

**Diodes Inc (DIOD – \$60.12)**
**September 24, 2024\***

Diodes Inc (DIOD) manufactures and supplies application-specific standard products within the discrete, logic, analog, and mixed-signal semiconductor markets. The Company serves the industrial, automotive, computing, communications and consumer markets. The Company was founded in 1959 and is headquartered in Plano, Texas. Its fiscal year ends on 12/31.

**Thesis Summary**

We are concerned China demand weakness may persist amidst increased Chinese focus on domestic semiconductor production. Tax breaks, component quotas, and certain peer commentary highlighting increased Chinese competition heighten our concerns. Further, we believe 3C market product revenue pressure may persist given fundamentally diminished long-term commodity-type product viability. We believe elevated receivable levels highlight channel inventory may be overbuilt and revenue may be pressured. Our concerns are heightened given (1) guidance for distributor inventory rebalancing to persist, (2) elevated public distributor inventory and receivable levels, and (3) evidence receivables due from Diodes major distributor customers were materially elevated. In our view, elevated ship and debit allowances and weighted-average sales price declines suggest pricing may be pressured. In our view, inventory may have been materially overbuilt amidst weaker-than-expected demand and margins may be pressured. Specifically, we are concerned elevated finished goods beyond the targeted range and a return to recurrent discounting may highlight elevated margin risk. Further, we are concerned manufacturing capacity may have been overbuilt during the post-pandemic supply shortage era and underutilization may persist as wafer service agreements, a slow demand recovery, and customer hesitance to approve product change notifications may make increased utilization difficult. Accordingly, we believe FY 25 gross margin expectations may be difficult to achieve. Depressed cash flow levels despite strategic dependence on cash flow for growth heightens our earnings sustainability concerns.

**Company Data**

Country/Exchange	US/NASDAQ
Shares Outstanding (mil)	46.3
Float (mil)	44.8
Short Interest (mil)	2.3
% of Float Short	5.1%
Average Volume (mil)	\$24.5
52 Week Range	\$58.62 - \$86.74
Dividend Yield	0.0%
Market Cap (bil)	\$2.8
Net Cash (bil)	\$0.2
Enterprise Value (bil)	\$2.6
FY 23 Rev (mil)/Rev Growth	\$1,661.7 / (16.9%)
FY 23 EBITDA (mil)	\$404.2
FY 23 GM %/Change	39.6% / (170 bps)
FY 23 EBITDA Margin %/Chg	24.3% / (170 bps)

**Valuation (as of report date)**

NTM P/S	1.9x
NTM EV/ EBITDA	10.4x
NTM P/E	26.1x

**Consensus Estimate Drift**

	EST	1M Ago	6M Ago	1YR Ago
Q3 24 Rev	\$346.8	\$346.6	\$363.1	\$484.4
FY 24 Rev	\$1,321.7	\$1,325.5	\$1,380.7	\$1,813.1
FY 25 Rev	\$1,554.0	\$1,554.0	\$1,589.5	\$1,950.0
Q3 24 EPS	\$0.42	\$0.42	\$0.73	\$1.68
FY 24 EPS	\$1.54	\$1.56	\$2.28	\$5.80
FY 25 EPS	\$3.20	\$3.20	\$3.84	\$6.25

**Peers Mentioned In This Report**

NXP Semiconductors NV (NXPI)
Renesas Electronics Corporation (RNECY.PK)
Texas Instruments (TXN)

**Catalysts and Timing**

Weak Q3 24 results and/or weak Q4 24 guidance.
Weak end-market demand and channel inventory destocking drive revenue pressure.
Inventory reductions and underutilization drive margin pressure.
FY 25 gross margin expectations are reduced.

\* All research is completed as of 4:00PM – 4:15PM Eastern Time unless otherwise noted.  
 Please refer to the end of this report for an updated version of *The Short List*.  
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## Company Background

**Company description:** Diodes Inc (DIOD) manufactures and supplies application-specific standard products within the discrete, logic, analog, and mixed-signal semiconductor markets. The Company serves the industrial, automotive, computing, communications and consumer markets. The Company was founded in 1959 and is headquartered in Plano, Texas. Its fiscal year ends on 12/31.

**Background on manufacturing:** On its Raymond James Technology Investors Conference Call on 12/09/20, the Company represented it had a hybrid manufacturing model with about half of its wafer capacity sourced internally and half sourced through third parties. In its FY 23 10K, Diodes disclosed it acquired wafer fabrication facilities in Greenock, UK (GFAB) in FY 19 and South Portland, ME (SPFAB) in FY 22 to expand wafer capacity for the automotive and industrial markets in particular.<sup>1</sup> In addition, the Company holds wafer fabrication facilities in China and Taiwan and operates assembly and test facilities in China, Taiwan, and Germany with a “significant portion” of its manufacturing capacity in mainland China.

**Revenue by end-user market:** In FY 23, Industrial accounted for 27.0% of revenue, Computing accounted for 23.0%, Automotive accounted for 19.0%, Consumer accounted for 18.0%, and Communications accounted for 13.0%. Industrial applications include embedded systems, precision controls, medical, motor control, and AIoT, among others; Automotive include connected driving, comfort/style/safety, and electrification/powertrain, among others; Computing include cloud computing, AI servers, storage, and data center applications, among others; Consumer include IoT, wearables, home automation, home appliances, and smart infrastructure, among others; and Communications include smartphones, 5G networks, and enterprise networking, among others. Automotive and Industrial have higher margins and longer design cycles and represent a strategic shift in focus for the Company, while Computing, Consumer, and Communications (i.e. the “3C” markets) had lower margins and shorter design cycles.<sup>2</sup>

Revenue By End-User Market Analysis (as % of total)	FY 23
Industrial	27.0%
Computing	23.0%
Automotive	19.0%
Consumer	18.0%
Communications	13.0%
Total	100.0%

**Revenue by customer type:** In FY 23, distributors accounted for 68.1% of revenue while direct sales and EMS customers accounted for 31.9%. In its FY 23 10K, the Company disclosed it had over 50,000 customers comprised of direct sales customers, electronic manufacturing service (EMS) providers, and distributors. Direct sales customers used Diodes’ products in their manufacturing process while distributors resold the products to third parties. In FY 23, two customers, both “broad-based” distributors, comprised 10.0% or more of revenue.

<sup>1</sup> The Company acquired GFAB from Texas Instruments (TXN) and SPFAB from ON Semiconductor Corp (ON).

<sup>2</sup> In its FY 23 10K, the Company disclosed product applications with short design cycles included IoT, wearables, home automation, and smart infrastructure, portables such as smartphones, tablets and notebooks; other consumer electronics and computing devices (i.e. 3C market applications).

Revenue By Customer Type Analysis (revenue by customer type as % of total)	FY 23
Distributor	68.1%
Direct	31.9%
Total	100.0%

**Background on revenue recognition:** In its FY 23 10K, the Company disclosed it recognized revenue when control was transferred, generally upon shipment or delivery to the customer or distributor, with the “vast majority” of revenue accounted for at a point in time. Revenue was recognized net of allowances for ship and debit reserves, stock rotation reserves, price protection reserves, accounts receivable reserves, and product returns.

**Revenue by geography:** In FY 23, Asia accounted for 71.1% of revenue, Europe accounted for 17.3%, and the Americas accounted for 11.6%. In addition, China revenue accounted for 42.4% of revenue.

Geography Analysis (as % of revenue)	FY 23
Asia	71.1%
Europe	17.3%
Americas	11.6%
Total	100.0%

**Seasonality:** Over the past three years, average Q1 revenue contribution as a percent of total revenue was 25.0%, Q2 was 25.9%, Q3 was 25.5%, and Q4 was 23.6%. On its Q3 23 Conference Call on 11/08/23, the Company indicated volatile demand made seasonality trends less pronounced in recent periods. In its FY 23 10K, the Company represented Q4 was “typically” the weakest quarter with additional seasonal weakness in Q1.

I think, Gary, with the market dynamics that's going, I think it's hard to put a seasonality picture any more, right. Just looking at 2023, it is a little bit all over the map, right. (SVP of Marketing Ms. Emily Yang, Q3 23 Conference Call, 11/08/23)

Seasonality Analysis (as % of total)	Q1	Q2	Q3	Q4
FY 23 quarterly revenue contribution	28.1%	28.1%	24.4%	19.4%
FY 22 quarterly revenue contribution	24.1%	25.0%	26.1%	24.8%
FY 21 quarterly revenue contribution	22.9%	24.4%	26.1%	26.6%
Three-year-average	25.0%	25.9%	25.5%	23.6%

**Competition:** In its FY 23 10K, Diodes characterized the discrete, logic, analog, and mixed-signal semiconductor markets as “highly” fragmented and competitive. Further, Diodes disclosed “some” of its larger competitors included Infineon Technologies AG (IFXGn.DE), Seiko Epson Corp (SEKEY.PK), Kyocera Corp (KYOCY.PK), Nexperia (private), NXP Semiconductors NV (NXPI), ON Semiconductor Corp (ON), Renesas Electronics Corporation (RNECY.PK), Texas Instruments (TXN), and Vishay Intertechnology, Inc (VSH), of which “many” had greater financial, marketing, distribution, brand name recognition, research and development, manufacturing, and other resources.

