

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

Date of Report (Date of Earliest Event Reported): September 14, 2022

Odyssey Semiconductor Technologies, Inc.

(Exact Name of Registrant as Specified in its Charter)

Delaware

(State or other Jurisdiction
of Incorporation)

333-234741

(Commission
File Number)

84-1766761

(I.R.S. Employer
Identification No.)

**9 Brown Road
Ithaca, NY 14850**

(Address of Principal Executive Offices)

Registrant's telephone number, including area code: **(607) 351-9768**

N/A

(Former Address of Principal Executive Offices)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Securities registered pursuant to Section 12(b) of the Act: None.

Section 7 – Regulation FD

Item 7.01. Regulation FD Disclosure

On September 14, 2022, Odyssey Semiconductor Technologies, Inc. (the “Company”) published a press release to announce that it had achieved a 1200 volt rating on vertical GaN power field-effect transistors (FETs) and has commenced applying this validated technology to fabricate product samples in the fourth quarter of 2022 for internal and customer evaluations planned through the first quarter of 2023. On the same day, the Company also posted an investor update presentation for the second quarter of 2022 on the Company’s website at <http://www.odysseysemi.com>.

Copies of the press release and the investor update presentation are furnished hereto as Exhibit 99.1 and Exhibit 99.2, respectively. The information contained in this Current Report on Form 8-K (including the exhibits) is being furnished and shall not be deemed “filed” for the purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), or otherwise subject to the liabilities of that Section, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act, except as otherwise expressly stated in such filing.

Section 9 – Financial Statements and Exhibits

Item 9.01. Financial Statements and Exhibits

(d) Exhibits

Exhibit No.	Description
99.1	Press Release dated September 14, 2022
99.2	Odyssey Semiconductor Technologies, Inc. Q2 2022 Investor Update September 2022
104	Cover Pager Interactive Data File, formatted in Inline XBRL document

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, as amended, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Date: September 14, 2022

Odyssey Semiconductor Technologies, Inc.

By: /s/ Mark Davidson
Name: Mark Davidson
Title: Chief Executive Officer



Odyssey Semiconductor Achieves 1200 Volt Rating on Vertical GaN Power Devices

- *On-track to build Gen1 product samples of 650 and 1200 volt power devices in Q4 2022*
- *Validated process for large-scale device fabrication which is being used to package devices planned for completion in Q4 2022*

ITHACA, N.Y., September 14, 2022 – Odyssey Semiconductor Technologies, Inc. (OTCQB: ODII), a semiconductor device company developing innovative high-voltage power switching components based on proprietary Gallium Nitride (“GaN”) processing technology, today announced it reached the stated goal of 1200 volt rating on vertical GaN power field-effect transistors (FETs). The Company is now applying this validated technology to fabricate product samples in Q4 2022 for internal and customer evaluations, planned through Q1 2023.

Recently Accomplished Odyssey Technology Milestones

- Announced today the 1200 volt vertical GaN power device.
- On-track to build Gen1 product samples of 650 and 1200 volt power devices in Q4 2022.
- Validated figures-of-merit for both 650 and 1200 volt power devices that will provide industry- leading efficiency with remarkably low on-resistance at high switching frequencies for reduced solution size.
- Validated process for large-scale device fabrication, currently in use to manufacture product samples.
- Secured commitments from three customers to evaluate Gen1 product samples. Expanded customer engagement is underway to confirm additional customers for product samples.

CEO Commentary

“The importance of Odyssey achieving this milestone of 1200 volt vertical GaN power devices cannot be over-emphasized,” said Mark Davidson, Odyssey’s Chief Executive Officer. “We are emerging from process and materials R&D to delivering products at voltages that lateral GaN can’t practically reach with economics unattainable by silicon carbide. Our vertical GaN products will deliver high power conversion efficiency at almost 10x smaller than a silicon carbide transistor for the same application.”

“We are not just fabricating test structures. We’re building product samples that customers need. Odyssey continues to close new commitments for product samples as customers gain a full understanding of the capabilities of Odyssey’s power devices. The Company is uniquely positioned with the expertise and the IP portfolio to protect it. And with our own foundry in Ithaca, New York, we can innovate quickly and control our ability to supply products to customers,” concluded Davidson.

