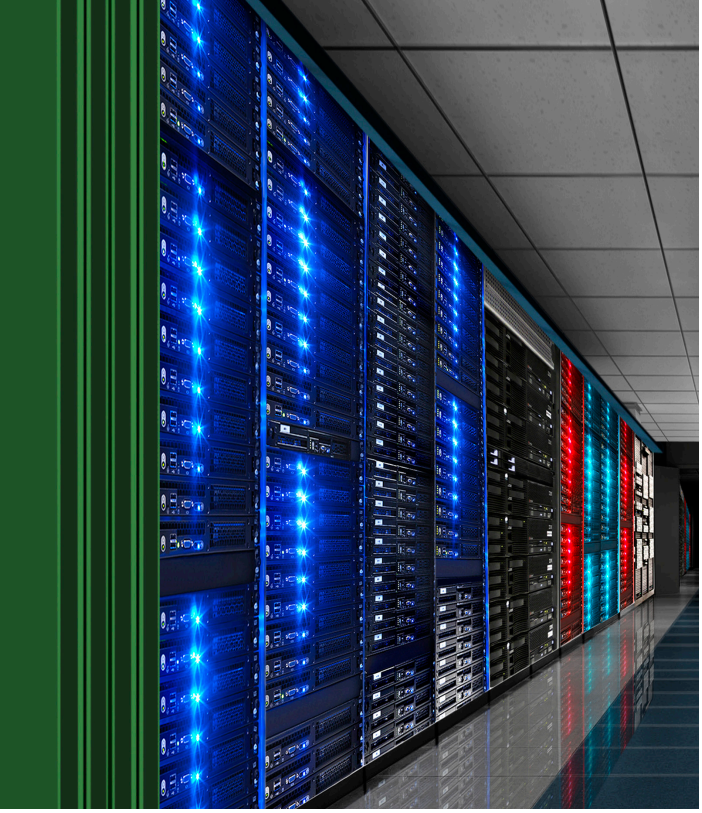
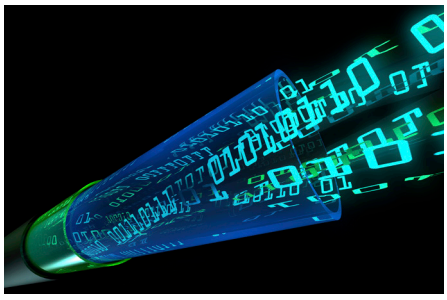




optical





2015 - High Performance Portfolio

Optical & IC Selector Guide

- TIAs
- ROSAs
- Single-Lane CDRs
- Dual-Lane CDRs
- Quad-Lane CDRs
- Multi-Lane Signal Conditioners
- Laser & Modulator Drivers
- Limiting Amplifiers
- Transceiver ICs
- Optical Reference Design Kits

High-Speed Communications Products

SEMTECH

contents

Overview	3
Semtech Solutions	4
New Products	5
Optical Applications	6
Copper Applications	7
TIAs	8
ROSAs	10
Super High Gain ROSAs	11
Optical Module CDRs	12
Backplane & Linecard Signal Conditioners	13
Laser Drivers and Limiting Amplifiers	14
Transceiver IC's (LD & LA)	15
Optical Module Reference Design Kit	16

High Performance

Optical and Copper Products

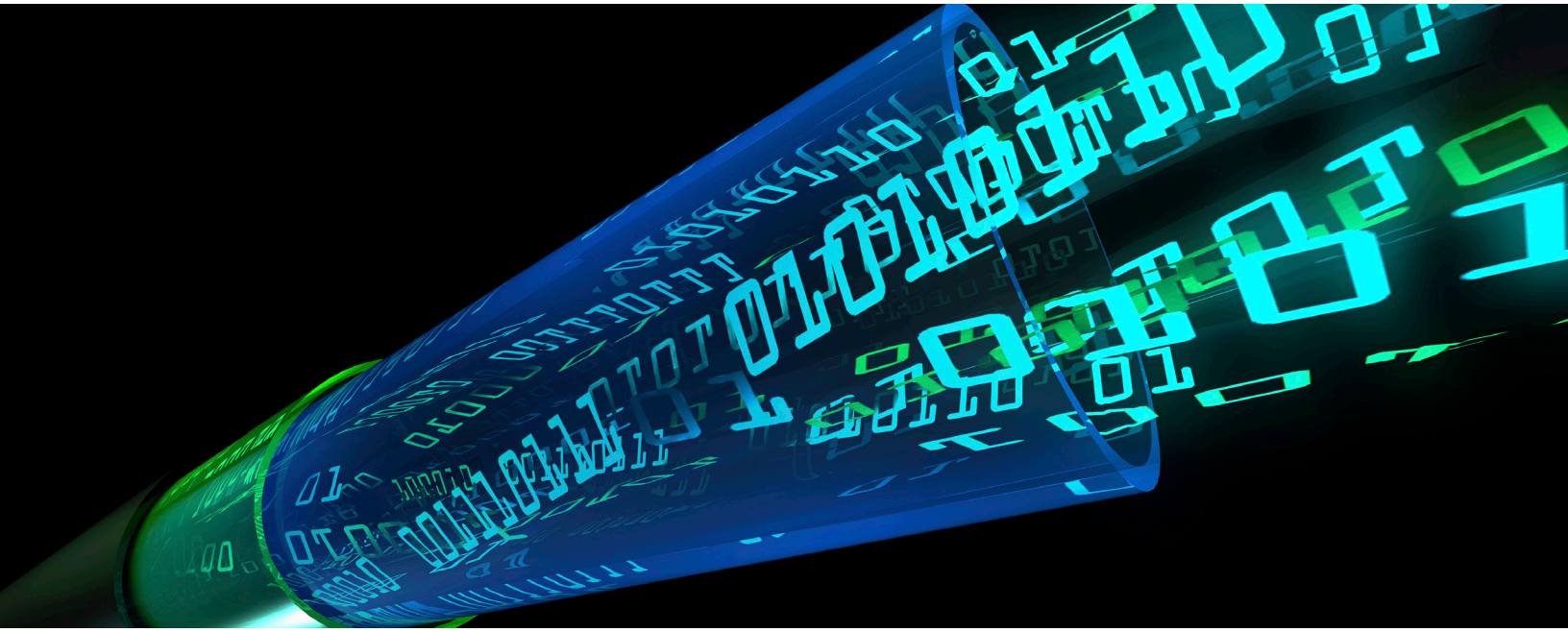
Shipping more than 300 million Optical ICs, Semtech is an active contributor to networking standards development. This combination of real-world experience and industry leadership enables us to deliver the most complex solutions to our customers' designs.

Semtech designs the industry's most innovative optical, analog and mixed signal semiconductor solutions to serve the rising global demand for high-speed data transmission products.

Semtech also offers one of the industry's most comprehensive portfolios of optical transceiver IC products ranging from 100 Mb/s-100 Gbps supporting such key industry standards as Fibre Channel, InfiniBand®, Ethernet, CPRI, PON, SONET and PCI Express®. Semtech is also investing in leading edge technologies to enable communication systems at 400 Gbps and beyond.

For optical component suppliers, this highly differentiated set of products provides a unique roadmap that improves performance and reliability, simplifies design, lowers costs and speeds time-to-market.

For systems designers and manufacturers working on the next generation of high-speed networks, Semtech's multi-lane and multi-rate 10 Gbps-100 Gbps backplane solutions provide cost-effective, low power, high performance products to enable next-generation networks.