## Voyant's Earnings Risk Assessment

We are concerned China demand weakness may persist amidst increased Chinese focus on domestic semiconductor production. Tax breaks, component quotas, and certain peer commentary highlighting increased Chinese competition heighten our concerns. Further, we believe 3C market product revenue pressure may persist given fundamentally diminished long-term commodity-type product viability. We believe elevated receivable levels highlight channel inventory may be overbuilt and revenue may be pressured. Our concerns are heightened given (1) guidance for distributor inventory rebalancing to persist, (2) elevated public distributor inventory and receivable levels, and (3) evidence receivables due from Diodes major distributor customers were materially elevated. In our view, elevated ship and debit allowances and weighted-average sales price declines suggest pricing may be pressured. In our view, inventory may have been materially overbuilt amidst weaker-than-expected demand and margins may be pressured. Specifically, we are concerned elevated finished goods beyond the targeted range and a return to recurrent discounting may highlight elevated margin risk. Further, we are concerned manufacturing capacity may have been overbuilt during the post-pandemic supply shortage era and underutilization may persist as wafer service agreements, a slow demand recovery, and customer hesitance to approve product change notifications may make increased utilization difficult. Accordingly, we believe FY 25 gross margin expectations may be difficult to achieve. Depressed cash flow levels despite strategic dependence on cash flow for growth heightens our earnings sustainability concerns.

### China Domestic Semiconductor Development Efforts May Pressure Revenue, In Our View

**Background on China analysis:** In FY 23, products shipped to China comprised 42.4% of revenue. On its TD Cowen Technology Media Telecom Conference Call on 05/30/24, the Company disclosed it derived between 50.0% and 75.0% of China revenue from “transfer business[es]” (i.e. international companies with manufacturing sites located in China but not considered “local” revenue). While we acknowledge certain China revenue may relate to transfer businesses, given China historically comprised a portion of revenue in excess of 50.0% (discussed herein), we believe China revenue may provide insight into local Chinese demand.

**Chinese efforts to reduce dependence on US companies highlighted as a risk factor:** In its FY 23 10K, the Company disclosed in addition to ongoing issues with tariffs, China had been stepping up efforts to design and manufacture semiconductors domestically to reduce dependence on US companies. Specifically, China cancelled corporate taxes for certain domestic Chinese companies for two years to support the transition to semiconductor self-sufficiency.

In addition to the ongoing issues regarding tariffs, China has been stepping up efforts to design and manufacture semiconductors itself rather than buy from U.S. companies, amid fears that sanctions might cripple its high-tech industry. U.S. restrictions on exports to Chinese telecoms equipment makers have sharpened Beijing's focus on semiconductor self-sufficiency. China's ministry of finance announced tax breaks “to support the development of integrated circuit design and the software industry,” cancelling corporate taxes for some domestic Chinese companies for two years. (FY 23 10K)

**China demand weakness may persist amidst increased focus on domestic Chinese production:** In FY 23, China revenue declined 25.1% year-over-year to \$704.8 million while revenue declined 16.9% to \$1,661.7 million. Accordingly, China revenue as a percent of total declined 470 basis points to 42.4%, the lowest level in at least five years. On its Q4 23 Conference Call on 02/08/24, the Company disclosed the Chinese demand recovery was “slower than anybody's expectations.” Further, on its TD Cowen Technology Media Telecom Conference Call on 05/30/24, the Company guided for more “intensified competition” in China resulting from certain Chinese semiconductor self-sufficiency efforts. **While we acknowledge the FY 23 10K risk factor related to Chinese focus on domestic semiconductor production was not new, we believe the recent China weakness and commentary highlighting more intense domestic competition suggests Chinese domestic semiconductor competition increased.**

I think you're going to get competition no matter where, but, of course, **you get more intensified competition from China because of government subsidy**, because of promotion going on and stuff like

that. (SVP of Marketing Ms. Emily Yang, TD Cowen Technology Media Telecom Conference Call, 05/30/24) [emphasis added]

China Revenue Analysis (\$ in millions)	FY 19	FY 20	FY 21	FY 22	FY 23
China revenue	\$633.8	\$649.9	\$938.1	\$941.3	\$704.8
<i>Change</i>	<i>(4.3%)</i>	<i>2.5%</i>	<i>44.3%</i>	<i>0.3%</i>	<i>(25.1%)</i>
China % of total revenue	50.7%	52.9%	52.0%	47.1%	42.4%
<i>Change</i>	<i>(380 bps)</i>	<i>220 bps</i>	<i>(90 bps)</i>	<i>(490 bps)</i>	<i>(470 bps)</i>

**Chinese component quotas highlighted to increase dependence on product differentiation:** On its Q1 24 Conference Call on 05/09/24, in response to an analyst question highlighting potential demand pressure from Chinese domestically sourced component quotas, the Company represented “strong” product differentiation was key to minimizing competitive pressures and indicated it focused on differentiation “specifically” in China. On its Q2 24 Conference Call on 08/08/24, Diodes represented as long as it introduced new differentiated products and “walk[ed] away” from deep commodity products (i.e. generally standardized, non-premium 3C market products, discussed herein), the Company would continue to see a strong “path” in China. We are concerned Chinese domestic semiconductor company quotas may exacerbate China competitive pressure.

**Analyst:** Are you seeing any demand impacts in the China region, specifically from some of the domestically-sourced component quotas that they’ve initiated?

**SVP of Marketing Ms. Emily Yang:** Yeah, I mean, definitely we talk about the competition from China directly or indirectly related to the quota right. So, I think at the end of the day, if our product doesn't really have a strong differentiation, if it's not the feature functions and then we're ending up with a lot of competitors from the other regions, these products and also business will face or continue to face a lot of challenge, right. So, our strategy specifically in China has been more focusing on the technology and the product differentiation. (Q1 24 Conference Call, 05/09/24)

**Peer commentary highlighting increased China competition heightens our concerns:** Throughout the course of our research, we identified certain peer commentary related to increased Chinese competition. We have included certain commentary below:

- **Renesas Electronics guided for China competition to become “stronger”:** On its Q2 24 Conference Call on 07/24/24, Renesas Electronics Corporation (RNECY.PK) guided for local Chinese suppliers’ competitiveness to become “stronger.” Specifically, it represented certain pricing pressure related to excess competitor capacity was “very aggressive.” Further, Renesas guided to increase focus on certain areas of strength even if it loses “some share” to local competitors.

But going forward, the local suppliers' competitiveness is going to become stronger. And our customers in applications, so in the short-term, they tend to have excess capacity and go into very aggressive price competition, and we are continuously seeing that trend and the pricing pressure coming from that situation is becoming stronger. (RNECY.PK CEO Mr. Hidetoshi Shibata, Q2 24 Conference Call, 07/24/24)

- **Texas Instruments commentary suggests certain product replication increased China competition:** On its Citi Global TMT Conference Call on 09/05/24, Texas Instruments (TXN) represented China took “high runner” products and replicated such products pin-to-pin to “win socket.” Texas Instruments guided to respond by improving product margins.

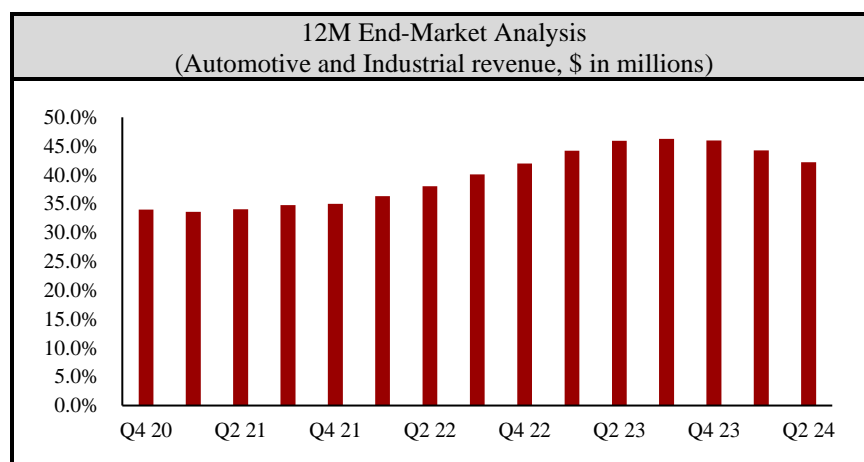
The competition, let's say, China would take a high runner from TI and do it pin to pin, replicate to try to win socket. That's what they do. And to do that, you have to have an answer. And the answer is, well, you have to make – we want to make good margins on these sockets as well. (TXN CEO Mr. Haviv Ilan, Citi Global TMT Conference Call, 09/05/24)

- **NXP commentary suggests Chinese Automotive competition may have increased:** On its Goldman Sachs Communcopia Technology Conference Call on 09/10/24, NXP Semiconductors NV (NXPI) characterized the Chinese Automotive market as “more competitive” but indicated most of the competition came from its Western peers. Further, it represented there were Chinese startups of “material size” and Chinese foundries in the discrete chip market.

