

Domestic Substitution of Optical Communication Equipment



AI Overview

Domestic substitution in optical communication is rapidly advancing, driven by policy support, technological breakthroughs, and market demand, enabling locally produced optical modules and testing equipment to compete with international products.

Policy and Market Drivers The push for domestic substitution is strongly supported by national policies. The Ministry of Industry and Information Technology has issued guidelines promoting the localization of optical communication devices, encouraging collaboration between industry, academia, and research institutions to develop high-end optical chips and modules. Regional initiatives also support joint R&D efforts, helping domestic companies address previous supply chain gaps. As a result, the localization rate for medium- and low-speed optical chips below 10G has exceeded 65%, demonstrating significant progress in domestic production.

Technological Advancements Domestic companies have achieved notable technological breakthroughs. For example, ETU-LINK has developed second-generation 100G QSFP28 ZR4 80KM optical modules using four-channel 28G NRZ wavelength division multiplexing technology, achieving transmission distances of up to 80 km with power consumption below 5.5W, comparable to international top-tier products. Similarly, ChisynV's CDuD1400 digital isolator eliminates traditional optical coupler components, reducing power consumption and simplifying system design while maintaining high reliability. These innovations demonstrate that domestic products are moving from simple replacement to competitive leadership.

Supporting Equipment and Testing Domestic substitution extends beyond modules to testing and auxiliary equipment. ZONGLEN's domestically produced heat flow meters, widely used in optical module workshops, offer fast heating/cooling rates, wide temperatur...

Article Content

Ranking of domestic photonic module chip companies

Optical chips are the most critical but also the most constrained segment in domestic substitution. They mainly include laser diodes (EML), photodetectors (PD), and silicon photonics

Ranking of domestic photonic module chip companies

HG Genuine A major domestic supplier of optical components and optical modules, with strong capabilities in high-speed optical component packaging and modularization. Cambridge

Domestic substitution and sourcing strategies for ...

Request PDF | On Jun 1, 2026, Hongwei Pei and others published Domestic substitution and sourcing strategies for critical components considering supply disruptions and quality

Replace Western Technology With Domestic Alternatives in China ...

Reuters has obtained details of tenders from the Chinese government, military, and state-linked entities, which show an acceleration in domestic substitution since last year. Some of the

Optical Modules Ignite Aluminum Nitride Demand: The

III. Domestic Champions Rise, Unlocking Full Industry Chain Synergy Constrained overseas supply is accelerating domestic substitution. Leading Chinese AlN substrate manufacturers

The top 30 domestic substitutes are released, and many ...

The top 30 domestic substitutes are released, and many industries are making efforts to replace domestically produced products.

Domestic substitution and sourcing strategies for critical components ...

This omission is particularly relevant for geopolitical or policy-driven domestic substitution, where domestically sourced alternatives typically differ systematically in quality from global best-in-class

Looking at optical chips from the semi-annual report ...

From the perspective of the industrial chain, the domestic substitution of the optical communication industry chain is accelerating from downstream to upstream.

Optical Modules Ignite Aluminum Nitride Demand: The

Several domestic frontrunners have successfully penetrated the supply chains of top-tier global optical module makers and AI computing giants. This momentum is resonating across the

Analysis Of The Trend Toward Domestic Production Of Optical

I. Accelerated Localization of Optical Modules: Triple Drivers of Policy, Technology, and Corporate Practice Driven by the explosive growth of AI computing power and the large-scale

Domestic substitution and sourcing strategies for critical components ...

Concluding Remarks In the context of increasing global supply chain volatility, manufacturers are intensifying efforts toward domestic substitution and diversified sourcing strategies to mitigate

Analysis of China's Optical Module Domestic Production Trend: Policy ...

Spurred by the AI computing boom and large-scale 5G deployment, optical modules, the critical backbone of communication infrastructure, are undergoing a significant shift towards domestic

Interpreting The "Domestic Replacement" of Electro

Currently, China's strategy of domestic substitution in high-tech fields such as high-end semiconductor integrated circuits, industrial software, high-end machine tool equipment, computer

Domestic substitution of Temperature Forcing Systems in the field of ...

