600	2
ELD5406QK-Txx	1528.77 to 1563.05*	-1	8.2	1.9			2
ELD5406QK-Uxx	1528.77 to 1563.05*	0	9	2.0	-40 to 90	1600	2
ELD5407QK-M	1530 to 1565	-1	8	0.8	0 to +75	800	2
ELD5407QK-N	1530 to 1565	0	9.2	1.2	0 to +75	1600	2
ELD5407QK-Pxx	1528.77 to 1563.05*	-1	9.0 8.2	1.0	0 to +75	800	2
ELD5407QK-Qxx	1528.77 to 1563.05*	0	9.0	1.3	0 to +75	1600	2

*DWDM, ±0.1 nm
**CWDM, ±6.0 nm

10 Gb/s DML TOSA



- Uncooled 5.6-mm coaxial package
- Sleeve and stem electrically isolated
- XMD-MSA compliant TOSA with FPC
- OC-192-SR1, 10 GbE-LR, 10 Gb/s x 4 (10 GbE-LR4) applications
- LC and SC interfaces available

10 Gb/s DML TOSAs

Part No.	Wavelength (nm)	Pf (dBm),	Data Rate	Extinction Ratio (dB)	Operating Temp. (°C)	Device Type	Optical Interface
STH1W44-xnnS	1271, 1291, 1311, 1331	2	10G(*1)	5	-40 to 80	Uncooled DML	LC
STH1W74-LS	1310	-3	10G	7	-5 to 90	Uncooled DML	LC
STH1W84-LS	1310	-3	10G	7	-40 to 90	Uncooled DML	LC

*1) For use in 40GBASE-LR4 applications

25 Gb/s TOSA



- 25 Gb/s TOSA for 100GbE and OTU4
- Integrated modulator driver IC with AC-coupled differential RF interface
- Integrated optical isolator, PIN-PD monitor, thermistor and TEC
- Compact package with LC receptacle and FPC
- IEEE 802.3 wavelength compliant

25 Gb/s DML TOSA

Part No.	Peak Wavelength (nm)	Pf (dBm)	Data Rate	Transmission Distance	Package Type	Case Temp (°C)	Device Type
STN2XQS	LAN-WDM (*2)	0 to 3	25Gx4ch	Up to 10 km	Quad TOSA w/OMUX	-5 to 75	1.3 DML

25 Gb/s EML TOSA

Part No.	Peak Wavelength (nm)	Pf (dBm)	Data Rate	Transmission Distance	Package Type	Case Temp (°C)	Device Type
STN41UX	LAN-WDM (*3)	0 to 3	25G	Up to 10 km (*2)	TOSA	-5 to 75	1.3 EML

*2) 1295.56 to 1309.14 LAN-WDM, ± 0.7 nm

*3) 100GBASE-ER4 (up to 40 km) available

10 Gb/s ROSA



- Available XMD MSA compliant ROSA
- High sensitivity and excellent overload performance
- High transimpedance gain
- Variety of TIA options: high gain limiting, low gain linear, mid-gain linear, AGC linear
- Response wavelength: 1270 to 1620 nm
- Operating case temperature: -5°C to 75°C
- Single 3.3 V TIA supply voltage

10 Gb/s High-Gain, High-Sensitivity Receivers

High Transimpedance Gain : 4.5 k Ω (Single Ended), 9 k Ω (Differential)

Maximum Output Voltage Swing: 180 mVpp (Single Ended), 360 mV (Differential)

Part No.	Type	Responsivity (A/W), Typ.	Transimpedance Zt (k Ω), Typ.	-3 dB Bandwidth (GHz), Typ.	Minimum Sensitivity (dBm), Typ.	Overload Pmax (dBm), Typ.	Package
ERA1405PW	APD	0.9	6	7	-28	0	XMD
ERA1404PW	APD	0.9	4.5	7	-28	0	XMD FPC

25 Gb/s ROSA



- 25G single-channel ROSA for 100GbE and OTU4
- Coaxial-type ROSA package and LC receptacle with SMF stub
- GSSG electrical interface with Flex
- +3.3 V TIA with 3 kohm differential gain
- Operating case temperature: -5°C to 75°C

25 Gb/s Receiver

Part No.	Type	Responsivity (A/W), Typ.	Transimpedance Zt (k), Typ.	-3 dB Bandwidth (GHz), Typ.	Minimum Sensitivity (dBm_OMA), Typ.	Overload Pmax (dBm_OMA), Typ.	Package
SPG72FV-LA	PIN	0.8	Limiting	20	-12	5	Coaxial
SPK85GZ-LA	PIN	0.8	Limiting	23	-12	5	Box, Quad, w/ OMUX

PON



- Compact high-performance packages for OLT and ONU applications
- Support for both 10G-EPON and XG PON architectures
- Diplexer package with SC receptacle or pigtail
- High-power 10G 1577 nm EML transmitter with integrated TEC

