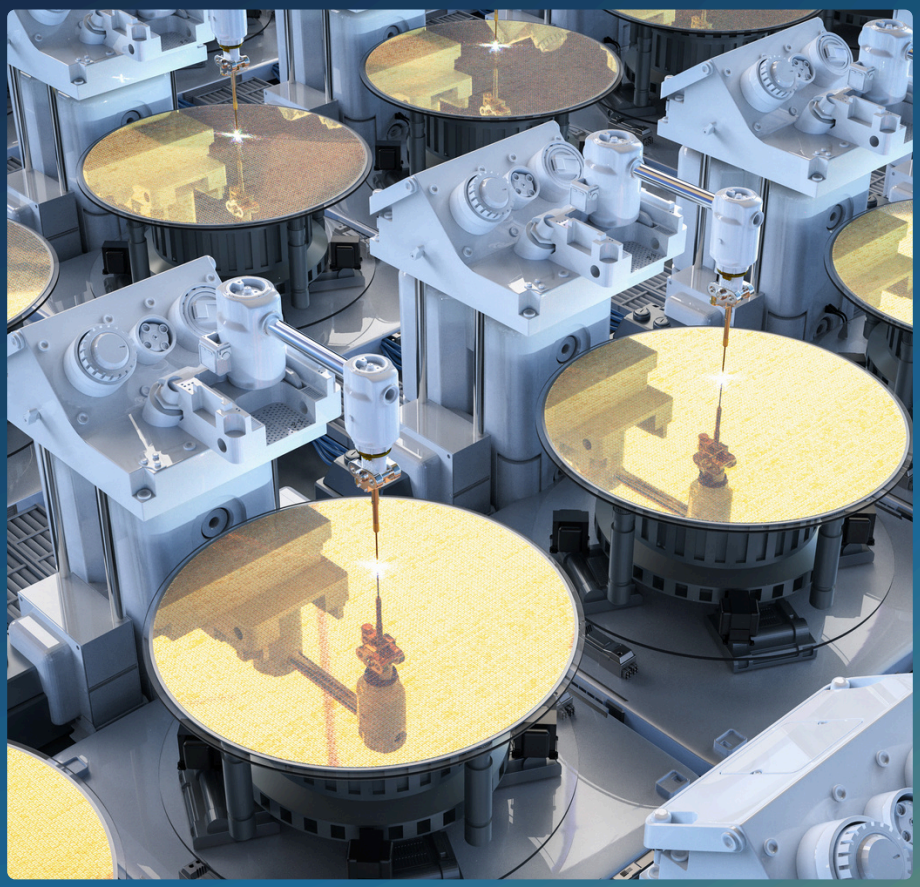
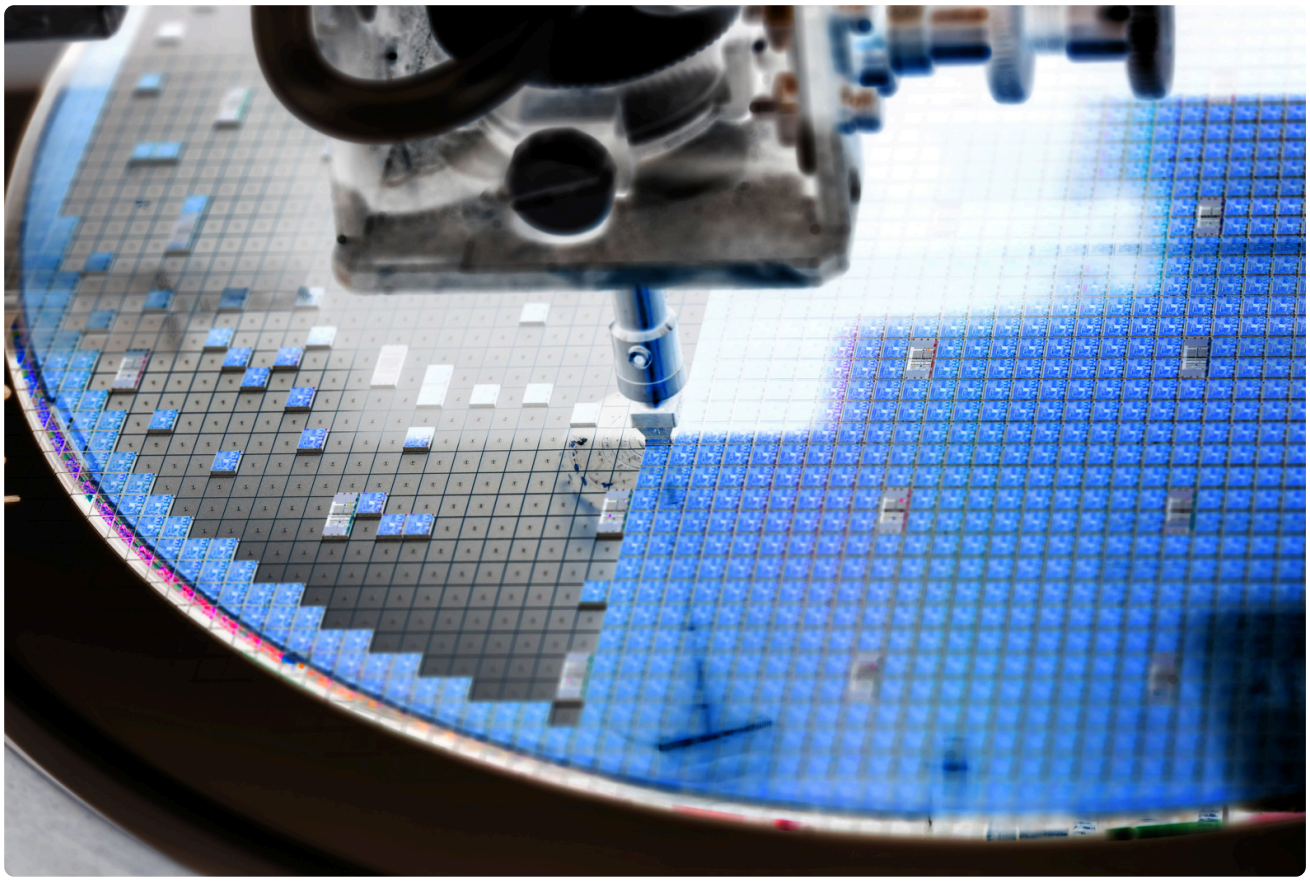
Z2DATA