Enabling High Performance, High-Speed

- Class leading IC solutions for 100G applications in CFP, CFP2/4 and QSFP28 modules
- Receive Optical Sub-Assembly (ROSA) based on Semtech's Rchip technology
- Full portfolio of integrated solutions to address all SFP+ and XFP modules
- Dual-lane CDRs (Tx/Rx) with integrated DML or EML driver
- Low power, reference-free CDRs
- Limiting amplifiers (LA) that provide wideband, low noise post-amplification
- Transimpedence amplifiers (TIAs) that exceed the IEEE 10 GbE Stressed Receiver Sensitivity (SRS) specifications
- High performance, low power laser drivers
- Full portfolio of integrated solutions for all PON applications including complete reference designs
- Industry's first single-chip 10G PON transceivers for symmetric and asymmetric applications
- Industry's first quad 10 Gbps CDR, enabling long reach Infiniband® QDR, 40 GbE and 100 GbE applications
- Protocol-independent repeaters/redrivers
- SFP+ reference design kits for optical modules to decrease design time

Building the Future Together

As networking requirements continue to evolve, so will we, working with customers to provide solutions for tomorrow's networking challenges. One thing that won't change, however, is Semtech's commitment to being a reliable partner and providing innovative approaches that deliver unrivaled performance for the most sophisticated applications.

Technology Leadership for the Future of Optical Communications

TECHNOLOGIES

CDRs

Market leader in CDRs

Reference-Free operation

Integrated solutions to address power requirements of emerging SFP+ SONET market

ROSAs

Best-in-class sensitivity, based on our patented Rchip technology

TIAs

Proven reliability, with over 150 million sold

LASER DRIVERS & LIMITING AMPS

Industry-leading integrated solutions

MARKETS

100G ETHERNET

Class leading CDRs, TIAs, Drivers and ROSAs

Solutions for CFP, CFP2/4 and QSFP28

16G FIBRE CHANNEL

Industry's first complete integrated IC solution for 16G Fibre Channel

10G

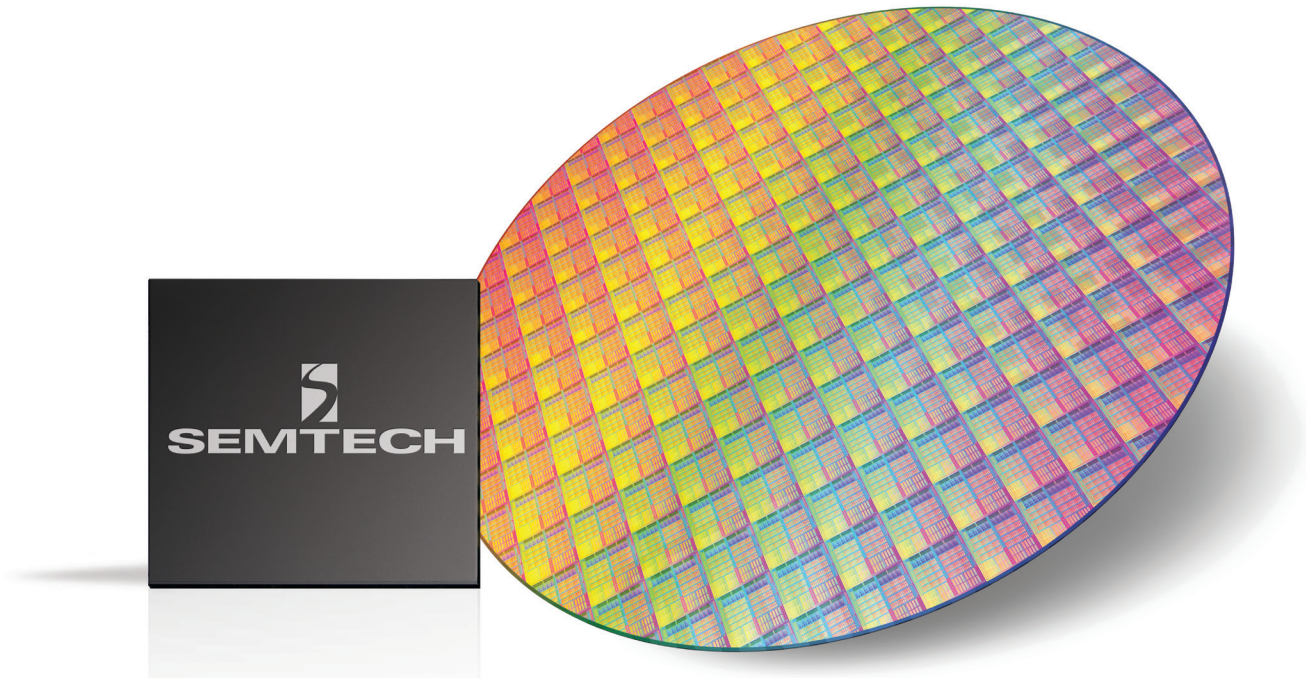
Complete portfolio of module IC and backplane solutions

Solutions for XFP, SFP+, QSFP+

PON/FTTH

Industry's first fully integrated 10G PON solutions

Highly integrated chipset solutions for EPON & GPON ONU/OLT





New Products

GN2104 Low-Power Quad-CDR 25-28 Gbps for optical modules

- Low power dissipation (400mW typical)
- Provides reference-free signal conditioning for CFP4 and QSFP28 modules

GN2106 Low-Power Quad-CDR with integrated EML drivers 25-28 Gbps

- Fully monolithically integrated quad EML driver and CDRs
- Provides reference-free signal conditioning for CFP4 and QSFP28 modules

GN2504 Low-Power Quad-CDR 25-28 Gbps Reference Free Repeater

- Low power dissipation (600mW typical)
- Provides reference-free signal conditioning on backplanes and linecards
- Highly configurable signal path with advanced adjustable equalization

GN1185 High Performance Quad 28 Gbps DML Laser Driver

- Quad low power diver for active TOSA
- Max modulation/bias currents 55mA/70mA
- Advanced eye-shaping features

GN1084 & GN1085 Low Power 28 Gbps TIAs

- Single (GN1084) and Quad (GN1085) versions
- 20 GHz Bandwidth
- 105mW (typ) power dissipation per channel

GN2108 Quad 25 Gbps Transmitter Array for SR-4

- Integrated reference-free CDR and VCSEL array driver
- 250um channel pitch

GN2109 Quad 25 Gbps Receiver Array for SR-4

- Integrated TIA array and reference-free CDR
- 250um channel pitch

GN3486 Fully Hermetic Quad 28 Gbps ROSA

- Integrated 1:4 demultiplexer for CWDM
- Low power dissipation (400mW)
- Sensitivity per lane: -14dBm

GN3357 High Gain 11.3 Gbps Linear APD ROSA

- High gain linear AGC TIA optimized for DWDM
- Low power dissipation, excellent sensitivity

GN25L96 ONU Transceiver IC

- 3.1 Gbps combo SFP & PON BoB
- Dual Loop Tx with EYEMAX

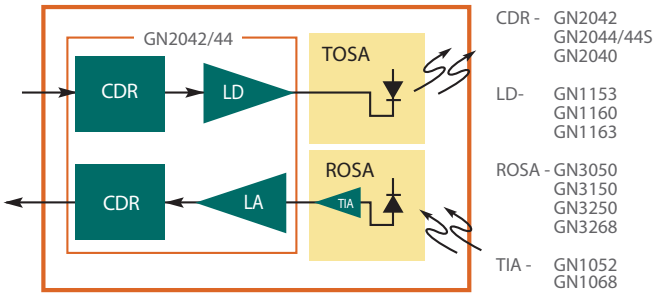
GN25L98 ONU Transceiver IC

- PON Combo IC with integrated APD bias controller
- Single BOM can accommodate many different BOSA suppliers
- Programmable APD fault detection, shutdown and recovery

Optical Applications

Semtech products offer a comprehensive selection of optical transceiver ICs and components for all 1-10GbE, CPRI, OC-192 and 100G module form factors, as well as copper solutions for high-speed serial line card and backplane communications.