I think, the OEMs are trying to figure out how they navigate a more competitive Chinese auto market as well as a western market that has not embraced EVs as wholeheartedly as some of their Chinese competitors. (NXPI VP of Investor Relations Mr. Jeff Palmer, Goldman Sachs Communcopia Technology Conference Call, 09/10/24)

### **Mix Shift May Have Been Driven By Diminished Long-Term 3C Market Viability**

**Mix shifted toward Automotive and Industrial end-markets in recent periods:** Previously, on its Q1 23 Conference Call on 05/09/23, the Company guided to convert capacity from 3C to Automotive and Industrial to support its long-term strategy. In the twelve months ended Q2 24, Automotive and Industrial revenue as a percent of total declined 370 basis points year-over-year to 42.2% from an elevated base. In its Q2 24 10Q, the Company guided to focus on high-margin Automotive and Industrial markets. In its Q2 24 Earnings Presentation, the Company highlighted the Automotive and Industrial markets as growth drivers.



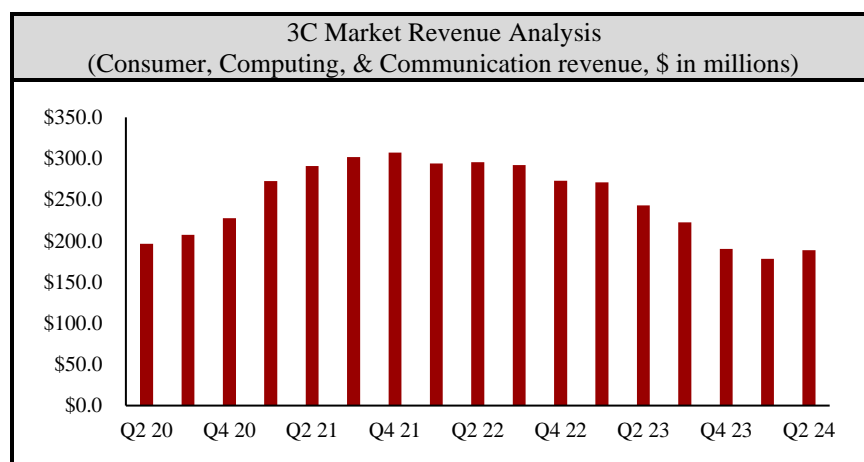
**Mix shift may have been driven by increased competitive pressure and diminished 3C product viability:** As mentioned, the Company disclosed “strong” product differentiation minimized competitive pressure and guided to walk away from deep commodity products which faced greater competitive and pricing pressure, particularly in China. Previously, on its Q1 23 Conference Call, the Company represented commodity-type products primarily comprised 3C market products. Specifically, Diodes indicated it was “getting away” from commodity-type products even if the Consumer or 3C markets recovered and guided to focus 3C market efforts more on high-end products including PC data center, IoT, and 5G products. We believe the strategic shift to Automotive and Industrial may have been driven by increased competitive pressure and diminished long-term commoditized 3C product viability rather than opportunistic market share capture. Accordingly, we are concerned revenue pressure may persist to the extent commodity product pressures continue and/or Diodes is unable to sufficiently differentiate products.

And even the Consumer or 3C market come back, I think Emily mentioned about, we are getting away from the commodity -- deep commodity type of products. So, we are carefully to grow our 3C market more concentrate on the high-end PC data center, IoT and the 5G type of Communication products. Therefore, if you look at, we intentionally get away from the commodity or deep commodity products and compete the price competition. (CEO Mr. Keh-Shew Lu, Q1 23 Conference Call, 05/09/23)

**Weak demand despite improved channel inventory heightens our 3C revenue pressure concerns:** In Q2 24,

estimated 3C market revenue declined 22.3% year-over-year to \$188.7 million, the second lowest level in at least four years (lowest was Q1 24). On its Q2 24 Conference Call, the Company disclosed Computing channel inventory was “healthy,” Consumer channel inventory was “relatively clean,” and Communication channel inventory was mixed (smartphone was “clean” but enterprise communication remained elevated), but indicated Communication and Consumer demand was lower-than-expected. While we acknowledge weak 3C demand may be attributable to broader market weakness, given (1) demand remained lower-than-expected despite improved channel inventory, (2) commentary highlighting commodity products faced outsized competitive pressure, and (3) guidance to move away from certain 3C markets, we are concerned certain persistent 3C weakness may reflect fundamentally reduced demand for Diodes’ 3C products and our revenue pressure concerns are heightened.

**But at 3C, that's the area we especially, I always say those commodity, the commodity, we don't want to compete.** And therefore, we intentionally want to decrease that area of the channel inventory. (CEO Mr. Keh-Shew Lu, Q1 23 Conference Call, 05/09/23) [emphasis added]



### Receivable Level Surge Highlights Overbuilt Channel Inventory & Revenue Pressure Risk

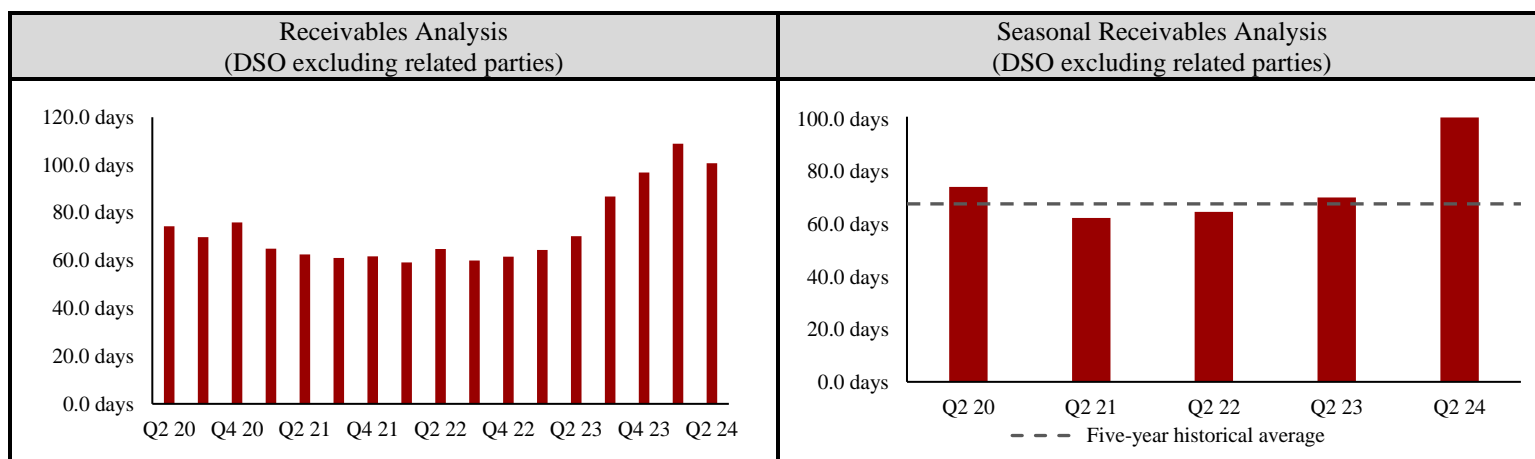
**Background on related parties and receivable analysis:** In its 10Qs and 10Ks, Diodes discloses revenue and accounts receivable attributable to related parties. In its Q2 24 10Q, Diodes disclosed it conducted business with related parties including Keylink International Inc (private), Nuvoton Technology Corporation (4919.TW), Jiyuan Crystal Photoelectric Frequency Technology Ltd (private), and Atlas Magnetics Co (private). In Q2 24, Keylink comprised 97.7% of related party revenue and 99.9% of related party accounts receivable. Based on representations made to us by Diodes, we believe Diodes sells work-in-process inventory to Keylink and repurchases the inventory upon completion. In addition, certain sales to Keylink are not recorded as revenue on the income statement but are included in receivables.<sup>3</sup> Accordingly, given related parties (and Keylink in particular) may not be fully indicative of trade revenue and receivables, we analyzed DSOs excluding accounts receivable and revenue attributable to related parties.