How the Nexperia Crisis Is Shaping the Semiconductor Market

A Z2Data Analysis





How the Nexperia Crisis Is Shaping the Semiconductor Market

The Nexperia ownership dispute has been one of the more striking, of-the-moment supply chain stories in recent memory. But the story isn't over, and the events to date reveal new vulnerabilities for supply chains dependent on Nexperia parts or their alternatives. In this Z2Data analysis, we examine the dispute itself, the fragilities exposed within Nexperia's supply chain, and the potential impact to manufacturers relying on Nexperia components.

Overview

It started when the U.S. Department of Commerce announced the new Bureau of Industry and Security "Affiliates Rule" at the end of September—an announcement that triggered sanctions on Dutch semiconductor manufacturer Nexperia due to its acquisition by Wingtech Technology. (Wingtech was added to the BIS Entity List in December of 2024.) In response, the Dutch government attempted to seize ownership of the company. Just days later, China—where much of Nexperia's semiconductor manufacturing is based—struck back, issuing export controls on Nexperia's Chinese facilities and its subcontractors.

The Nexperia Chip Crisis Timeline

- **September 29:** The U.S. Department of Commerce issues a new rule stating that any organization at least 50 percent owned by an Entity List company is also subject to its restrictions. Because Nexperia was acquired by Wingtech Technology in 2019, it falls under those restrictions.

- **September 30:** The Dutch government attempts to take control of Nexperia by invoking the Goods Availability Act.

- **October 4:** The Chinese Ministry of Commerce issues export controls on Nexperia's Chinese unit and its subcontractors. They are prohibited from exporting finished components and subassemblies manufactured in China to foreign countries.