10G XFP Retimed SFP+ Module for ≤ 40Km Applications



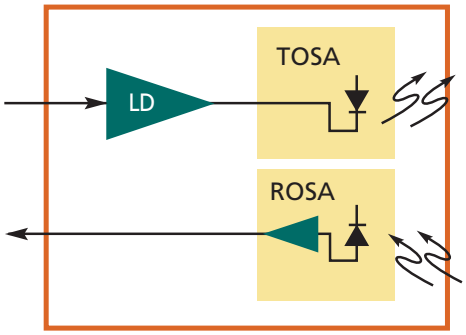
CDR - GN2042
GN2044/44S
GN2040

LD- GN1153
GN1160
GN1163

ROSA - GN3050
GN3150
GN3250
GN3268

TIA - GN1052
GN1068

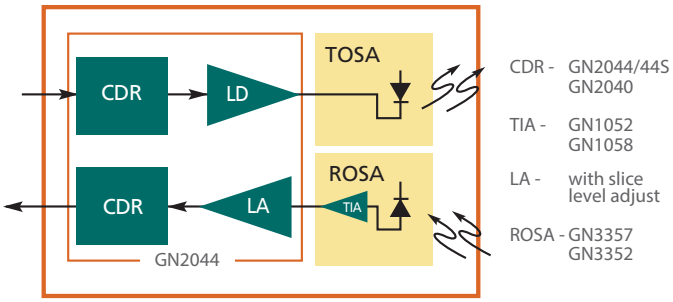
Lowest power, LA Free SFP+ Architecture



LD - GN1160
GN1161

ROSA - GN3055
GN3155
GN3255
GN3355

10G XFP Module for ≤ 80Km Applications



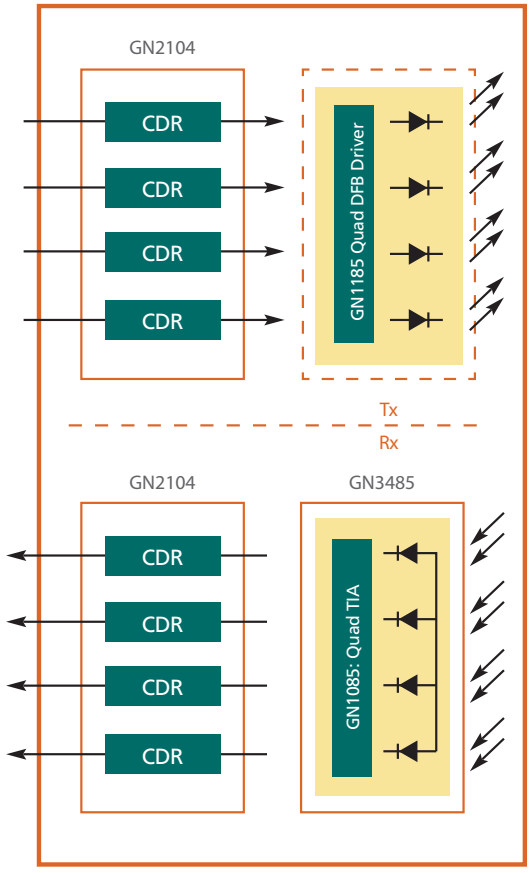
CDR - GN2044/44S
GN2040

TIA - GN1052
GN1058

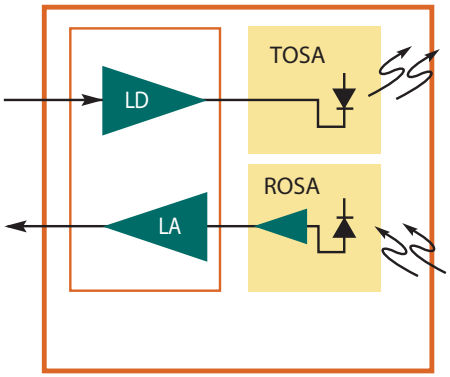
LA - with slice level adjust

ROSA - GN3357
GN3352

CFP4 / QSFP28: 100 GbE LR4



6/8/10G SFP+ Module Applications



LD - GN1153
GN1160
GN1163
GN1157
GN1158
GN1161
GN1411A
GN1412A
GN1444/44S

ROSA - GN3050/5
GN3150/5
GN3250/5
GN3268
GN3352

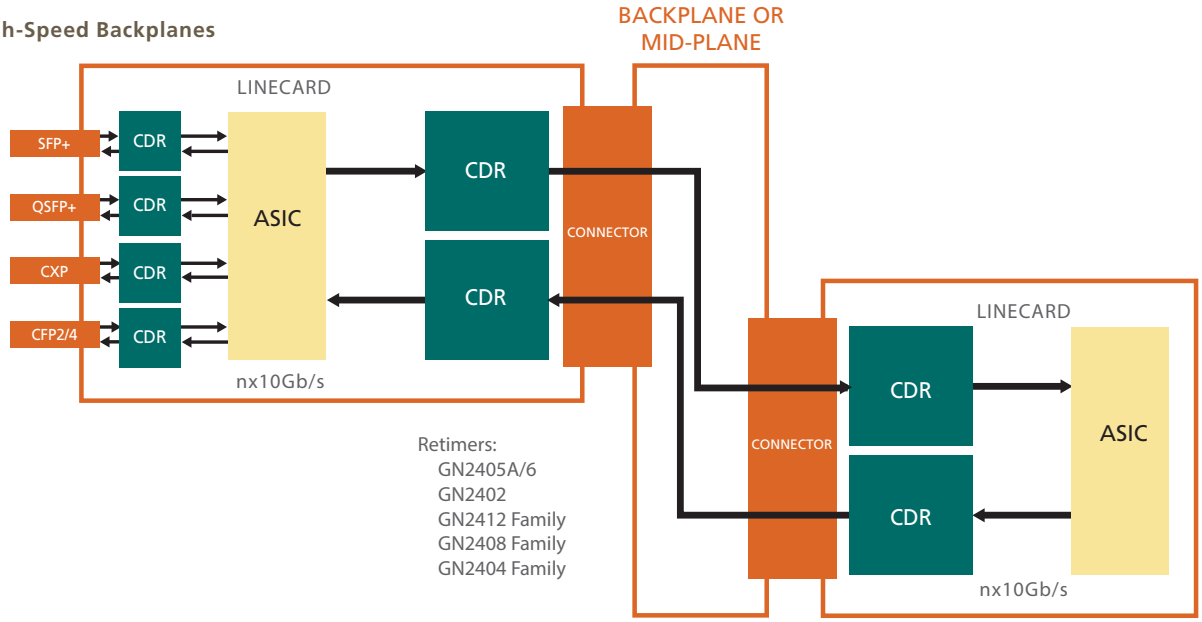
LA - GN1250

TIA - GN1052
GN1068

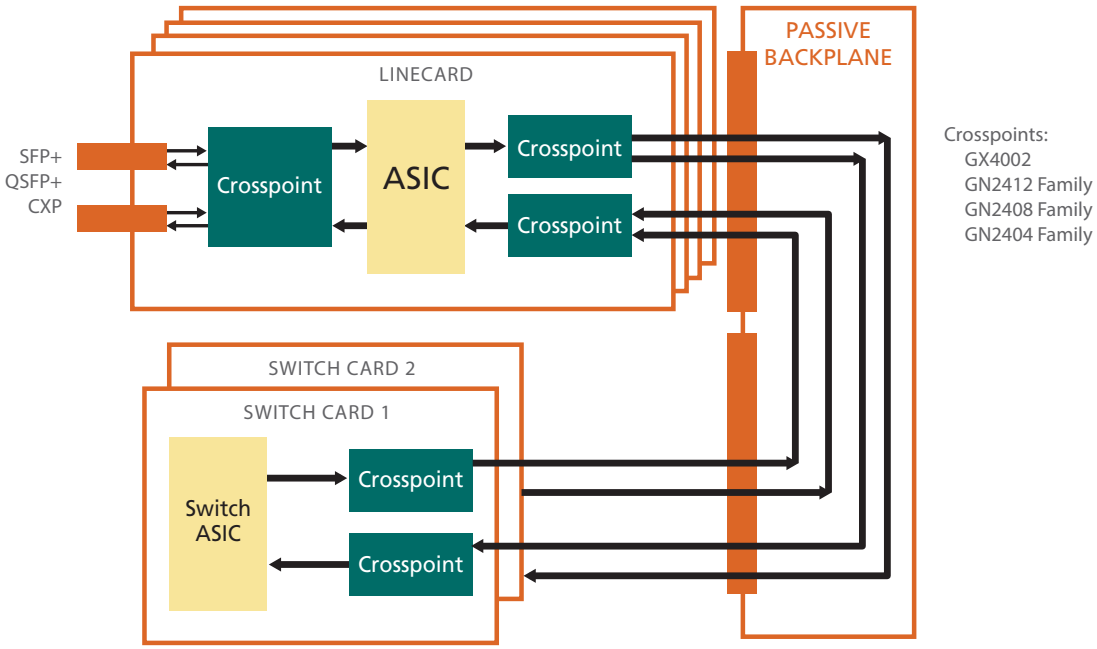
Copper Applications

Semtech products offer a comprehensive selection of optical transceiver ICs and components for all 10 GbE and OC-192 module form factors, as well as copper solutions for high-speed serial line card and backplane communications.

High-Speed Backplanes



Retimed Crosspoints



TIAs

Wideband, low noise transimpedance amplifiers (TIAs) for your optical communication applications.

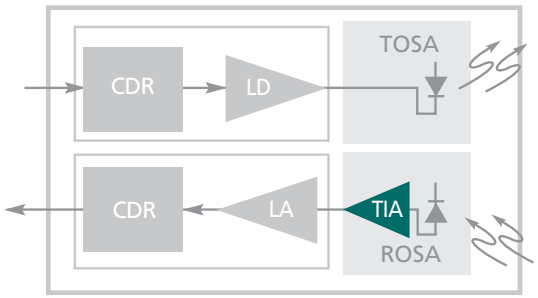
Semtech offers a portfolio of fully integrated Silicon Germanium (SiGe) BiCMOS and pure CMOS transimpedance amplifiers providing wideband, low noise pre-amplification of a current signal from a PIN photodiode or APD. Semtech's TIAs offer best-in-class performance in limiting, linear or automatic gain control versions for use in high performance optical receivers operating from 155 Mb/s to 28 Gbps.

FEATURES

- Wideband, low noise TIAs
- Limiting, linear and AGC versions
- Fully integrated on-chip de-coupling for low cost and best performance

APPLICATIONS

- ITU/IEEE-based transmission systems
- 10G and 100G Ethernet
- SONET/SDH based transmission systems, test equipment and optical modules from OC-3 to OC-192
- 8G and 16G Fibre Channel
