

# Data center optical transceivers using 45CLO SiPh

Harness the power of light for 400G+ applications



## Fastest

Highest data rate per fiber (0.5 Tbps/fiber).



## 50% smaller

Monolithic integration for 50% smaller form factor.\*



Optical communication employs light to send information over fiber optics networks, which today are increasingly stressed by massive volumes of data. While light cannot move faster, silicon photonics (SiPh), which enables higher-capacity optical transceivers, can significantly increase the speed and performance of these networks.

GlobalFoundries (GF®) enables designers to leverage the power of light for advanced optical applications with 45CLO, a high-performance integrated photonics solution in an optimized footprint that requires only half the area of discrete solutions. This monolithic solution is designed to deliver higher bandwidth between data center servers and faster connections between data centers along the telecommunication infrastructure.

### 45CLO at a glance

Platform	Key features
45 nm PD-SOI	<ul style="list-style-type: none"> <li>• Highest-performance monolithic solution, with RF CMOS and photonics integrated in a single chip</li> <li>• Passive fiber attach (optical loss &lt; 1.5 dB) and leading optical I/O capacity (2 Tbps/mm)</li> <li>• Best-in-class performance photonics components</li> </ul>



**Leverage high-volume manufacturing:**

GF's high-volume 300 mm CMOS manufacturing offers 45CLO supply assurance and enables you to take advantage of advanced processing and controls for mainstream photonic integrated circuit (PIC) deployment in hyper-scale data center interconnects.



**Leverage next-level performance and power efficiency:**

The performance and power advantages of 45CLO, which offers the most data per fiber per bit (0.5 Tbps per fiber) with power efficiency of 0.6 pJ/bit, enable designers to optimize and differentiate their hardware for intra and inter data center applications.



**Get 400G bandwidth, and beyond:**

45CLO enables you to leverage industry-leading data/fiber/bit speed combined with best-in-class passive fiber attach performance (< 1.5 dB optical loss) and 2 Tbps/mm optical I/O capacity to meet 400G+ data center demands.



**Minimize design footprint:**

45CLO supports up to a 50% smaller form factor over discrete solutions and simplifies assembly for area and cost efficiencies by enabling designers to integrate the photonic integrated circuit (PIC), driver, transimpedance amplifier (TIA) and laser on a single chip.

**LEARN MORE**

**Silicon photonics solutions for data center optical transceivers from GF**

<b>Solution/ benefits</b>	<b>45CLO:</b> Best-in-class monolithic RF CMOS/photonic performance with low power and low latency links for datacom and next-generation co-packaged optics solutions. Includes EDA solutions for freeform, curve-linear GDS design capability.	
	<b>90WG:</b> High-performance O-band optical components, including 25 Gbaud MZM with passive fiber attach.	<b>90WG+:</b> 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 can help you move more data—faster, farther and more cost efficiently—at [globalfoundries.com/contact-us](https://globalfoundries.com/contact-us)

**Contact Us**



\* 45CLO monolithic solution compared to discrete solutions.

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