- **October 19:** A letter written by Nexperia's Chinese management and obtained by the media asserts that Nexperia is a "Chinese company with operations rooted in China" and therefore has a priority to adhere to Chinese regulations.

- **October 22:** Volkswagen tells its workers that a production stoppage could be imminent due to the supply chain issues triggered by the Nexperia standoff. German newspaper *The Bild* cites sources reporting that work stoppages are already being scheduled to start the following Wednesday, October 29.

- **October 23:** The Japanese Automobile Manufacturers Association (JAMA) says that Nexperia had recently notified Japanese autopart manufacturers that it might not be able to fulfill chip deliveries. JAMA adds that the semiconductors in question are essential components in electronic control units, and any shortages could reverberate across JAMA's members, including Toyota, Honda, and Nissan.

- **October 30:** The U.S. and China reach a trade agreement: the Trump administration suspends the BIS Affiliates Rule for one year, and China commits to restoring operations at Nexperia's China facilities to maintain supply of critical legacy chips.

- **November 7:** European automakers begin confirming that shipments of Nexperia chips have resumed.

- **November 19:** The Dutch government suspends its intervention at Nexperia as a goodwill gesture. China calls it a "first step in the right direction," but says the act does not satisfy all of China's demands.

Temporary Relief in the Form of a Trade Deal and Détente

With a supply chain crisis looming, U.S. President Trump and Chinese President Xi Jinping struck a critical trade agreement in late October. The deal called for the U.S. to suspend the BIS Affiliates Rule for one year and for China to grant exemptions to Nexperia chips used in civilian applications, including automotive. Since then, Nexperia chip shipments have resumed to European automakers, easing pressure on manufacturers worried about another supply chain crunch.

Then, on November 19, the Dutch government announced that it would be suspending its intervention at Nexperia, citing encouraging steps on the part of China to resume the exportation of chips out of the country.

Why Many Problems Still Remain for Nexperia & Its Customers

But the temporary relief won by the trade agreement does not resolve the ongoing impact to the chip supply chain, much of which has no easy or immediate fix.

First, there's the issue of industry-level impact. Nexperia semiconductors coming out of China—where much of the company's IC assembly takes place—are used in consumer electronics, aerospace and defense, and medical technology, among other industries. The bottleneck created by the ownership crisis and China's subsequent export controls are posing a substantial risk to manufacturing all over Europe—and, by consequence, the broader global supply chain.

Then there's the question of quality. In response to China issuing export controls on Nexperia's Chinese unit and its subcontractors in early October, Nexperia B.V. temporarily stopped shipping wafers to its main Chinese IC assembly facility in Dongguan.

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In an official November 14 update on its website, Nexperia assured stakeholders that its Chinese facilities likely had enough wafers to continue exporting chips and honoring orders for the next several months. But the company struck a cautionary tone. "Given the missing transparency and oversight over the manufacturing processes we cannot guarantee the intellectual property, technology, authenticity and quality standards for products delivered from the Nexperia facility in China as of October 13."

Why Many Problems Still Remain for Nexperia & Its Customers, Cont.

Finally, there's the issue of dependency. The Nexperia ownership dispute has exposed the chipmaker's reliance on its Dongguan facilities and various Chinese subcontractors, as well as manufacturers' dependence on Nexperia components. This creates a two-fold challenge: Nexperia faces ongoing vulnerability due to its dependence on Chinese operations—an issue unlikely to be resolved soon—while manufacturers must reassess their own exposure and seek alternative sources. Neither path offers an easy solution.

Ultimately, there's no single consequence from the Nexperia crisis—there are many—and each factor is contributing to the broader picture of semiconductor supply chain uncertainty. Even if the political, regulatory, and ownership issues surrounding Nexperia are reversed, these dynamics may persist.

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How Vulnerable Are You, Really?