Mega Trend Movement to High Voltage. 40% CAGR To 2027 For Odyssey’s Addressable Market

The market the Company is pursuing is large and fast growing. Silicon carbide has gained traction in high voltage because traditional silicon can’t deliver the performance and voltage range needed. **Odyssey’s approach to vertical GaN will offer an even greater improvement that existing lateral GaN cannot deliver.** The 650 volt is the larger market today, expected to grow at a 20% compound annual growth rate. The 1200 volt product market segment is expected to grow faster at 63% CAGR and will become the larger market in the second half of this decade. Together, the 650 and 1200 volt power device market is expected to grow to approximately \$5 billion in 2027, a 40% combined CAGR according to Yole, a French company that gathers market statistics.

Customers can request samples of the 650 and 1200 volt vertical GaN power devices at info@odysseysemi.com.

Odyssey Participation in Upcoming Investor Conferences

The Company has previously announced its participation in these investor conferences.

- **Sequire Semiconductor Virtual Conference on September 15, 2022**

Mark Davidson, Odyssey’s Chief Executive Officer, will be featured as an industry expert on a special semiconductor panel discussion to be available for viewing on September 15, 2022 at 12:00 PM ET. In addition, Odyssey’s corporate presentation will be made available for viewing on September 15, 2022 at 12:30 PM ET.

Investors may register to watch the semiconductor panel session and company presentation webcasts on September 15 [HERE](#). The live webcasts and slide presentation can also be accessed on the Company’s Investor Relations website under the Events tab [HERE](#). These webcasts will be available for replay for up to four months.

- **LD Micro Main Event XV Conference in Los Angeles on October 25, 2022**

Odyssey management will be available for one-on-one meetings and will present at the LD Micro Main Event XV Conference at the Luxe Sunset Boulevard Hotel in Los Angeles, California. The investment community may register and request one-on-one meetings with Odyssey on October 25 [HERE](#). Management will present in a group webcast at this event on October 25, 2022 at 11:00 AM PT.

The live webcast and slide presentation can be accessed on the Company’s Investor Relations website under the Events tab [HERE](#). The webcast will be archived on the website for future viewing.

About Odyssey Semiconductor Technologies, Inc.

Odyssey Semiconductor Technologies, Inc. (www.odysseysemi.com), has developed a proprietary technology that is designed to allow for vertical GaN to replace SiC as the emerging high-voltage power switching semiconductor material. Based in Ithaca, NY, the Company owns and operates a 10,000 sq. ft. semiconductor wafer manufacturing facility complete with a mix of class 1,000 and class 10,000 clean space as well as tools for advanced semiconductor development and production. Odyssey Semiconductor also offers a world-class semiconductor device development and foundry service.

Forward-Looking Statements

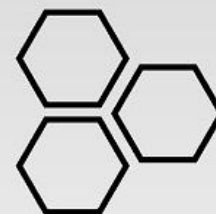
Statements in this press release that are not descriptions of historical facts are forward-looking statements within the meaning of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These forward-looking statements include, but are not limited to, statements about our plans, objectives, forecasts, representations and contentions and are not historical facts and typically are identified by use of terms such as “may,” “will,” “should,” “could,” “expect,” “plan,” “forecast,” “anticipate,” “believe,” “estimate,” “predict,” “potential,” “continue” and similar words, although some forward-looking statements are expressed differently. These forward-looking statements are based on management’s current expectations and assumptions and are subject to risks and uncertainties described more fully in the company’s filings on Forms 10-K and 10-Q and other periodic filings with the Securities and Exchange Commission. Factors that could cause actual results to differ materially from those currently anticipated include, without limitation, risks relating to the results of our research and development activities, including uncertainties relating to semiconductor process manufacturing; the early stage of our GaN-based technology presently under development; our ability to protect our intellectual property rights that are valuable to our business, including patent and other intellectual property rights; our ability to successfully market and sell our technologies; the ability to achieve high volume manufacturing and the size and growth of the potential markets for any of our technologies, the rate and degree of market acceptance of any of our technologies and our ability to raise funding to support operations and the continued development and qualification of our technology.