- Serial data systems up to 28 Gbps
- PON/FTTH systems – BPON, EPON, GPON, 10GEPON and XG-PON
- 6G and 10G CPRI modules for wireless front haul
- 100 Gbps Client side modules



NT20R67

Low cost 3.3V to 5.0V CMOS PIN TIA with automatic gain control and more than 43dB dynamic range for Optical Fiber applications up to 200 Mb/s.

NT23L50

622 Mb/s high sensitivity TIA for FTTH and Telecom Fiber transceiver applications.

NT24L50

1.25 Gbps high sensitivity TIA with automatic gain control for FTTH and datacom fiber transceiver applications.

NT24L55

Super high sensitivity, high performance CMOS 1.25 Gbps TIA with 35dB of dynamic operating range designed for FTTH applications such as GePON transceivers and long haul telecom/datacom applications.

NT25L51

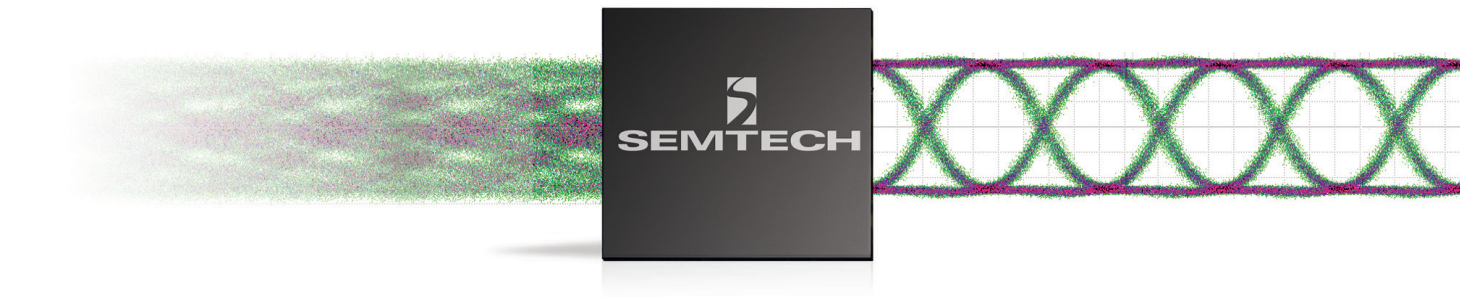
2.5 Gbps CMOS TIA for FTTH and Telecom Fiber transceiver applications with automatic gain control enabling over 27dB of dynamic operating range.

NT25L59

2.5 Gbps high sensitivity CMOS TIA for GPON with automatic gain control enabling over 30dB of dynamic operating range.

GN1090

Quad 14.5Gbps array receiver for parallel & multi-channel datacom & telecom modules. Advanced receiver design for excellent optical performance and very low power consumption (240mW total for 4 channels). Use with GN1190 Quad VCSEL driver.



GN1056

10Gbps linear TIA for high performance APD applications such as ultra-long haul telecom and submarine applications.

GN1058

10Gbps high gain TIA optimized for applications requiring AGC, such as 10GBASE-LRM and DWDM receivers for low OSNR environments.

GN7068

10Gbps limiting TIA designed for APD applications such as ROSAs for 10G PON OLT's and 10GBASE-ZR transceivers modules.

GN1068

14Gbps multi-rate limiting TIA providing high gain and wideband performance for use in Ethernet and emerging 16G Fibre Channel applications.

GN7050, GN7051, GN7052, GN7053

Limiting TIA's designed specifically for 1G EPON, 1G GPON, 2.5G XG-PON and 10G EPON OLT applications.

GN1085

4x28 Gbps limiting TIA optimized for 100GBASE-LR4 applications.