To help manufacturers understand the ongoing risks at play with Nexperia, we analyzed four points of vulnerability that have emerged from this crisis:

- Nexperia's exposure tied to its China-based manufacturing
- Shrinking access to Nexperia parts through authorized channels
- Changes in availability among alternative component suppliers
- Evolving trends in independent distributor inventory

Nexperia's Dependency on Chinese Manufacturing

Much has been made of how essential Nexperia chips are to the global automotive supply chain. But little information has come out detailing specifically which Nexperia chips are fabricated and/or assembled in China, and therefore most vulnerable to this ownership standoff.

An analysis of Z2Data's database identified the ten Nexperia commodity categories most impacted by recent events, largely due to their reliance on the company's China-based manufacturing sites. This dependency amplifies the operational and geopolitical risks tied to Nexperia's current situation, leaving certain product families especially exposed. These categories are arranged by both the total number of Nexperia MPNs manufactured in China and the percentage of each commodity group produced there.

Nexperia Commodity Types with Highest China-Based Exposure

Commodity	# Parts IC Assembly in China	Percentage of Commodity Group Assembled in China	# Parts Fabricated in China	Percentage of Commodity Group Fabricated in China
Zener Diodes	4,428	89%	0	0
Logic Gate & Inverters	863	53%	1,256	77%
GP BJTs	1,543	75%	0	0
Buffers & Line Drivers	573	57%	755	76%
MOSFETs	804	54%	188	13%
Rectifiers	906	58%	0	0

Nexperia Commodity Types with Highest China-Based Exposure, Cont.

Commodity	# Parts IC Assembly in China	Percentage of Commodity Group Assembled in China	# Parts Fabricated in China	Percentage of Commodity Group Fabricated in China
Transient Voltage Suppressors	669	35%	3	<1%
Analog Switch Multiplexers	224	70%	288	91%
Switches, Multiplexers, and Decoders	269	78%	235	68%
Digital BJTs	486	51%	0	0

As the table illustrates, Nexperia is heavily reliant on its facility in Dongguan—as well as its network of Chinese subcontractors—for IC assembly. Over three-quarters of Nexperia's Zener diodes, GP BJTs, and switches, multiplexers, and decoders are assembled in China, and significant numbers of MOSFETs, rectifiers, and logic gate and inverters are either assembled or fabricated there. This has particularly strong implications for the auto industry, which relies heavily on Nexperia's Zener diodes, BJTs, and MOSFETs.

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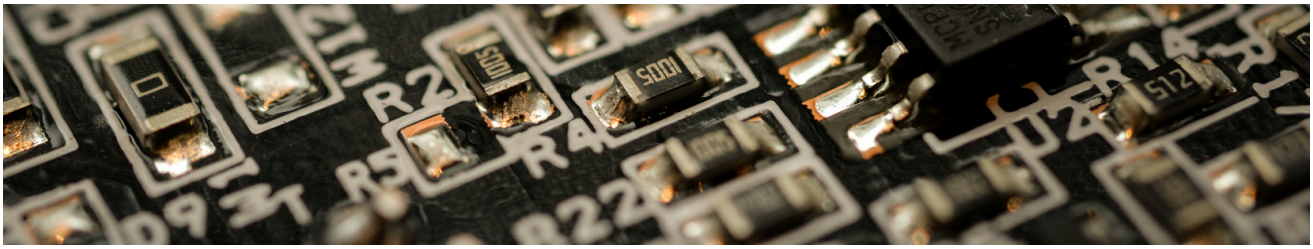
Understanding Nexperia's China Facilities & Subcontractor Structure

We also wanted to address the question of which Nexperia manufacturing facilities operate in China and who their subcontractors are. China's export controls on Nexperia's Chinese unit extend to these subcontractors, and Nexperia itself has repeatedly referenced them throughout the crisis, particularly in its public updates. The evidence suggests that these subcontractors form an essential part of Nexperia's China-based manufacturing operations.



Understanding Nexperia's China Facilities & Subcontractor Structure, Cont.

While Nexperia's primary Chinese manufacturing site is an IC assembly facility in Dongguan, Guangdong, the company also uses subcontractors for both IC assembly and fabrication. Given the break in operations and communication between Nexperia B.V. and its Chinese units, it is likely that these subcontractors were also affected by Nexperia B.V.'s reduced ability to maintain quality control and operational oversight.