<sup>3</sup> Throughout the course of our research, we communicated with the Company’s investor relations team. We appreciate their timely and thorough response to our inquiries.

DSO Excluding Related Parties Analysis (\$ in millions)		Q2 24
Accounts receivable		\$385.0
Related party accounts receivable		\$32.4
Accounts receivable excluding related parties (Voyant Estimate)		\$352.6
Revenue		\$319.8
Related party revenue		\$1.3
Revenue excluding related parties (Voyant Estimate)		\$318.5
Days in period		91.0
DSO excluding related parties (Voyant estimate)		100.7 days

**Elevated receivable levels highlight elevated channel inventory and revenue sustainability risk, in our view:**

In Q2 24, receivables excluding related parties declined 1.6% to \$352.6 million while revenue excluding related parties declined 31.4% to \$318.5 million. Accordingly, DSO excluding related parties surged 43.4% year-over-year to 100.7 days, the highest seasonal level in at least five years. In its Q2 24 10Q, the Company attributed accounts receivable cash consumption to stronger Q2 24 revenue. We believe elevated DSOs may highlight customer payment term extensions, collection challenges, and/or elevated distributor inventory. Accordingly, we are concerned revenue quality may have deteriorated and/or revenue sustainability risk may be elevated. Our concerns are heightened given commentary highlighting persistently elevated channel inventory (discussed next).



**Guidance for inventory rebalancing to persist heightens our revenue pressure concerns:** On its Q2 24 Conference Call, the Company disclosed while channel inventory improved sequentially, it remained above the “normal” range of 11.0 to 14.0 weeks.<sup>4</sup> On its Q2 24 Conference Call, Diodes guided for Automotive and Industrial distributor inventory rebalancing to continue into Q3 24 despite “some improvement” and enterprise communication inventory rebalancing to persist into H2 24. In addition, while the Company highlighted generally “healthy” 3C distributor inventory levels, it indicated there was slower-than-expected demand in the Consumer and Communications end-markets in the quarter. Given channel inventory remained elevated beyond the targeted range and the Company guided for inventory rebalancing to continue amidst certain weaker-than-expected demand, our revenue sustainability concerns are heightened.

We have a strong POS growth and we also have a decrease in terms of channel inventory. And it's still higher than our defined normal range of **11 to 14 weeks**. So, we actually definitely want to continue to focus the POS growth for the third quarter and continue to drive the channel inventory down to the normal

<sup>4</sup> The Company has disclosed channel inventory above its targeted 11.0 to 14.0 week range in all quarters since Q4 22 except Q2 23.

level. (SVP of Marketing Ms. Emily Yang, Q2 24 Conference Call, 08/08/24) [emphasis added]

**Elevated public distributor inventory and receivable levels heighten our inventory rebalancing concerns:**

Previously in its FY 19 10K, Diodes disclosed distributor customers included Arrow Electronics Inc (ARW) and Avnet Inc (AVT), among others. In our 08/13/24 Nordic Semiconductor ASA *Update Analysis*, we expressed concern elevated Arrow and Avnet inventory and receivable levels may have highlighted weak end-market demand and/or elevated end-market customer inventory level.<sup>5</sup> Accordingly, we were concerned distributor inventory restocking may be limited. To the extent Arrow and Avnet are major Diodes customers and certain elevated inventory relates to Diodes-specific products and/or end-markets, our elevated channel inventory concerns would be heightened.

**Background on major customer receivables analysis:** In its 10Qs and 10Ks, the Company discloses accounts receivable and/or revenue as a percent of total from customers which accounted for greater than 10.0% of the respective total but does not attribute the balances to specific customers. Prior to Q4 23, no customer accounted for over 10.0% of accounts receivable since at least Q2 19. In our analysis below, we assumed the largest disclosed receivables and revenue balances were attributable to the same customer (Distributor A) and calculated a customer-specific DSO accordingly. In the case receivables exceeded 10.0% but revenue did not, we assumed revenue attributable to that customer (Distributor B) was just below 10.0%. Accordingly, we calculated a minimum DSO for certain major customers.

**Elevated major distributor receivable levels may highlight elevated channel inventory:** In its Q2 24 10Q, the Company disclosed two “broad-based” global distributors accounted for 20.4% and 11.8% of accounts receivable, respectively, and one “broad-based” global distributor accounted for 10.6% revenue in the period. In Q2 24, we estimate Distributor A (Distributor B) DSOs were a minimum of 210.8 days (129.3 days), 109.3% (28.3%) above the Company-wide DSO excluding related parties. Given receivables concentration with large distributors materially increased, we are concerned distributor receivables may have aged and/or weak end-market demand pressured distributor sell-through. Accordingly, our elevated channel inventory concerns are heightened and we believe destocking may persist longer-than-expected.

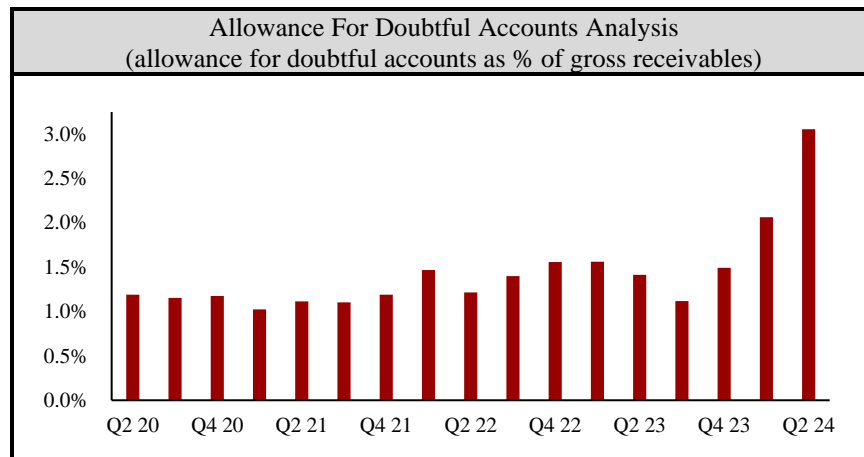
Major Customer Estimated DSO Analysis (\$ in millions)	Q1 24	Q2 24
Distributor A receivables (Voyant estimate)	\$67.7	\$78.5
Distributor A revenue (Voyant estimate)	\$42.7	\$33.9
Distributor A DSO (Voyant estimate)	144.3 days	210.8 days
Distributor A DSO above / (below) Company-wide DSO (ex. related party)	32.5%	109.3%
Distributor B receivables (Voyant estimate)	--	\$45.4
Maximum distributor B revenue (Voyant estimate)	--	\$32.0
Minimum distributor B DSO (Voyant estimate)	--	129.3 days
Distributor B DSO above / (below) Company-wide DSO (ex. related party)	--	28.3%

**Background on allowance for doubtful accounts:** In its FY 23 10K, the Company disclosed it recorded an allowance for doubtful accounts based on the amount it “reasonably” believed would be collected if it was aware of a specific customer’s inability to pay and on receivable aging for all other customers.

**Allowance for doubtful accounts surge heightens our concerns:** In Q2 24, gross receivables declined 0.4% year-over-year to \$397.1 million while allowance for doubtful accounts surged 115.4% to \$12.1 million. Accordingly, allowance for doubtful accounts as a percent of gross receivables increased 160 basis points to 3.1%, the highest level in at least five years. The Company did not comment on allowance for doubtful accounts levels on its Q2 24

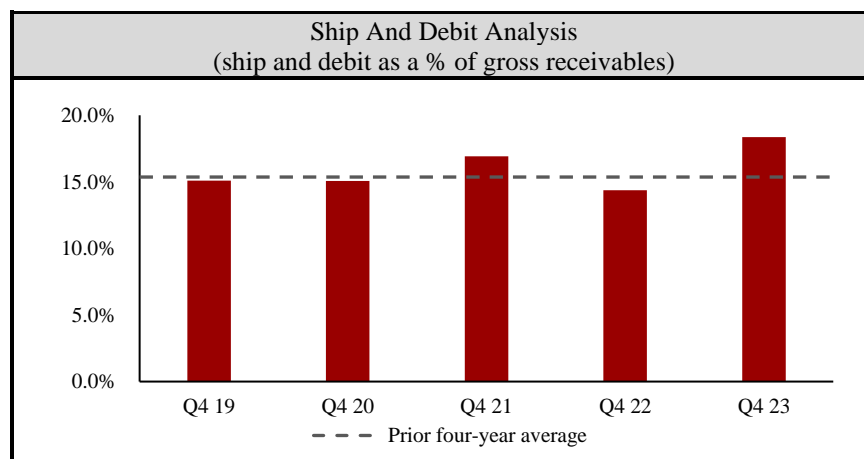
<sup>5</sup> See our Nordic Semiconductor ASA (NOD.OL) 07/22/24 *Comprehensive Analysis* and 08/13/24 *Update Analysis* for Avnet and Arrow inventory/receivable analysis.

