



Data center optical transceivers using 90WG and 90WG+ SiPh

Harness the power of light for optical applications

Optical communication uses light, rather than electrical signals, to carry information across fiber optics networks. These networks are being stressed by unprecedented growth in network data demand. Silicon photonics (SiPh) solutions help network equipment providers handle these increased demands by enabling more data to enter and exit networks faster, resulting in increased capacity.

GlobalFoundries (GF®) helps designers harness the power of light for optical transceiver applications with 90WG and 90WG+ SiPh semiconductor solutions. These solutions integrate RF, digital elements and silicon photonics circuits on the same chip and take advantage of the scale, efficiencies and process control of 300 mm silicon manufacturing.

90WG and 90WG+ at a glance

Platform	Solution	Key Features
90 nm PD-SOI	90WG	<ul style="list-style-type: none"> • Integrated RF CMOS & photonics • High-performance O-band
	90WG+	<ul style="list-style-type: none"> • Integrated RF CMOS & photonics with on-chip laser attach • High-performance O-band and C-band

Industry-first integrated RF CMOS and silicon photonics foundry solution.

Silicon photonics offers >6500x the reach of copper wiring at up to 8x the data rate.


Leverage high-volume manufacturing:

High-volume 300 mm CMOS manufacturing offers supply assurance and enables customers to take advantage of advanced processing and controls for mainstream photonic integrated circuit (PIC) deployment in hyper-scale data center interconnects.


Boost bandwidth:

90WG and 90WG+ are optimized to meet high-speed (100G and beyond) optical connectivity demands by offering a 40 GHz germanium photodiode paired with 25 Gbaud and 50 Gbaud Mach-Zehnder modulators (MZMs), respectively.


Maximize performance, in less space:

The monolithic integration capabilities of GF's 90WG and 90WG+ solutions offer power, area and performance advantages for cost-effective designs that deliver more data per watt per fiber per laser.


Simplify design:

90WG and 90WG+ empower designers with electrical/optical PDKs for co-design of both electrical and optical components. 90WG is designed for O-band applications; 90WG+ is for both O-band and C-band.

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Silicon photonics solutions for data center optical transceivers from GF

90WG	90WG+
High-performance O-band optical components, including 25 Gbaud MZM with passive fiber attach.	Superior optical components with O-band and C-band capability, including 50 Gbaud MZM PAM-4. Features on-chip laser attach and freeform design enablement.

Learn how integrated silicon photonics solutions from GF move more data faster, farther and more cost efficiently at gf.com/contact-us