TIAs

Part Number	Overview	Data Rate (Gbps)	Gain	BW (GHz)	Supply (V)	Noise	Applications
NT20R67	155 Mb/s AGC TIA	0.155	63kΩ	0.165	3.3/5.0	11 nA	OC-3, Fast Ethernet
NT20067	155 Mb/s AGC TIA	0.155	23kΩ	0.165	3.3/5.0	11 nA	OC-3, Fast Ethernet
NT23L50	622 Mb/s AGC TIA	0.622	50kΩ	0.32	3.3	60 nA	OC-12, BPON
NT24L50	1.25 Gbps AGC TIA	1.25	25kΩ	0.75	3.3	92 nA	GbE, EPON
NT24L55	1.25 Gbps High Sensitivity AGC TIA	1.25	46kΩ	0.75	3.3	74 nA	EPON
NT25L51	2.5 Gbps AGC TIA	2.5	8kΩ	1.7	3.3	230 nA	OC-48, GPON (APD)
GN25L52	2.5 Gbps AGC TIA	2.5	6.5kΩ	1.85	3.3	455 nA	OC-48, GPON (APD)
GN25L53	3.1 Gbps AGC TIA	3.1	5.5kΩ	1.9	3.3	335 nA	CPRI, GPON, OC-48 (APD)
NT25L59	2.5 Gbps High Sensitivity AGC TIA	2.5	29kΩ	1.5	3.3	108 nA	GPON (PD)
NT28L52	10G Limiting	to 10.3	2.35kΩ	7	3.3	1.2 µA	10GBASE-SR
GN1056	10G Linear	to 11.3	500/1kΩ	12	3.3	1µA	OC-192
GN1058	10G Linear AGC	to 11.3	4kΩ	12	3.3	1µA	10GBASE-LRM & DWDM
GN7068	10G Limiting	to 11.3	3kΩ	12	3.3	1µA	APD ROSAs for 10G PON ONU & 10GBASE-ZR
GN1068	14G Limiting	to 14.3	6.75kΩ	12	3.3	1.2µA	10GBASE-SR/LR/ER & 16G FC
GN1090	Quad 10G Limiting	to 14.3	*	*	3.3	0.9µA	40Gbps Ethernet; Infiniband; QSFP+
GN7050	1.25G Burst mode Limiting	1.25	13kΩ	1.0	3.3	*	1G EPON OLT
GN7051	2.5G Burst mode Limiting	2.5	1.2kΩ	2.0	3.3	*	2.5G XG-PON OLT
GN7052	Tri-rate PON TIA	1.25/2.5 /10.3	13/1.2/2.3kΩ	1.1/2.5/8.7	3.3	*	1.25G EPON/ 2.5G XG-PON / 10G EPON OLT
GN7053	1G GPON Burst mode Limiting	1.25	1.25kΩ	1.5	3.3	*	1G GPON OLT
GN1085	Quad 25G Limiting	100	6.3kΩ	23	3.3	2.3	100GBASE-LR4

** Please contact your sales representative for a detailed datasheet.*

ROSAs

Best-in-class receive optical sub-assemblies (ROSAs) based on patented Rchip technology.

Semtech's complete line of PIN and APD ROSA products spans 850 nanometer (nm) to 1550nm including limiting, linear and automatic gain control (AGC) functionality. Our PIN ROSAs operate at +3.3V±10% and from -40°C to +85°C, with highly accurate RSSI functionality and industry best dynamic range. The ROSA products feature patented Rchip packaged in a fully compliant SC or LC type optical subassembly and are available with optional flex circuits.

Super High Gain Rchip ROSAs deliver 35kΩ of gain that eliminates the cost and power of the limiting amplifier for SFP+ applications.

FEATURES:

- Best-in-class stressed receiver sensitivity
- High gain to ensure exceptional crosstalk performance within the module
- Patented Rchip technology to ensure maximum module manufacturing yield
- Super High Gain delivers most integrated, lowest power SFP+ solution

APPLICATIONS:

- 10GBASE-SR
- 10GBASE-LR
- 10GBASE-ER
- 10GBASE-LRM
- OC-192 SR-1
- OC-192 IR-2
- 10G EPON
- 80 km
- DWDM
- 8GFC & 10GFC
- 100GBASE-LR4

GN3050

10 km limiting ROSA provides excellent performance achieving -21dBm unstressed sensitivity. Ideal for 10GBASELR and SR-1.

GN3250

10/40 km XMD compatible limiting ROSA provides excellent -21dBm unstressed sensitivity and high ORL for 10GBASE-ER and IR-2 applications.

GN3052

AGC ROSA for 10 GbE LRM and linear applications. Interoperability with all leading EDC solutions for LRM.

GN3352

11.3 Gbps APD ROSA with AGC TIA is ideal for both 80km limiting and DWDM applications requiring excellent OSNR performance.

GN3357

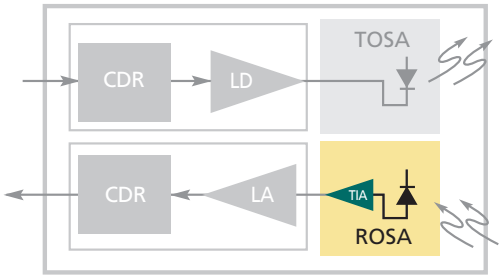
11.3 Gbps APD ROSA with high gain AGC TIA for DWDM and 80km applications

GN3268

10/40 km XMD compatible low power (94 mW) limiting ROSA

GN3485

Quad 25-28Gbps LR4 ROSA. Contains an integrated 1:4 WDM demultiplexer. Bandwidth 22GHz typical, gain 6kΩ. Power consumption 105mW per channel.





GN3352
ROSA



GN3250
ROSA

Semtech's Super High Gain ROSAs

Best-in-class receive optical sub-assemblies (ROSAs) based on patented Rchip technology.

Super High Gain ROSAs deliver 300mV module output swing allowing for new SFP+ architecture. 125mW total power dissipation achieving approximately 100mW power savings over traditional architecture.

GN3155

Super High Gain 850nm limiting ROSA is ideal for 10GBASE-SR and 8G Fibre Channel applications.

GN3055

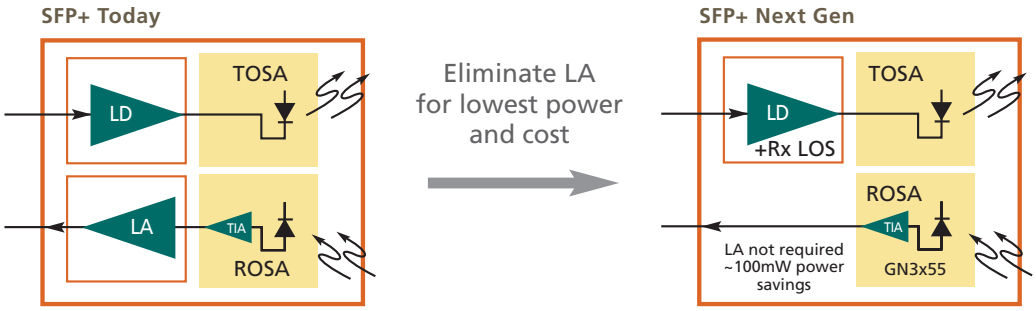
Super High Gain 10 km limiting ROSA provides excellent performance achieving -21dBm unstressed sensitivity. Ideal for 10GBASE-LR and SR-1.

GN3255

Super High Gain 10/40 km XMD compatible limiting ROSA provides excellent -21dBm unstressed sensitivity and high ORL for 10GBASE-ER and IR-2 applications.

GN3355

High Gain APD limiting ROSA optimized for TDM application provides best in class sensitivity and crosstalk.