Conference Call or Q2 24 10Q. While we acknowledge the allowance level increase may be conservative from an accounting perspective (i.e. the Company already took the charge for uncollectible receivables), we believe the allowance level surge may highlight increased expected credit losses and/or receivable aging. In either scenario, we would be concerned about revenue sustainability risk to the extent future sales to lower quality customers are reduced and/or receivable aging highlights elevated channel inventory.



**Background on ship and debit allowance:** In its FY 23 10K, the Company disclosed it recorded a ship and debit allowance when it issued credits to certain distributors upon their shipments to their end customers. The ship and debit allowance comprised both claims in process and anticipated claims arising from the eventual sale of distribution inventory subject to claims and was recorded as a reduction to revenue.

**Elevated ship and debit allowance suggests pricing may be pressured:** In Q4 23, ship and debit allowance surged 28.6% year-over-year to \$69.3 million while gross receivables increased 0.7% to \$377.6 million. Accordingly, ship and debit allowance increased 400 basis points to 18.4%, the highest disclosed level in five years. In our view, elevated ship and debit allowance levels may suggest there are more pre-approved price discounts in the channel relative to outstanding receivables and distributors may have been and/or are expected to increase discounting to sell-through inventory. Accordingly, we are concerned about pricing pressure amidst elevated channel inventory and/or weak end-market demand.

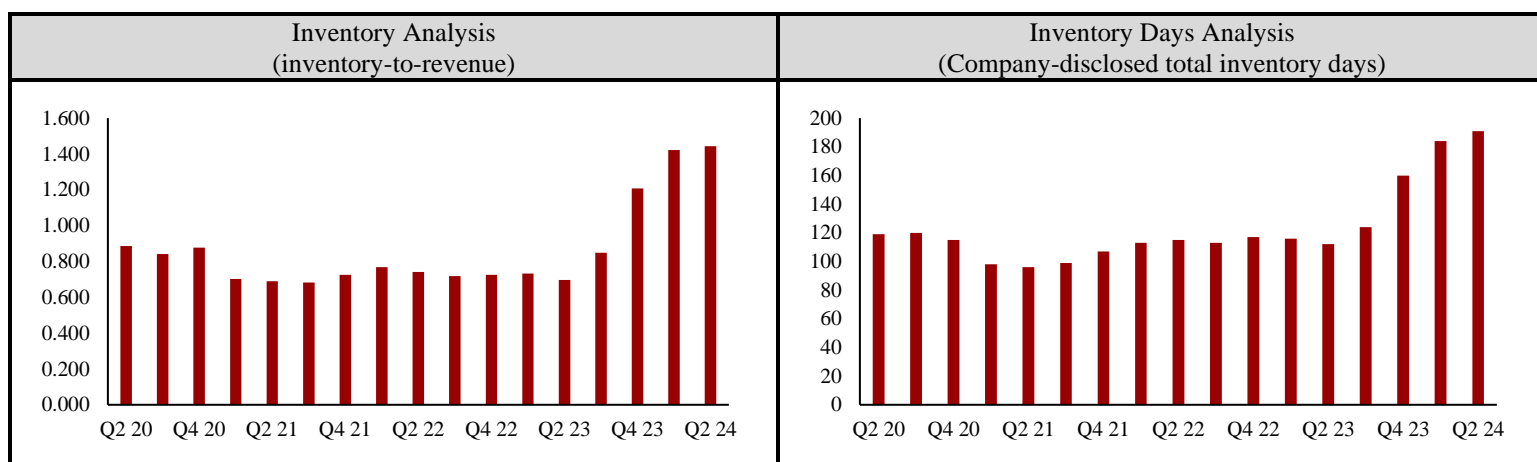


### Inventory May Be Overbuilt Amidst Weak Demand And Margins May Be Pressured

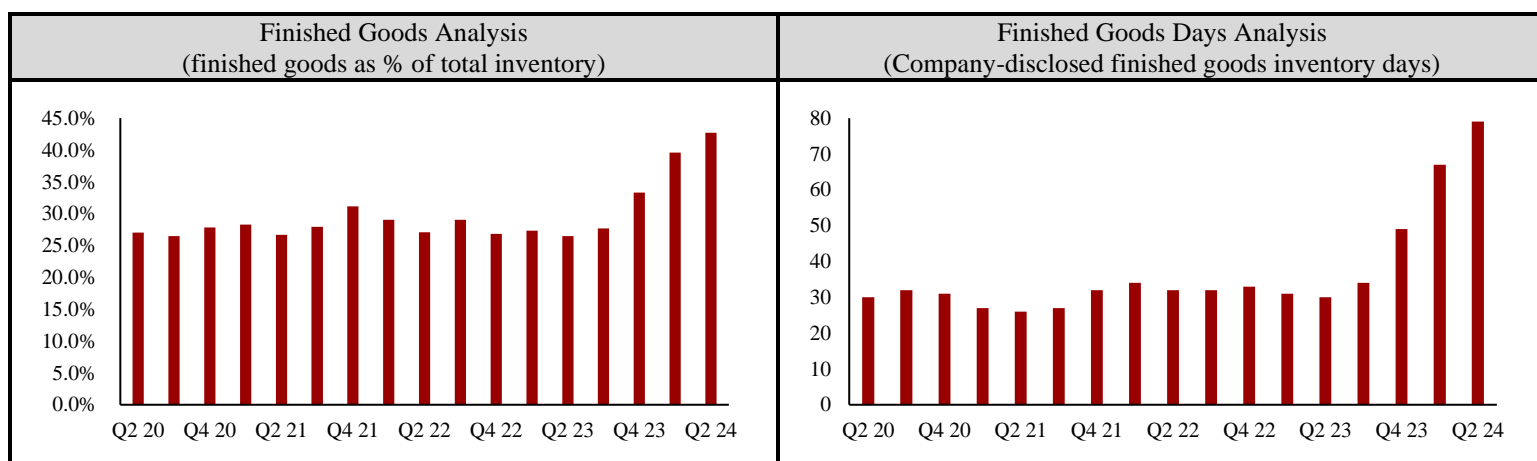
**Elevated inventory levels highlight overbuilt inventory and potential margin pressure, in our view:** In Q2 24, inventory surged 41.7% year-over-year to \$461.5 million while revenue declined 31.5% to \$319.8 million.

Accordingly, inventory-to-revenue surged 107.0% to 1.443, the highest level in at least five years. Further, Company-disclosed inventory days surged 70.5% year-over-year to 191.0 days (i.e. 27.3 weeks), the highest level in at least five years. On its Q2 24 Conference Call, the Company indicated it began seeing “a lot more” urgent, short lead time orders and represented holding higher internal inventory “better position[ed]” it to gain orders and market share. Given inventory levels surged to historically elevated levels despite evidence of above targeted channel inventory, we are concerned the Company may have overbuilt inventory amidst weak demand (discussed heretofore) and margins may be pressured given the Company may be compelled to discount and/or write down inventory (discussed herein).

At the same time because of the dynamic market situation, we also start seeing a lot more urgent orders or short lead time orders. And in order for us to better serve our customers, it also feels like a little bit higher channel inventory or internal inventory actually better positions us and gives us the flexibility to gain just quick order and market share. (SVP of Marketing Ms. Emily Yang, Q2 24 Conference Call, 08/12/24)