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Here are the top three subcontractors for each manufacturing stage based on the number of parts they manufacture:

Top Three Nexperia IC Assembly Subcontractors

- **ASE Technology Holding**
- **Tongfu Microelectronics**
- **Tak Cheong Electronics**

Top Three Nexperia Fabrication Subcontractors

- **GTA Semiconductor**
- **Shanghai Dingtai Jiangxin Technology**
- **Hua Hong Semiconductor**

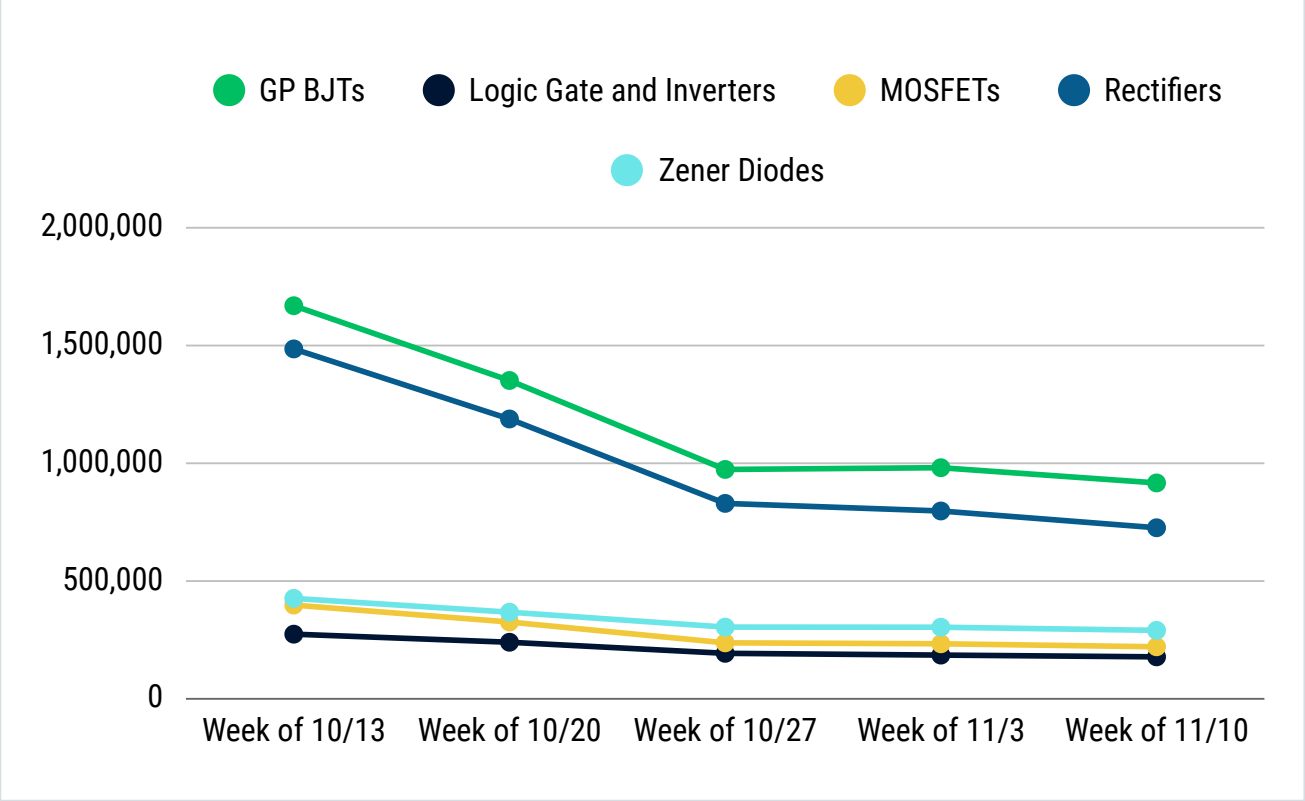
Z2Data Analysis of Semiconductor Market Impact

Another key aspect of the Nexperia crisis involves its influence on inventory conditions within the semiconductor market. Our analysis of internal datasets revealed several significant inventory trends taking shape.