TO-CAN LD

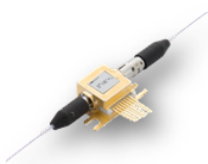
Part No.	Data Rate	Wavelength (nm)	Lens Type	Focal Length (nm)	Typ. Output Power (mW)	Device Type
STD1PL4xnnx	10G	1270/1330	Aspherical	7.5	10	Uncooled DML
STD5A56G12D	2.5G	1490	Aspherical	10	7	Uncooled DML
STD5A86G12D	2.5G	1490	Aspherical	7.5	7	Uncooled DML

- Compact high-performance packages for OLT applications
- Support for both 10G-EPON and XG PON architectures
- Diplexer package with SC receptacle or pigtail
- High-power 10G 1577 nm EML transmitter with integrated TEC

BOSA

Part No.	Application	Bit Rate (D1/D2/U)	Form	Laser Type 10G	PD	TIA	Pout Type (dBm)	Smin (dBm)	Smax (dBm)
SXT3EAA	10G-EPON OLT	10G/-/10G	Diplexer	1577 nm EML	APD	10G BM	4.0	< -27.5 @ 10G	> -6 @ 10G
SXT2EAA	XG-PON OLT	10G/-/2.5G	Diplexer	1577 nm EML	APD	2.5G BM	4.5	< -27.5 @ 2.5G	> -7 @ 2.5G

Semiconductor Optical Amplifier



- Miniature package: 40.1 x 11 x 5.8 mm max.
- Tight bend fiber (5 mm radius)
- Optical isolator on input side
- Thermistor and thermoelectric cooler

Semiconductor Optical Amplifiers

Series No.	Wavelength Range (nm)	Gain (dB/ch), Min	PDG (dB), Max	Saturation Power (dBm), Min.	Noise Figure (dB), Max	Case Temp. (°C)	Optical Interface
STW81HJ	1294 to 1311	14	2	7	10	-5 to +75	Pigtail (in & out), LC connector

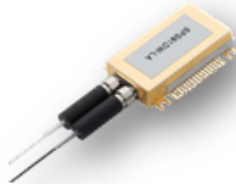
Coherent Devices



- Sumitomo in-house TDA-CSG-DR Laser is implemented
- Wide tuning range of 191.35 to 196.10 THz with gridless tuning
- Optical output power > +17.0 dBm
- Maximum power dissipation of < 5.0 W
- Narrow linewidth of < 300 kHz
- Mechanically robust
- Compliant with OIF-microITLA-01

Micro-ITLA

Part No.	Tuning Range (THz)	Grid Spacing (GHz)	Optical Output Power (dBm)	Power Consumption (W)	Line Width (kHz)	OIF Compliance	Type
STY6ATC Series	191.35-196.10	0.1	+17.0	5.0	300	OIF-microITLA-01	Micro-ITLA



- Integrated coherent receiver for 100G DP-QPSK or 200G DP-16QAM
- Small size package
- 4ch GSSG RF with 34 pins DC
- InP based PD integrated MMI
- Linear TIA with control/monitor functions
- Integrated signal monitor PD, PBS
- Optional signal VOA
- OIF micro-ICR compliant

Micro-ICR

Part No.	Optical Frequency (THz)	Symbol Rate (Gbaud)	Responsivity (mA/W)	Power Consumption (W)	Bandwidth (GHz)	OIF Compliance	Type
SPS91DW Series	191.35-196.20	32 typ.	40 min.	1.5 max.	18 GHz min.	OIF-DPC-MRX-01	Micro-ICR

Japan

International Headquarters

Akasaka Center Building, 1-3-13,
Motoakasaka, Minato-ku, Tokyo
107-8468, Japan
Tel: +81-3-6406-2770
Fax: +81-3-6406-4041
www.sedi.co.jp

Sumitomo Electric Industries, Ltd. (Tokyo)

Akasaka Center Building, 1-3-13,
Motoakasaka, Minato-ku, Tokyo
107-8468, Japan
Tel: +81-3-6406-2689
Fax: +81-3-6406-4016

(Osaka)

4-5-33, Kitahama, Chuo-ku, Osaka
541-0041, Japan
Tel: +81-6-6220-4245
Fax: +81-6-6220-6231

North America

Sumitomo Electric Device Innovations USA

2355 Zanker Rd.
San Jose, CA 95131, USA
Tel: (408) 232-9500
Fax: (408) 428-9111
www.sei-device.com

Europe

Sumitomo Electric Europe Ltd

220 Centennial Park
Elstree WD6 3SL, United Kingdom
Tel: +44 (0)20 89538118
Fax: +44 (0)20 89538228

(Italy Branch)

Piazza Don E. Mapelli, 60 – 20099
Sesto San Giovanni, Milano, Italy
Tel: +39-02-496386-01
Fax: +39-02-496386-25

Asia

Sumitomo Electric Asia, Ltd.

Rm 2624-2637
Sun Hung Kai Centre
30 Harbour Road
Wanchai, Hong Kong
Tel: +852-2576-0080
Fax: 852-2576-6412

Singapore

Sumitomo Electric Interconnect Products (Singapore) Pte., Ltd.

No. 88, International Road
#03-00 629177 Singapore
Tel: 65-6261-3388
Fax: 65-6266-7165