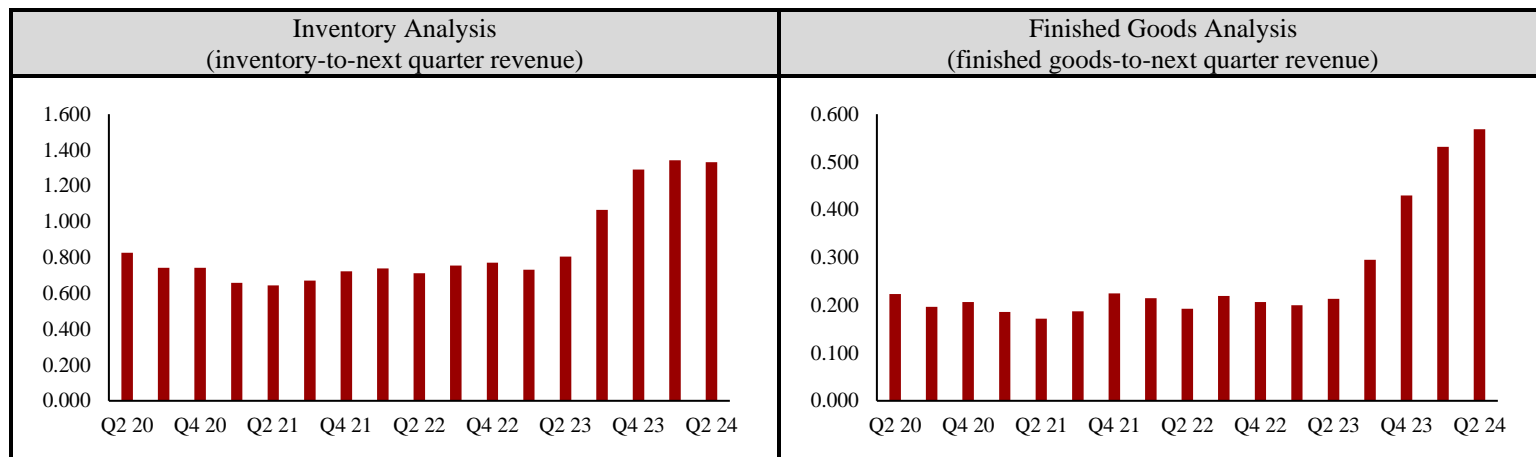


**Elevated finished goods levels heighten overbuilt inventory concerns:** In Q2 24, finished goods as a percent of inventory increased 1,620 basis points year-over-year to 42.7%, while Company-disclosed finished goods days surged 163.3% to 79.0 days, both the highest level in at least five years. In its Q2 24 10Q, the Company represented it built finished goods to improve product availability in a “dynamic” market. Given finished goods levels surged amidst weak demand (discussed heretofore), our concerns inventory may have been overbuilt are heightened.



**Elevated inventory may not be rationalized by expected demand:** In Q2 24, inventory (finished goods) surged 41.7% (128.4%) year-over-year to \$461.5 million (\$197.1 million) while the consensus expects next quarter revenue (consensus expectations as of the date of this publication) to decline 14.3% to \$346.8 million. Accordingly, inventory-to-next quarter expected revenue surged 65.4% to 1.331, the second highest level in at least five years

(highest was Q1 24) and finished goods-to-next quarter revenue surged 166.5% to 0.568, the highest level in at least five years. Given inventory, specifically finished goods, levels were elevated relative to next quarter expected revenue, we believe the inventory surge may not be rationalized by expected demand and the inventory build to ensure availability may have been excessive.



**We have the following observations about inventory levels:**

**1. Sequential Q2 24 inventory build contrary to guidance per Q1 24 Conference Call heightens our concerns:**

Previously, on its Q1 24 Conference Call, the Company represented it did not “expect” to build inventory in Q2 24 and guided to maintain inventory at the level of expected demand. In Q2 24, inventory increased 7.5% sequentially to \$461.5 million. Given inventory increased contrary to guidance, our concerns the Company overbuilt inventory amidst weaker-than-expected demand and margins may be pressured are heightened.

And as we look out in the second quarter, what we expect is essentially to be running at a level of what we expect demand to be. **I don't expect to be building inventory internally.** (CFO Mr. Brett Whitmire, Q1 24 Conference Call, 05/09/24) [emphasis added]

Inventory Analysis (\$ in millions)	Q1 24	Q2 24
Inventory	\$429.4	\$461.5
<i>Sequential change</i>	<i>10.2%</i>	<i>7.5%</i>

**2. Finished goods days beyond targeted range heighten our margin pressure concerns:** Previously, on its Q1 24 Conference Call, the Company guided to maintain six to eight weeks of finished goods “for some period of time” to ensure availability. In Q2 24, Company-disclosed finished goods days surged 17.9% sequentially to 79.0 days (i.e. 11.3 weeks), the highest level in at least five years and 3.3 weeks over the high end of the targeted range of 6.0 to 8.0 weeks. Given finished goods days surged materially beyond the targeted range for the second consecutive quarter, our overbuilt inventory concerns are heightened.

And so, what we've done across this period, and you can see it the last couple of quarters is, as we start to get a feeling that we're coming out, seeing light at the end of the tunnel, making sure we're in a position that from availability within that **6 to 8 weeks**, we want to have a reasonable mix of product off the shelf. (CFO Mr. Brett Whitmire, Q1 24 Conference Call, 05/09/24) [emphasis added]

Finished Goods Weeks Analysis	Q1 24	Q2 24
Finished goods weeks (Voyant estimate)	9.6	11.3
<i>Above (below) high end of targeted range</i>	<i>1.6 weeks</i>	<i>3.3 weeks</i>

**3. Return to recurrent discounting amidst weak demand heightens our margin pressure concerns:** In its FY 23 10K, the Company disclosed prices tended to decline over its products’ life cycle as its products depended “heavily” on end-product life cycles and end-market demand. Further, on its TD Cowen Technology Media Telecom Conference Call on 05/30/24, the Company highlighted it was “going back” to its pre-COVID model of 1.5% to 2.0% quarterly price reductions. Given (1) prices were dependent on end-market product life cycles and demand and (2) the Company represented it was resuming quarterly price reductions, we are concerned historically elevated inventory may portend increased discounting and margin pressure risk to the extent inventory turnover remains slow amidst weak demand.

Before COVID, we actually build in 1.5% to 2% per quarter worth price erosion. We’re really kind of going back to the same model, driving the cost down, manufacturing efficiency to really kind of balance the pressure from the pricing point of view. (SVP of Marketing Ms. Emily Yang, TD Cowen Technology Media Telecom Conference Call, 05/30/24)

**4. Weighted-average sales price decline may highlight price discounts:** Previously, on its Q1 24 Conference Call, the Company represented the mix independent year-over-year weighted-average sales price decline was “pretty small” and “definitely” within the built-in 1.5% to 2.0% estimate (the unadjusted Q1 24 weighted average sales price decline was 27.6%). In its Q2 24 10Q, the Company disclosed the weighted-average selling price declined 19.2% year-over-year, the first seasonal decline in at least four years. Diodes attributed the decline “primarily” to a mix shift due to weaker Automotive and Industrial demand. While we acknowledge the mix shift may have driven the sales price decline, given historically elevated inventory levels and overbuilt channel inventory, we believe the mix shift may not fully rationalize the sales price decline and persistent discounting may pressure margins.

The decline in weighted-average sales price was primarily due to weaker end-user demand in the automotive and industrial markets which collectively comprised 41% and 48% of product revenue for the three months ended June 30, 2024 and 2023, respectively. (Q2 24 10Q)

Weighted-Average Sales Price Analysis (% year-over-year change)	Q2 21	Q2 22	Q2 23	Q2 24
Weighted-average sales price	6.8%	28.1%	9.9%	(19.2%)

## **Margin Pressure May Persist Amidst Overbuilt Capacity & Persistent Underutilization**

**Background on manufacturing:** On its Raymond James Technology Investors Conference Call on 12/09/20, the Company represented it had a hybrid manufacturing model with about half of its wafer capacity sourced internally and half sourced through third parties. In its FY 23 10K, Diodes disclosed it acquired wafer fabrication facilities in Greenock, UK (GFAB) in FY 19 and South Portland, ME (SPFAB) in FY 22 to expand wafer capacity particularly for the Automotive and Industrial markets.<sup>6</sup> In addition, the Company holds wafer fabrication facilities in China and Taiwan and operates assembly and test facilities in China, Taiwan, and Germany with a “significant portion” of its manufacturing capacity in mainland China.

**Background on manufacturing service agreement:** In its FY 23 10K, the Company disclosed in December 2021 it sold a manufacturing subsidiary in China for approximately \$41.5 million of cash and equity.<sup>7</sup> Diodes and the

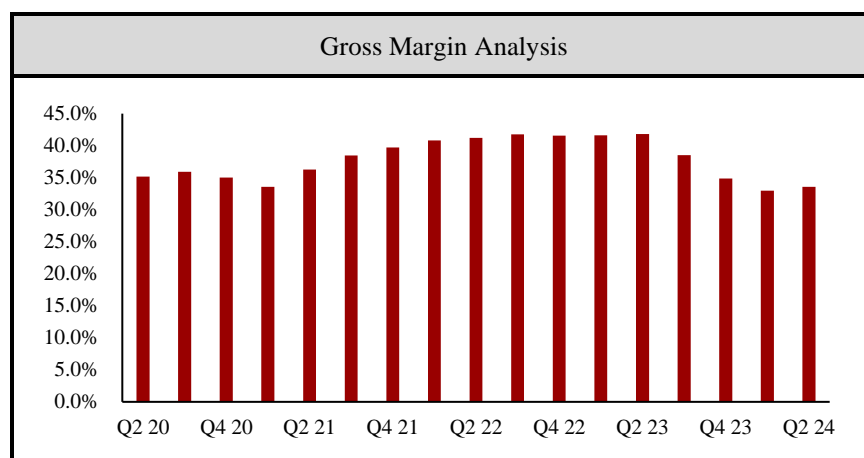
<sup>6</sup> The Company acquired GFAB from Texas Instruments (TXN) and SPFAB from ON Semiconductor Corp (ON).