ROSAs & SUPER HIGH GAIN ROSAs

Part Number	Overview	Data Rate (Gbps)	Gain	Supply	RSSI	Unstressed Sensitivity	Comments	ORL
GN3150	SR Rchip Limiting	to 11.3	10kΩ	+3.3V ± 10%	Yes	-15dBm OMA	-13.5dBm OMA (Stressed sens.)	-14dB
GN3050	10km Rchip Limiting	to 11.3	10kΩ	+3.3V ± 10%	Yes	-21dBm	-16.8dBm OMA (Stressed sens.)	-14dB
GN3250	40km Rchip Limiting	to 11.3	10kΩ	+3.3V ± 10%	Yes	-21dBm	-16.0dBm OMA (Stressed sens.)	-27dB
GN3052	LRM Rchip AGC	to 11.3	9kΩ	+3.3V ± 10%	Yes	-17dBm OMA	-12dBm OMA (Stressed sens.)	-14dB
GN3155	SR Super High Gain Rchip	to 11.3	35kΩ	+3.3V ± 10%	Yes	-15dBm OMA	Eliminates LA in SFP+	-14dB
GN3055	10km Super High Gain Rchip	to 11.3	35kΩ	+3.3V ± 10%	Yes	-21dBm	Eliminates LA in SFP+	-14dB
GN3255	40km Super High Gain Rchip	to 11.3	35kΩ	+3.3V ± 10%	Yes	-21dBm	EliminatesLA in SFP+	-27dB
GN3068	10km Low Power Limiting	to 11.3	7kΩ	+3.3V ± 10%	Yes	-21dBm	94 mW power dissipation	-14dB
GN3268	40km Low Power Limiting	to 11.3	7kΩ	+3.3V ± 10%	Yes	-21dBm	94mW power dissipation	-27dB
GN3257	PIN with AGC	to 11.3	8.5kΩ	+3.3V ± 10%	Yes	-19dBm	–	-27dB
GN3352	APD with AGC	to 11.3	4kΩ	+3.3V ± 10%	VAPD	-27dBm	–	-27dB
GN3357	High Gain APD with AGC	to 11.3	8.5kΩ	+3.3V ± 10%	VAPD	-27dBm	–	-27dB
GN3355	High Gain APD Rchip	to 11.3	13kΩ	+3.3V ± 10%	VAPD	-27dBm	Eliminate LA in SFP+	-27dB
GN3368	Limiting APD RChip	to 11.3	4kΩ	+3.3V ± 10%	VAPD	-27dBm	–	-27dB
GN3485	100GBASE-LR4	to 100	5kΩ	+3.3V ± 10%	Yes	-14dBm	420mW typical power dissipation	-26dB

Optical Module CDRs

Semtech's dual-lane signal conditioners, with integrated VCSEL, DML or EML driver, offer the lowest power, smallest footprint solution for XFP, retimed SFP+ and 100G modules.

ENABLING NEXT-GENERATION 100G ETHERNET

The GN2104 and GN2106 enable next-generation of 100G CFP4 and QSFP module form factors. The GN2106 integrates Quad 25G CDRs with an EML laser driver in a small form factor. The innovative offerings build upon Semtech's proven CDR technology and enable solutions for both Long Reach and Extended Reach applications. The high level of integration coupled with industry's lowest power and superior performance simplifies the overall module designs and saves cost.

ENABLING SFP+ SONET

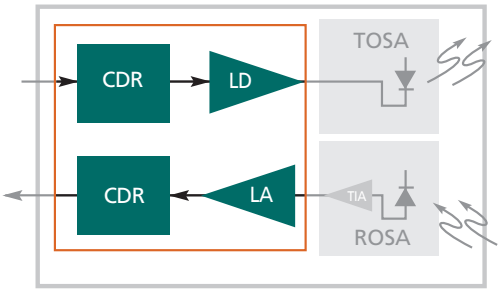
The GN2042 and GN2044 enable a SONET compliant module in an SFP+ form factor. The integration of the laser driver enables the lowest power solution for SFP+. The high level of integration also delivers a small footprint solution to fit within the form factor. The reference clock free architecture simplifies the overall module design and saves cost.

FEATURE SET FOR DWDM AND TUNABLE APPLICATIONS

The GN2040 family has a rich feature set to enable optimal performance in DWDM and Tunable applications. The features include slice level adjust, programmable peaking on the receive path input and sampling clock phase adjust.

LOW COST, SMALL FOOTPRINT SOLUTION

By integrating the limiting amplifier, laser driver and receive and transmit CDR, the GN2042, GN2044 and GN2017A provide an optimal path for lower cost designs. The integrated APC loop and small number of external components also save cost. The high level of integration in a small, 5mmx5mm 32-QFN package enables use in very high density designs. For designs requiring even smaller packages, such as Tunable SFP+ applications, the GN2044S offers an even smaller 4mmx4mm 32-QFN package with all the same benefits.



OPTICAL MODULE CDRs

Part Number	Data Rate (Gbps)	Lanes	Laser Driver	Slice Level Adjust	Pin Compatibility	Pkg	Applications
GN2042	9.95 - 11.3	2 (1 Rx + 1 Tx)	DML	Yes	GN2044	32 QFN	XFP & SFP+ 10 GbE & OC-192 Enables 1W Retimed SFP+ 10km
GN2044	9.95 - 11.3	2 (1 Rx + 1 Tx)	EML	Yes	GN1444, GN2042	32 QFN	XFP & SFP+ 10 GbE, OC-192 & DWDM Enables 1.5W Retimed SFP+ 40/80km
GN2044S	9.95 - 11.3	2 (1 Rx + 1 Tx)	EML	Yes	GN1444S	32 QFN	Tunable SFP+, OC-192 & DWDM Enables 1.5W Retimed TSFP+
GN2040	9.95 - 11.3	2 (1 Rx + 1 Tx)	DML	Yes	GN204x	32 QFN	XFP and SFP+ 10 GbE, OC-192 and DWDM
GN2017A	9.95 - 11.7 14.025	2 (1 Rx + 1 Tx)	VCSEL	No	GN2010X	32 QFN	16G FC, 10G FCoE
GN2425A	25 - 28	2 (2 Tx)	–	Yes	–	32 QFN	100 Gbps Ethernet / OTN, Infiniband EDR
GN2426A	25 - 28	2 (2 Rx)	–	Yes	–	32 QFN	100 Gbps Ethernet / OTN, Infiniband EDR
GN2104	25 - 28	4	–	Yes	–	54 QFN	100 Gbps Ethernet / OTN, Infiniband EDR
GN2106	25 - 28	4	EML	Yes	–	58 QFN	100 Gbps Ethernet / OTN, Infiniband EDR

Backplane & Linecard Signal Conditioners

Semtech's multi-channel signal conditioners enhance the reach and robustness of high-speed serial links by compensating for transmission losses and re-setting the crosstalk and jitter budgets.

HIGH LEVEL OF INTEGRATION AND SMALL FOOTPRINT

Semtech's backplane & linecard signal conditioners are ideal for small form factor modules or dense backplane /linecard applications.

FULL PORTFOLIO

Semtech products offer solutions for Ethernet, Infiniband®, Fibre Channel® and PCI Express®. Solutions are available with and without CDR functionality.

DRIVE LONG BACKPLANES OR CABLES

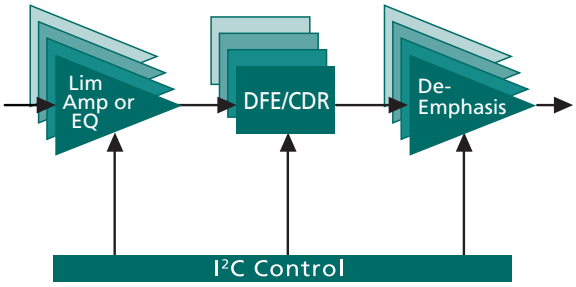
A combination of Equalizer, DFE and CDR technology allows for an optimal solution to drive long, dense backplanes or cables at high speeds.

LOW POWER

Semtech's CDR products require the lowest power in the industry, a key factor as densities increase.

RESET THE JITTER AND CROSSTALK BUDGETS

Using CDRs will reset the jitter budget, substantially increasing the robustness of the system and allowing for design flexibility. Using CDRs in multi-channel systems will also reset the crosstalk budget, an increasing concern at higher data rates.