Domestic heat flow meters still face some challenges, with high-precision detectors still relying on imports. Users have concerns about the stability and repeatability of domestic heat flow

China's Strategic Countermeasure Opens a Window for a Domestic ...

A research report by Soochow Securities Co., Ltd. pointed out that China's move is not only a strategic response but also a turning point for domestic substitution and reconstruction of the

Domestic substitution and supply chain performance: The impact of ...

In the current volatile global market, domestic substitution is increasingly crucial to mitigate reliance on foreign suppliers. However, the quality of domestic components is unstable, and the R&D costs are

The demand for optical devices industry is accelerating, and domestic ...

In the future, with the continuous transfer of the optical communication industry chain to China and the significant improvement of the strength of domestic optical devices, domestic leading manufacturers

Semiconductor + CPO: 10 core companies with deep ...

With the expansion of production capacity by leading companies like TSMC and the advancement of domestic semiconductor substitution, the company's equipment orders continue to

China's Strategic Countermeasure Opens a Window for a Domestic ...

The industrial transformation triggered by the strategic countermeasures has given rise to the "second revolution" in China's manufacturing industry. The escalation of tariff barriers is an

Export Controls & Domestic Substitution in EDA Equipment

Comprehensive analysis of semiconductor export controls affecting EDA, IP, and equipment, plus domestic substitution strategies for supply chain resilience.

Under the wave of domestic substitution, which fields have achieved ...

Under the strategic backdrop of pursuing independent and controllable scientific and technological development, domestic substitution has shifted from being policy-driven to being

Why Aluminum Nitride (AlN) Substrates Are Critical for 800G and 1.6T ...

The industry is addressing this by focusing on improving manufacturing yields, which is the core direction for future iteration. As domestic processes mature, this will accelerate the substitution

The "Nerve Center" of High-Power Lasers is Now Domestic: How

Benefiting from surging downstream demand in laser processing, optical communications, and aerospace sensing, the company is operating at >97% capacity utilization with a full order book.

Powering the Future: Inside China's Hard-Tech Revolution —

China's hard-tech sector is entering a new phase of structural growth, driven by AI adoption, semiconductor localization, and strong policy support.

Proportion of domestically produced optical transceiver modules and ...

Localization Rate of Optical Transceiver Modules and Chips The localization rate of optical transceiver modules and their core chips is a critical topic in the optical communication

China's domestic substitution strategy gains momentum

Since Donald Trump first assumed the US presidency in 2017, trade tensions and sanctions against China have driven the country to prioritize

Nvidia's official announcement, CPO mass production, and a changing ...

For domestic manufacturers, CPO is not the end of the world, but rather a catalyst for accelerating domestic substitution. Previously, the weaknesses in high-end optical modules lay in

From optical modules to chips -

According to data from the China Semiconductor Industry Association, the domestic semiconductor equipment localization rate climbed from 25 percent at the end of 2024 to 35 percent

Import substitution of optical fiber is postponed: the only

The reason is the shutdown of the only plant in the EAEU, Optical Fiber Systems (OVS) in Mordovia. The enterprise ceased operations after critical

Domestic substitution and supply chain performance: The impact of ...

We formulate the interactions among the domestic supplier's R&D and pricing strategies, the manufacturer's domestic substitution, and the government subsidies, analyzing the effects of and

Analysis Of The Trend Toward Domestic Production Of Optical

Driven by the explosive growth of AI computing power and the large-scale application of 5G, optical modules, as a core component of communication infrastructure, are entering a critical

Contact Us

For more information, pricing, or custom solutions, please contact us:

Website: <https://www.sky-connect.co.za>

Email: info@sky-connect.co.za

Phone: +44 20 7946 0958

Address: 1 Cornhill, London EC3V 3ND, United Kingdom

This document is for informational purposes only. Specifications subject to change without notice.