<sup>7</sup> Cash consideration consisted of \$15.2 million in cash and a \$23.3 million working capital adjustment, while the equity was valued at \$3.1 million, increasing Diodes’ investment in the subsidiary to “approximately” 10.0%.

purchaser of the manufacturing facility entered into an ongoing agreement in which the purchaser would continue to provide wafer-foundry services on a preferential basis to Diodes (i.e. Diodes would buy wafers from the purchaser).

**Margins pressured attributed to utilization rates “significantly” below target:** On its Q1 24 Conference Call, the Company represented utilization rates at its assembly test and wafer fabrication facilities were “significantly below” target (i.e. 40.0% gross margin). In Q2 24, gross margin declined 820 basis points year-over-year to 33.6%, the second lowest level in at least five years and 640 basis points below the target. On its Q2 24 Conference Call, the Company guided to improve margins as loading improved and the Automotive and Industrial markets recovered.

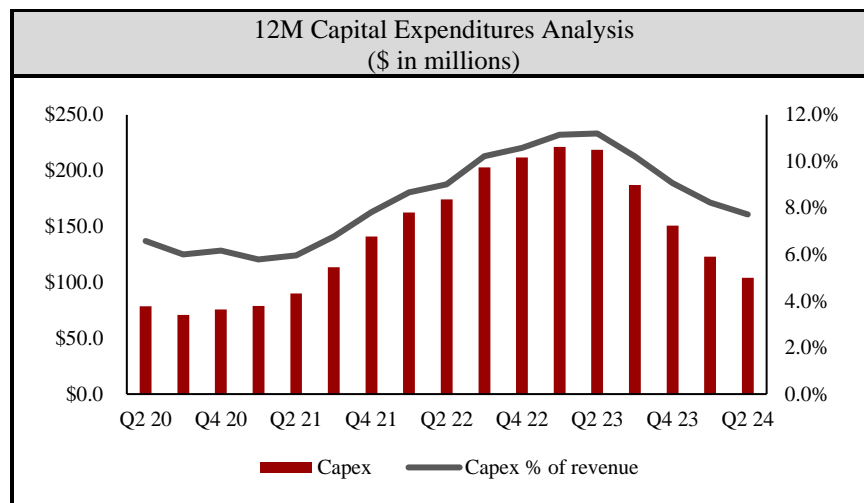
Well, I would say that we haven't really been communicating our utilization rates, but relatively speaking, what I would say is that we like to run our assembly tests in the mid-90s, and we like to run the fabs in the mid-80s, and we're not in that place on either one. **We're significantly below that.** (CFO Mr. Brett Whitmire, Q1 24 Conference Call, 09/16/24) [emphasis added]



**We have the following observations about utilization and potential margin pressure:**

- 1. Diodes may have overbuilt capacity during period of supply shortages:** Previously, on its Q4 21 Conference Call on 02/09/22, the Company represented it took advantage of the supply shortages because it aimed to build “capacity ahead of the demand.” In FY 22, capital expenditures increased 50.0% to \$211.7 million and 280 basis points as a percent of revenue to 10.6%. On its Q4 22 Conference Call on 02/06/23, Diodes highlighted capex exceeded its target model of 5.0% to 9.0% of revenue due to the expansion of its wafer fab in Taiwan (JKFAB). On its Q3 23 Conference Call on 11/08/23, the Company represented it slowed capacity expansions for manufacturing capability, in part, due to internal underloading. While we acknowledge increased wafer capacity may support margins long-term, given (1) prior guidance to build capacity ahead of demand, (2) elevated supply shortage-era capital expenditure levels beyond the targeted range, and (3) persistent commentary regarding internal factory underloading, we are concerned the Company may have overbuilt capacity during the period of supply shortages and utilization rates may remain pressured to the extent demand remains weak.

Our strategy is putting capacity ahead of the demand. So during the downtime, you actually exceed the capacity because the lead time is a common lead time issue. (CEO Mr. Keh-Shew Lu, Q4 21 Conference Call, 09/08/24)



- 2. Wafer service agreements may make internal utilization normalization difficult:** On its Q2 24 Conference Call, Diodes attributed weak near-term gross margin guidance, in part, to factory underloading related to its wafer service agreements. On its TD Cowen Technology Media Telecom Conference Call on 05/30/24, the Company guided to increase internal capacity when the original seller in its wafer service agreement ramped down capacity. Given the Company (1) suggested internal utilization rates were dependent on original supplier capacity and (2) attributed weak margin guidance to underloading related to the agreement, we are concerned margin pressure may persist as required purchases under wafer service agreements make internal facility utilization normalization difficult. Our concerns are heightened given we believe the Company may remain compelled to purchase certain wafer supply in a slower-than-expected demand environment (discussed next).

We still continue to support the original seller with some of the wafers. Unfortunately, that came down faster than what we expected. But, all in all, right, so when they continue to ramp down the capacity or usage, we will have chance to continue to increase our own internal capacity. (SVP of Marketing Ms. Emily Yang, TD Cowen Technology Media Telecom Conference Call, 05/30/24)

- 3. Underutilization may persist amidst slow Automotive and Industrial demand recovery:** On its TD Cowen Technology Media Telecom Conference Call on 05/30/24, the Company guided for a demand recovery to look more like a “U versus a V.” Further, on its Q2 24 Conference Call, Diodes guided for (1) Automotive inventory rebalancing to continue with a “gradual” H2 24 demand recovery and (2) Industrial inventory rebalancing and “slower-than-expected” demand recovery to last into H2 24. Given recently acquired fabs related primarily to Automotive and Industrial production, we are concerned margin pressure may persist amidst weak Automotive and Industrial demand recoveries.

I think the unknown, whether it's going to be a V-shape recovery or it's going to be a U-shaped recovery, right. It looks **more like a U versus a V**, but we're still hopeful, right. (SVP of Marketing Ms. Emily Yang, TD Cowen Technology Media Telecom Conference Call, 05/30/24) [emphasis added]

- 4. Margin pressure may persist as customer hesitance to approve PCN makes increasing loading difficult:** On its Q1 24 Conference Call, the Company represented it needed customers to approve its product change notification (PCN) to change wafer fabs and increase loading at its recently acquired fabs. However, the Company represented customer willingness to change was “much lower” given the soft demand environment, but clarified internal collaboration was “very good.” To the extent customer hesitance to accept wafer fab changes makes increasing loading at recently acquired manufacturing facilities difficult, we would be concerned margin pressure may persist.

At the same time, we do need to have our customers to approve our PCN to change wafer fab. That takes a little bit longer time. Now especially after COVID and demand softening at this moment, the customer willingness to change – the PCN or change to different wafer fab at our site will be much lower than the

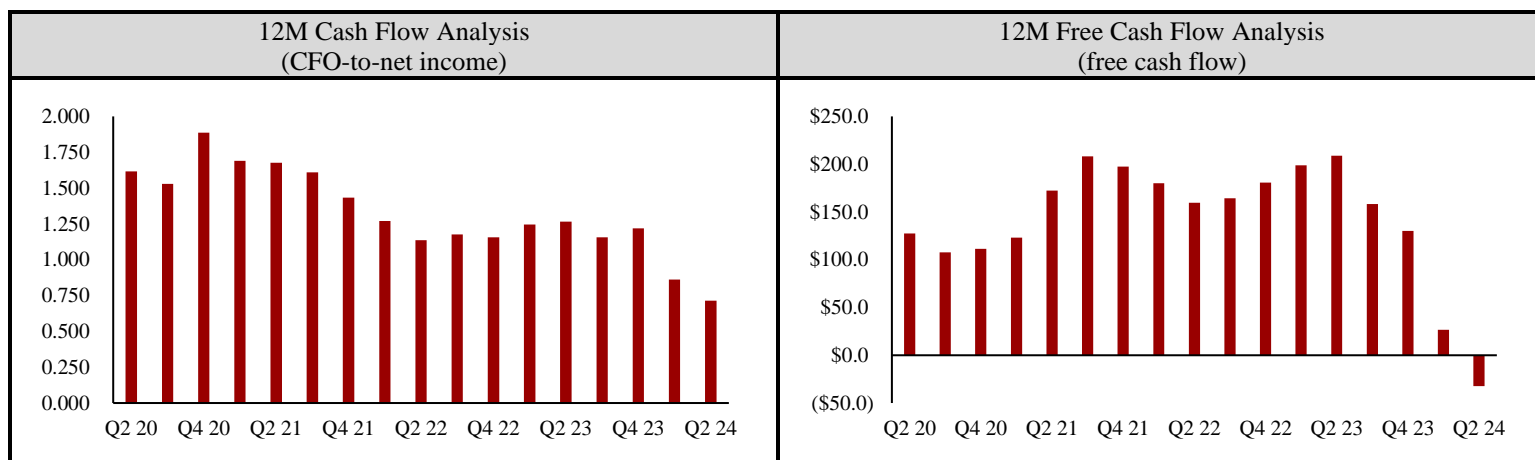
time we had shortage area, okay, this is what you need to understand. But so far our progress, internal collaboration is very good and we do see some project ahead of our original schedule as I can tell you at this point. (President Mr. Gary Yu, Q2 24 Conference Call, 08/08/24)

**FY 25 gross margin expectations may be difficult to achieve, in our view:** As of the date of this publication, the consensus expects FY 24 gross margin to decline 580 basis points year-over-year to 33.8% and FY 25 gross margin to increase 230 basis points to 36.1%. Given (1) historically elevated inventory and weak end-market demand guidance amidst elevated channel inventory, (2) evidence of pricing pressure, and (3) capacity underutilization may persist longer-than-expected, we believe FY 25 gross margin expansion expectations may be difficult to achieve.