MULTI-LANE SIGNAL CONDITIONERS

Part Number	Data Rate (Gbps)	Lanes	CDR	Ref Clock	Input Stage	De-emphasis	Supply (V)	Pkg	Applications
GN2504	25.6 - 28.1	4	Yes	Not Required	Adaptive Equalizer	Yes	1.8	54 QFN	25G/50G/100G Linecards, nx28G Backplanes, 25G/50G/100G Active Copper Cables
GN2415	1.2 - 15.0	8	Yes	Required	Adaptive Equalizer DFE	Yes	0.9 1.8	144 BGA	16G Fiber Channel, >nx12.5G Backplanes
GT1706 Family	1.25 - 14.5	6	Yes	Required	Adaptive Equalizer	Yes	0.9 1.8	144 BGA	HD/3G/4K/8K Video Broadcast testing Fibre Channel/Infiniband/ Ethernet Link Testing BERT Developments
GN2412 Family	1.25 - 12.8	12	Yes	Required	Adaptive Equalizer DFE	Yes	0.9 1.8	144 BGA	> nx10G Backplanes, 10G/40G/100G Linecards, 10G-KR, 40G-KR4, 40G-CR4, Crosspoint Switching, CPRI
GN2408 Family	1.25 - 12.8	8	Yes	Required	Adaptive Equalizer DFE	Yes	0.9 1.8	144 BGA	>nx10G Backplanes, 10G/40G Linecards, 10G-KR, Crosspoint Switching, CPRI
GN2404 Family	1.25 - 12.8	4	Yes	Required	Adaptive Equalizer DFE	Yes	0.9 1.8	144 BGA	>nx10G Backplanes, 10G/40G Linecards, 10G-KR, 40G-KR4, 40G-CR4, Crosspoint Switching, CPRI
GN2402	10.3125	4	Yes	Not Required	Equalizer	Yes	3.3	44 QFN	nx10G Backplanes, 10G/40G Linecards, 10G/40G Active cables
GX4002	9.95 - 11.3, 14.025	2	Yes	Not Required	Equalizer	Yes	3.3	32 QFN	nx10G Backplanes, 10G/40G Linecards, Infiniband FDR, 16G Fibre Channel, Crosspoint Switching
GN2405A/5S	9.95 – 11.3	4	Yes	Not Required	Equalizer	Yes	3.3	48 QFN	nx10G Backplanes 10G/40G Linecards 10G/40G Active cables
GN2406/6S	9.95 - 10.95	4	Yes	Not Required	Limiting Amp	Yes	3.3	48 QFN	10G/40G Linecards
GN1407	1 - 8	4	No	Not Required	Equalizer	No	1.2 1.8	56 QFN	PCIe Gen 1/2/3, SNAP-12, POP-4/LX-4/CX-4/KX-4, XAUI/RXAUI and Rapid I/O
GN1406	2.5 3.125 5.0, 6.25	4	Yes	Required	Equalizer	Yes	1.2 1.8	56 QFN	PCIe Gen 1/2, SNAP-12, POP-4/LX-4/CX-4/KX-4, XAUI/RXAUI and Rapid I/O

Laser Drivers and Limiting Amplifiers

High performance laser drivers and limiting amplifiers for optical communication.

APPLICATIONS:

- 10G EPON, XG-PON1 and XG-PON2
- 8G Fibre Channel
- 9.95 Gbps OC-192 and 10.70 Gbps OC-192 with FEC
- 10.3 Gbps Ethernet
- 10.52 Gbps Fibre Channel
- 11.1 Gbps Ethernet over SONET
- 11.3 Gbps Fibre Channel with Forward Error Correction
- 40G QSFP+ modules
- 6 Gbps and 10 Gbps CPRI modules for wireless front haul
- 100 Gbps Ethernet

LASER DRIVERS:

GN1185
High performance Quad 25 - 28 Gbps DML driver for active TOSAs targeting 100GE applications.

NT20042
Low cost 3.3V / 5.0 V 300 Mb/s LED driver for SONET, ESCON and Fast Ethernet applications over optical fiber.

NT22L33
3.3 V/ 5.0 V CMOS laser driver for data rates of 125 Mb/s to 1.25 Gbps.

GN1160, GN1161 AND GN1163
Very low power laser drivers for DFB/VCSEL applications. RSSI feature for compatibility with our high gain ROSA's, enabling SFP+ modules without limiting amplifiers.

GN1190
Quad VCSEL driver for parallel and multi-channel datacom & telecom modules. Low power consumption, 210mW typical for 4 channels. Use with GN1090 quad TIA.

LIMITING AMPLIFIERS:

NT20045
Low cost 3.0 V to 5.5 V, 200 Mb/s limiting amplifier for SONET, SDH, ESCON and Fast Ethernet applications over optical fiber.

NT24L71
1.25 Gbps CMOS 3.0 V to 5.5 V limiting amplifier with CML data outputs and signal status output in QSOP 16.

NT24L73
1.25 Gbps CMOS limiting amplifier with CML data outputs and signal status in an MSOP package.

GN1250L
A limiting amplifier that provides wideband, low noise postamplification, aimed primarily at OC-192 and SDH STM-64 systems.

LASER DRIVERS

Part Number	Overview	Data Rate (Gbps)	Max Mod / Bias Current	Supply	Pkg.	Applications
NT20042	300 Mb/s LED Driver	0.3	100mA	3.3/5.0V	QSOP 16	OC-3, Fast Ethernet
NT22L33	1.25 Gbps FP/DFB Laser Driver	1.25	70mA/80mA	3.3/5.0V	4mm QFN24	OC-3, OC-12, GbE
GN1160	DFB driver	to 11.3	90mA/ 120mA	3.3V (Opt. 2.8V)	28 QFN	10GE SFP+ 10GBASE-LR
GN1163	DFB driver	to 11.9	90mA/120mA	3.3V (Opt. 2.8V)	24QFN	QSFP+ 10GBASE-LR
GN1161	VCSEL driver	to 11.3	20mA/15mA	3.3V (Opt. 2.8V)	28 QFN	10GE SFP+ 10GBASE-SR
GN1190	Quad VCSEL Driver	to 14.3	12mA/12mA	3.3V	Bare Die	40Gbps Ethernet, Infiniband, QSFP+
GN1185	Quad DFB driver	25-28	55mA/70mA	2.3/3.3V	Bare Die	100GE Ethernet active TOSA

LIMITING AMPLIFIERS

Part Number	Overview	Data Rate (Gbps)	Gain	BW	Supply	Noise Figure	Applications
NT20045	200 Mb/s Limiting Amp	0.2	60dB	0.125	3.3/5.0V	80uV	OC-3, Fast Ethernet
NT24L71	1.25 Gbps Limiting Amp	1.25	46dB	0.938	3.3V	300uV	OC-3, OC-12, GbE
NT24L73	1.25 Gbps Limiting Amp	1.25	46dB	0.938	3.3V	300uV	OC-3, OC-12, GbE
GN1250L	10/14G Limiting Amp	to 14.5	33.7dB	14.7GHz	+3.3V	13dB	10 GbE, OC-192, 8G and 16GFC

Transceiver ICs (LD & LA)

High performance laser drivers and limiting amplifiers for optical communication.

NT25L91

2.5 Gbps CMOS burst mode laser driver and limiting post amplifier with digital set-up, control, on-chip NVM and APD DAC output.

NT28L90

Combined 10 Gbps limiting post amplifier and 2.5 Gbps burst mode laser driver for cost critical 10GEPON and XG-PON asymmetric applications. The NT28L90 features Tx & Rx sleep control, TX_SD output and Tx Power burst monitoring.