Nexperia Inventory Is Decreasing Among Authorized Distributors

In recent weeks, overall inventory among some of Nexperia's best-selling parts has been on a steady decline. To understand these trends, we analyzed the five commodity types for which Nexperia manufactures the largest number of individual components: general-purpose bipolar junction transistors (GP BJTs), logic gates and inverters, MOSFETs, rectifiers, and Zener diodes.

Inventory Levels for Nexperia Parts at Authorized Distributors



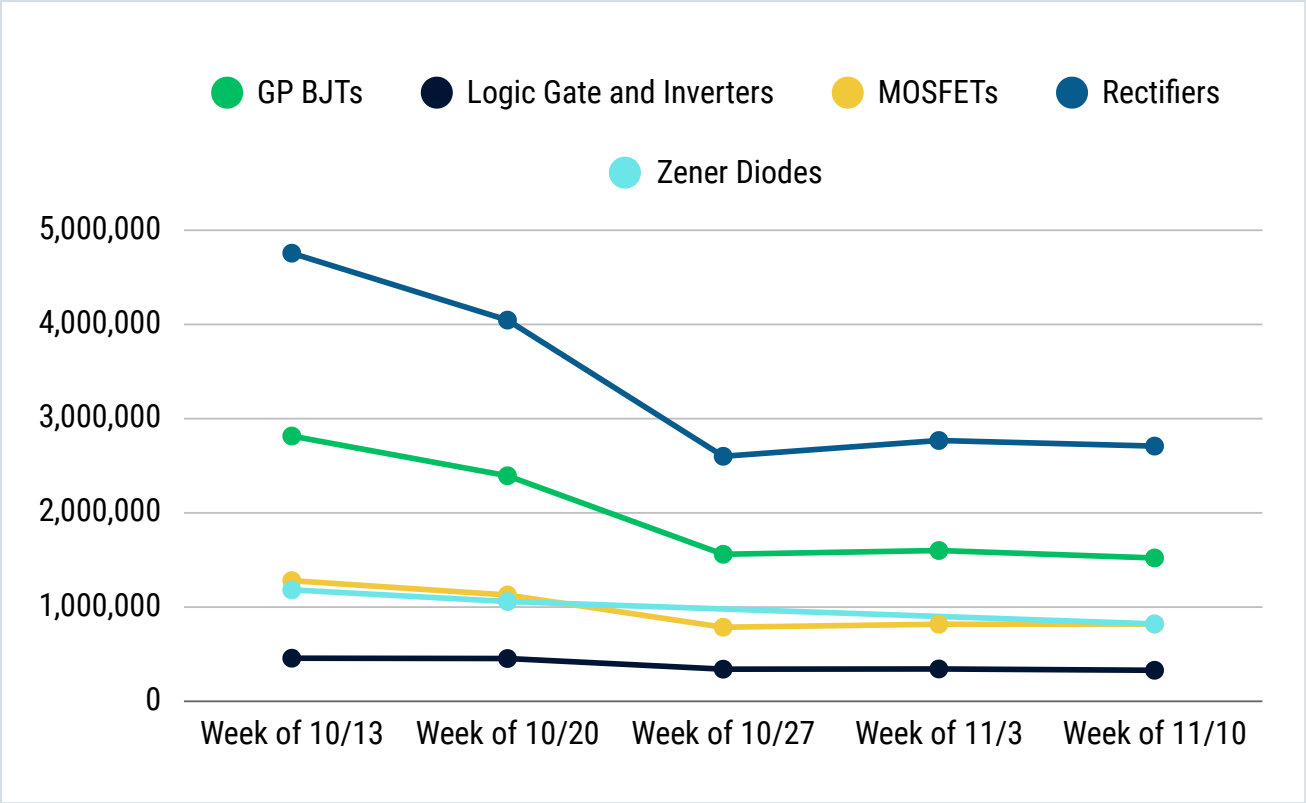
Covering the five weeks from October 13 through November 10, the table above shows a steady decline in inventory that began in mid-October—as the Nexperia dispute intensified—and continued into the second week of November. In just over a month, available inventory from authorized distributors for Nexperia GP BJTs, MOSFETs, and rectifiers each fell by more than 40%.