Gross Margin Analysis	FY 20	FY 21	FY 22	FY 23	FY 24 E	FY 25 E
Gross margin	35.1%	37.1%	41.3%	39.6%	33.8%	36.1%
Change	(220 bps)	200 bps	420 bps	(170 bps)	(580 bps)	230 bps

### Historically Depressed Cash Flow Levels Highlight Elevated Earnings Sustainability Risk

**Depressed cash flow levels highlight elevated earnings sustainability risk, in our view:** In the twelve months ended Q2 24, cash flow from operations (CFO) declined 83.2% year-over-year to \$71.7 million while net income (capital expenditures) declined 70.3% (52.4%) to \$100.4 million (\$104.1 million). Accordingly, CFO-to-net income declined 43.5% to 0.715 and free cash flow declined \$241.3 to negative \$32.4 million, the lowest levels in at least five years. In addition, working capital consumed \$150.1 million of cash in the period. In our view, depressed cash flow levels driven, in part, by working capital cash consumption highlight elevated earnings sustainability risk.



**Weak cash flow despite strategic dependence on strong cash flow highlights growth risk:** Previously, on its Q4 23 Conference Call, the Company highlighted strong cash generation enabled it to support growth initiatives that positioned it “well” to benefit as the market improves. In its Q2 24 10Q, the Company represented a “significant” part of its growth strategy involved acquiring companies and businesses. Given the Company highlighted strong cash generation was supportive to growth and acquisitions were a “significant” part of its growth strategy, we are concerned historically depressed cash flow levels may make certain growth initiatives more difficult and our weak cash flow concerns are heightened.

Diodes' strong cash generation has enabled us to maintain investments in support of the future growth and expansion of our business that positions us well as the global market improves throughout the coming year. (SVP of Marketing Ms. Emily Yang, Q4 23 Conference Call, 02/08/24)

## Conclusion

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We are concerned China demand weakness may persist amidst increased Chinese focus on domestic semiconductor production. Tax breaks, component quotas, and certain peer commentary highlighting increased Chinese competition heighten our concerns. Further, we believe 3C market product revenue pressure may persist given fundamentally diminished long-term commodity-type product viability. We believe elevated receivable levels highlight channel inventory may be overbuilt and revenue may be pressured. Our concerns are heightened given (1) guidance for distributor inventory rebalancing to persist, (2) elevated public distributor inventory and receivable levels, and (3) evidence receivables due from Diodes major distributor customers were materially elevated. In our view, elevated ship and debit allowances and weighted-average sales price declines suggest pricing may be pressured. In our view, inventory may have been materially overbuilt amidst weaker-than-expected demand and margins may be pressured. Specifically, we are concerned elevated finished goods beyond the targeted range and a return to recurrent discounting may highlight elevated margin risk. Further, we are concerned manufacturing capacity may have been overbuilt during the post-pandemic supply shortage era and underutilization may persist as wafer service agreements, a slow demand recovery, and customer hesitance to approve product change notifications may make increased utilization difficult. Accordingly, we believe FY 25 gross margin expectations may be difficult to achieve. Depressed cash flow levels despite strategic dependence on cash flow for growth heightens our earnings sustainability concerns.

## Risks to Our Thesis & Valuation

### Improved Guidance, Target Model Achieved, Computing Opportunity & Fab Tailwind

**Guidance for further demand improvement following improved Q2 24 results:** Previously, on its Q1 24 Conference Call, the Company guided for Q1 24 to be “the low point in the cycle.” In Q2 24, revenue increased 5.9% sequentially to \$319.8 million, the first sequential increase since Q3 22, while point-of-sale (i.e. distributor sell-through) increased more than 7.0%. On its Q2 24 Conference Call, the Company guided for Q3 24 revenue to increase 8.2% sequentially, the highest growth in 14 quarters.

We are guiding for strong revenue growth of over 8% at the mid-point, supported by overall POS growth of more than 7% in the second quarter. (President Mr. Gary Yu, Q2 24 Conference Call, 08/08/24)

**Target segment model achieved despite demand weakness:** Previously, on its Raymond James Technology Investors Conference Call on 12/08/21, the Company represented the “ideal” model for high-margin Automotive and Industrial was “above 40.0%” of total revenue. In Q2 24, Automotive and Industrial comprised a combined 41.0% of revenue, the ninth consecutive quarter above the Company’s target model. In its Q2 24 10Q, the Company highlighted it achieved its target model despite a slow recovery due to ongoing inventory adjustments in Automotive and Industrial.

Target Model Analysis	Q2 23	Q3 23	Q4 23	Q1 24	Q2 24
Automotive and Industrial % of revenue	48.0%	45.0%	41.0%	41.0%	41.0%
<i>Above (below) target model</i>	<i>8.0%</i>	<i>5.0%</i>	<i>1.0%</i>	<i>1.0%</i>	<i>1.0%</i>

**Computing business guided to benefit as AI server growth continues:** In Q2 24, Computing revenue increased 10.1% sequentially to \$83.1 million, the first sequential increase since Q3 21. On its Q2 24 Conference Call, the Company attributed the demand improvement to increasing AI server growth and guided the initial traction in Computing design-ins and design wins to continue to expand. Further, Diodes guided for “a lot” more momentum as the “very small” AI server market increased as a percent of the overall server market.

And when the GPU supply continue to improve, right, we actually start getting a lot of momentum on the inquiry as well as a design-ins and design wins and all this will be ramping next year. So, like I said, this is the initial, traction that we’re seeing and we do expect this will continue to expand. (SVP of Marketing Ms. Emily Yang, Q2 24 Conference Call, 08/08/24)

**Hybrid model guided to benefit from increased utilization:** On its TD Cowen Technology Media Telecom Conference Call on 05/30/24, Diodes represented its internal and external factory loading was approximately 50.0% and guided for gross margin to benefit as internal factory loading ramped. On its Q2 24 Conference Call, the Company indicated it made “a lot of progress” getting products qualified in its recently acquired factories and highlighted it had “pretty good confidence” on Automotive and Industrial wafer loading in the future.

And currently, between the internal/external fab utilization point of view, we’re really loading about 50% external and 50% internal, which really means that we actually have potential to continue to ramp up more to our internal factory. (SVP of Marketing Ms. Emily Yang, TD Cowen Technology Media Telecom Conference Call, 05/30/24)

### Valuation Analysis

As of the date of this publication, Diodes’ shares trade at 10.4x next-twelve month enterprise value-to-EBITDA, 15.4% below the peer group average.

Valuation Analysis	NTM EV/EBITDA
Diodes Inc (DIOD)	10.4x
Texas Instruments (TXN)	24.6x
ON Semiconductor Corp (ON)	11.8x
NXP Semiconductors NV (NXPI)	13.0x
Infineon Technologies AG (IFXGn.DE)	8.7x
Renesas Electronics Corporation (RNECY.PK)	8.6x
Vishay Intertechnology, Inc (VSH)	6.8x
Peer group average	12.3x
<i>DIOD above (below) peer group average</i>	<i>(15.4%)</i>

## Disclaimer and Disclosure

This report was produced by Voyant Advisors, LLC (“Voyant”). The following Research Analysts employed by Voyant contributed to this report: Graeme Lazarus, Ryan DesJardin, Andrew Brown, Duran Sulymankhel, and Adam Yribarren. Voyant’s home office is at 15373 Innovation Dr, Suite 365 San Diego, CA 92128. The firm’s home office is where information about the valuations herein are located, unless otherwise indicated in the report.

At the time of this report, Voyant expects to provide updates on a quarterly or semi-annual basis depending on the frequency of when the above company discloses material financial results. We will cease providing updates if we are discontinuing research coverage as disclosed on the front page of this report in the Thesis Summary.

Voyant has not provided previous recommendations concerning the same financial instrument or issuer during the preceding twelve-month period.

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