GN7354 & GN7355

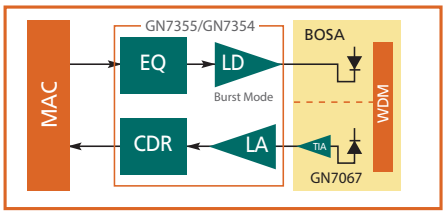
10G EPON transceiver for next generation PON systems. The GN7355 combines a 10G burst mode laser driver with a receive CDR and is targeted at 10G EPON symmetric applications. The GN7354 is a pin-for-pin compatible, de-rated version of the GN7355 intended to address the 1.25 Gbps and 2.5 Gbps transmit data rate, and cost pressures of the 10 Gbps asymmetric EPON and XG-PON applications.

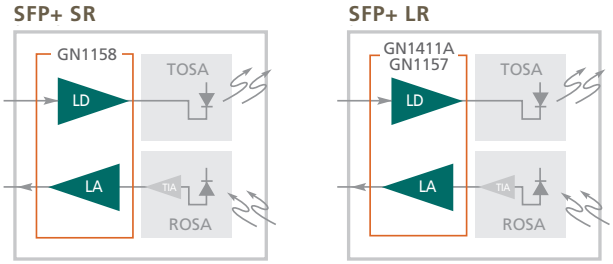
GN1411A/12B/44/44S

The GN1411A/GN1412A are highly-integrated, low-power, small footprint transceivers that are ideal for SFP+ LR/ER optical modules.

GN1157/58

Semtech's latest, lowest power transceiver IC's for SFP+ LR/SR applications with integrated APC and advanced eye shaping features.





TRANSCEIVER IC (LD&LA)

Part Number	Overview	Data Rate (Gbps)	Max Mod / Bias Current	Supply	Pkg.	Applications
GN25L95	Burst Mode DFB + Receive LA	to 2.5G	90mA / 100mA	3.3V	28 QFN	EPON, GPON, BOSA-on-Board
NT25L90/91	2.5 Gbps Burst Mode LDD & LA	2.5	90mA / 100mA	3.3V	28 QFN	EPON, GPON, BOSA-on-Board
NT28L90	2.5 Gbps Burst Mode DFB + 10 Gbps Receive LA	Rx 10.3 Tx 2.5	90mA / 100mA	3.3V	28 QFN	10GEPON, XG-PON1 (Asymmetric)
GN7354	Burst Mode DFB + Receive LA & CDR	Rx: 10.3 Tx: to 2.5	90mA / 90mA	3.3V (3.3 V or 5V output stage)	32 QFN	10GEPON, XG-PON (Asymmetric)
GN7355	Burst Mode DFB + Receive LA & CDR	10.3	90mA / 90mA	3.3V +5 V output stage (optional 3.3 V)	32 QFN	10GEPON, XG-PON (Symmetric)
GN1411A	DFB/FB Laser Driver + Receive LA	to 11.3G	80mA / 120mA	3.3V	32 QFN	10 GbE, OC-192
GN1412B	EML Laser Driver + Receive LA	to 11.3G	2.5Vpp / 120mA	3.3V	32 QFN	10 GbE, OC-192
GN1444S	EML Laser Driver + Receive LA	to 11.3G	2.5Vpp / 120mA	1.8 & 3.3V	32 QFN	10 GbE, OC-192
GN1157	DML Laser Driver + Receive LA	to 11.3G	90mA / 120mA	3.3V (Optional 2.8V)	28 QFN	10GbE LR SFP+, CPRI
GN1158	VCSEL Laser Driver + Receive LA	to 11.3G	20mA / 15mA	3.3V (Optional 2.8V)	28 QFN	10 GbE SR SFP+

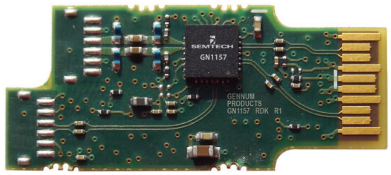
Optical Module Reference Design Kit

Improve the performance and time to market of your SFP+ design with Semtech Optical Module Reference Design Kits.

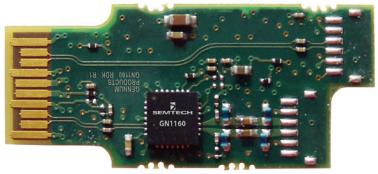
FAST TIME TO MARKET

Semtech's reference design kits include schematics, layout files and a design guide as well as attentive support from experienced applications engineers. This reduces both design costs and decreases time to market. This is further realized in the FTTx market where it is possible to re-use the 10G symmetric SFP+ design to address the 10G asymmetric market.

GN1157 RDK (RDK-SFP+-Optical02)



GN1160/GN3055 RDK (RDK-SFP+-Optical04)

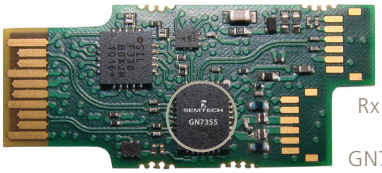


BROAD RANGE OF REFERENCE DESIGNS AVAILABLE

Reference design kits are offered to cover a wide variety of SFP+ applications, including symmetrical and asymmetrical PON, and 10 GbE SR and LR applications.

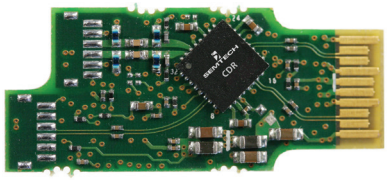
For ethernet SFP+, designs are available for both the traditional architecture (including a limiting amplifier in the receive chain), as well as a new LA-free architecture enabled by Semtech's High Gain ROSA portfolio.

GN7354/7355 RDK
RDK-SFP+-PON-S00
RDK-SFP+-PON-A00



Rx CDR+ Tx Burst Mode DML driver
GN7355 - Symmetric PON
GN7354 - Asymmetric PON

RDK-SFP++LR



OPTICAL REFERENCE DESIGN KITS

Part Number	Parts Demonstrated	Data Rate (Gbps)	Connector Type	Wavelength (nm)	Applications
RDK-SFP++LR	GN3068/GN3268, GN2010D/GN2042	9.95 - 11.3	SFP+	1310	10 GbE LR, OC-192
RDK-SFP++ER	GN3268, GN2010EA/GN2044	9.95 - 11.3	SFP+	1550	10Gb ER, OC-192
RDK-SFP+-PON-S00	GN7355	10.3	SFP+	1577/ 1270	10G EPON
RDK-SFP+-PON-A00	GN7354	10/1.25 10/2.5	SFP+	1577/1310 1577/ 1270	10G EPON Asym. XG-PON1
RDK-SFP+-Optical02	GN1157	1 - 11.3	SFP+	1310	10 GbE LR
RDK-SFP+-Optical03	GN1158	1 - 11.3	SFP+	850	10 GbE SR
RDK-SFP+-Optical04	GN1160 & GN3055	1 - 11.3	SFP+	1310	10 GbE LR
RDK-SFP+-Optical05	GN1161 & GN3155	1 - 11.3	SFP+	850	10 GbE SR

Design files and results available upon request.

SEMTECH

Semtech Corporation Headquarters
200 Flynn Road, Camarillo, California 93012
phone: (805) 498-2111 • fax: (805) 498-3804 • email: canada@semtech.com • www.semtech.com

Semtech and the Semtech logo are registered marks of Semtech Corporation. All other trademarks and trade names mentioned may be marks and names of their respective companies. Semtech reserves the right to make changes to, or discontinue any products described in this document without further notice. Semtech makes no warranty, representation or guarantee, express or implied, regarding the suitability of its products for any particular purpose. ©2015 Semtech Corporation. All rights reserved. **Optical-SG15**

Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург, Промышленная ул, дом № 19, литера Н, помещение 100-Н Офис 331