Moreover, some distributors no longer list any Nexperia parts on their websites. This may stem from Nexperia's warning that it can no longer guarantee the technology, quality, or authenticity of parts exported from China, or from a desire to prevent independent brokers from absorbing inventory and distorting the market. Regardless, inventories may very well continue to decline through the rest of 2025, reshaping supply-and-demand dynamics and potentially driving up prices for Nexperia parts and their crosses.

Inventory for Alternative Manufacturers Is Also Declining

The Nexperia crisis has not only impacted Nexperia parts—it's also affecting the broader market for alternatives. Our analysis over the past month found that inventories have declined for alternative components made by other semiconductor manufacturers as well. In the table below, we show authorized distributor inventory for five major alternative suppliers—Diodes Incorporated, Infineon, onsemi, Texas Instruments, and Vishay—across several of Nexperia's largest product categories.

Inventory Levels for Nexperia Parts at Authorized Distributors



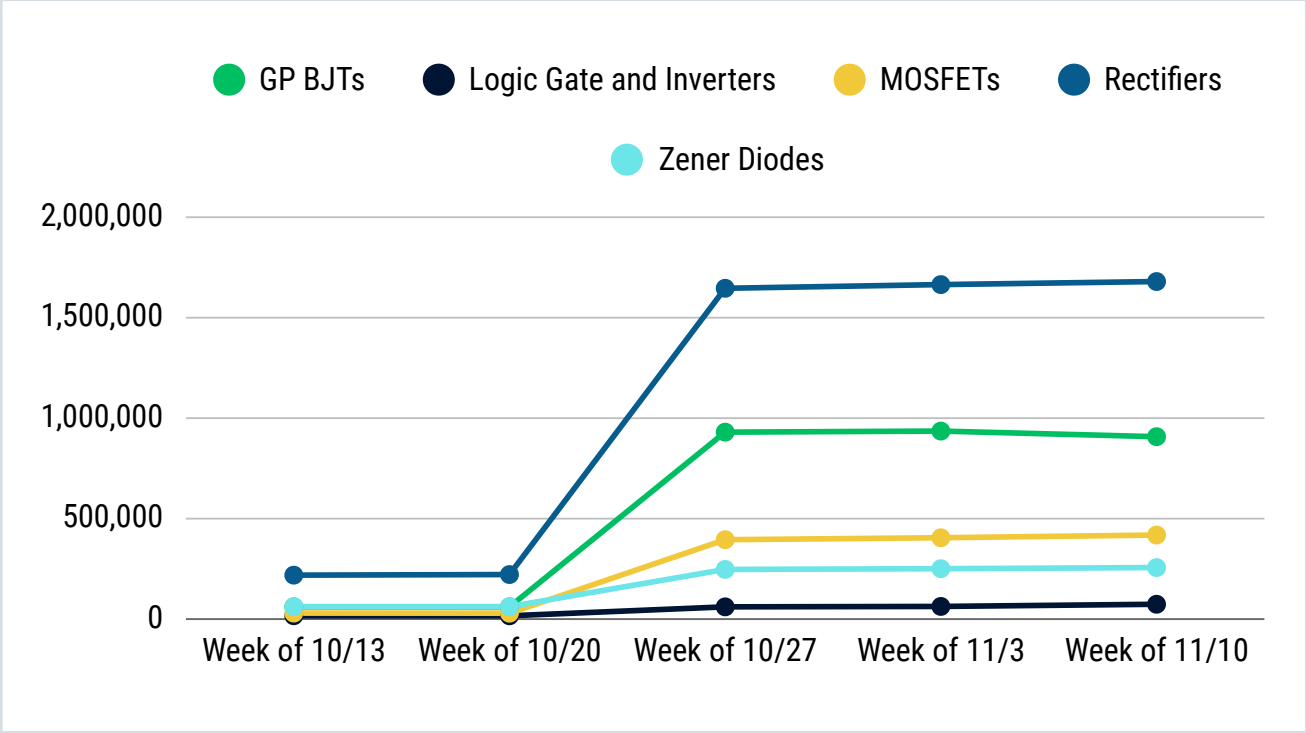
Looking at the collective inventories for these five Nexperia competitors in key product lines, it's clear that supply is steadily falling across specific swaths of the semiconductor market. This market shock could be caused by several different factors:

- Original equipment manufacturers (OEMs) and other customers seeking out crosses to high-risk Nexperia parts.
- Businesses stockpiling inventory in anticipation of a potential future shortage.
- Independent distributors (brokers) buying up Nexperia alternatives, in an effort to resell commodities at a premium if/when the market experiences shortages for specific components.

Independent Distributors Are Buying Up Nexperia Alternatives

Finally, our analysis shows that independent distributors are aggressively expanding their inventories. Between mid-October and mid-November, their stock surged across five major Nexperia commodity types: GP BJTs, logic gates and inverters, MOSFETs, rectifiers, and Zener diodes. More notably, they appear focused on acquiring large volumes of crosses from competing manufacturers. The table below shows the inventory shifts for five key alternative suppliers: Infineon, onsemi, Diodes Incorporated, Texas Instruments, and Vishay.

Inventory Levels Among Independent Distributors for Nexperia Crosses



Independent distributors are concentrating their strategy on Nexperia's major competitors and the crosses they produce. In October alone, brokers increased their inventory of GP BJTs from Infineon, onsemi, Diodes Incorporated, and Texas Instruments more than fifteenfold. Inventory of MOSFETs and rectifiers, meanwhile, jumped by 1,300% and nearly 700%, respectively. (One caveat here is that it's not always clear whether these figures represent inventory brokers have already purchased, and have in hand, or whether they represent the amount brokers have access to. In either case, the data demonstrates that brokers want to show customers that they're able to move huge quantities of these chips.)

A likely reason for these inventory shifts is speculation that as the Nexperia crisis continues, customers will move toward Nexperia crosses, driving up demand. By stockpiling parts now, brokers may be able to capitalize on that demand in the coming weeks and months.

Market Shockwaves, Not Shortages—Yet

It's worth emphasizing that the intention of this report is not to stoke fear by suggesting that the semiconductor supply chain is careering toward another shortage. Market data suggests that few, if any, parts are reaching critically low levels at this time. But just because the Nexperia ownership dispute hasn't triggered a shortage doesn't mean it's not impacting the market in other consequential ways.

In a five-week span, inventory for Nexperia parts and their crosses among authorized distributors have declined significantly, while supplies among independent brokers have surged. This suggests that market dynamics are changing quickly, and more price fluctuations could be on the horizon. In order to proactively mitigate potential costs and maintain supply chain resilience, firms need to take decisive, data-informed action.

Z2Data recommends that businesses start or continue to secure available Nexpeira inventory, while also moving swiftly to qualify alternative parts from manufacturers like Diodes Incorporated, Infineon, onsemi, and Texas Instruments. This crisis also underscores the importance of multisourcing, as companies that were sourcing from multiple suppliers when this crisis materialized were able to draw on their unaffected manufacturers when Nexperia components stopped shipping out of China.

Manage Your Risk with Z2Data

Z2Data's SCRM platform offers a number of features to help companies effectively navigate supply chain disruptions like the Nexperia ownership dispute:

- Z2Data's Part Risk Manager tool allows companies to see inventory across all distributors, including both authorized and independent.
- Z2Data's Cross Engine can search for the best available crosses to Nexperia parts.
- Z2Data's Supply Chain Watch uses continuously updated part-to-site mapping to show users which of the parts they source are being manufactured in China. This sheds a crucial light on the components most vulnerable to the dramatic state of affairs Nexpeira is currently embroiled in.

To learn more about Z2Data and how the SCRM platform can help you effectively mitigate this growing supply chain risk, schedule a demo with one of our product experts. You can also contact your Z2Data representative or email us at info@z2data.com.

Schedule a Demo