In light of these risks, uncertainties and assumptions, the forward-looking statements regarding future events and circumstances discussed in this press release may not occur, and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements. You should not rely upon forward-looking statements as predictions of future events. The forward-looking statements included herein speak only as of the date hereof, and we undertake no obligation to update publicly or privately any forward-looking statements for any reason after the date of this release to conform these statements to actual results or to changes in our expectations.

Investor Relations Contact

Darrow Associates
Jeff Christensen
(703) 297-6917
jchristensen@darrowir.com

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Q2 2022 Investor Update

OTCQB: ODII

September 2022

SAFE HARBOR STATEMENT



CAUTIONARY STATEMENT REGARDING FORWARD-LOOKING STATEMENTS

The information contained in this presentation includes some statements that are not purely historical and that are "forward-looking statements" within the meaning of the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Such forward-looking statements include, but are not limited to, statements regarding the Company's and its management's expectations, hopes, beliefs, intentions or strategies regarding the future, including the Company's financial condition and results of operations. In addition, any statements that refer to projections, forecasts or other characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. The words "anticipates," "believes," "continue," "could," "estimates," "expects," "intends," "may," "might," "plans," "possible," "potential," "predicts," "projects," "seeks," "should," "will," "would" and similar expressions, or the negatives of such terms, may identify forward-looking statements, but the absence of these words does not mean that a statement is not forward-looking. The term "Company" in this presentation includes Odyssey Semiconductor Technologies, Inc. and its wholly-owned JRZJ, LLC subsidiary.

The forward-looking statements contained in this presentation are based on the Company's and its management's current judgment, expectations and beliefs, but our actual results, events and performance could differ materially from those expressed or implied by the forward-looking statements. There can be no assurance that future developments actually affecting the Company will be those anticipated. These forward-looking statements involve a number of risks, uncertainties (some of which are beyond the Company's control) or other assumptions described more fully in the company's filings with the Securities and Exchange Commission that may cause actual results or performance to be materially different from those expressed or implied by these forward-looking statements, including those relating to potential fluctuations in our operating results, our possible dependence on a few large customers for a substantial portion of our revenue, a loss of revenue if contracts with the U.S. Government, defense or other major customers are cancelled or delayed, our ability to implement innovative technologies, our ability to bring new products to market, achievement of design wins over our competitors, the rate of acceptance of our products in the market, the efficient and successful operation of our wafer fabrication and other facilities, our ability to adjust production capacity in a timely fashion in response to changes in demand for our products, variability in manufacturing yields, our ability to successfully integrate our Ithaca wafer fab or other facilities or entities we may acquire, our ability to obtain a Trusted Foundry accreditation for the wafer fab, industry overcapacity, inaccurate product forecasts and corresponding inventory and manufacturing costs, dependence on third parties, our ability to attract and retain skilled personnel and senior management, the dilution that may be caused to our stockholders' ownership by our future need of substantial additional funding, our ability to protect our intellectual property, claims of intellectual property infringement and other lawsuits, security breaches and other similar disruption compromising our information, and the impact of government or environmental regulations. Should one or more of these risks or uncertainties materialize, or should any of our assumptions prove incorrect, actual results may vary in material respects from those expressed or implied by any of these forward-looking statements. The Company undertakes no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise, except as may be required under applicable securities laws.

These materials do not constitute any offer to sell, or the solicitation of any offer to buy, any securities of odyssey or any other entity. Any presentation to the contrary should be ignored.

"Odyssey Semiconductor™" and the Odyssey Semi logo are trademarks of Odyssey Semiconductor Technologies, Inc.

ODII: INVESTMENT HIGHLIGHTS



Odyssey is developing disruptive power electronics technology with our unique vertical gallium nitride (GaN) based high-voltage transistors

The market is large, growing, and fragmented with large opportunity for new entrants

Odyssey is emerging from process and materials development into product development with valuable, protected IP

HOT OFF THE PRESS



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Odyssey Semiconductor Achieves 1200 Volt Rating on Vertical GaN Power Devices

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SIGNIFICANT RECENT ADVANCEMENTS



Successfully built FETs which meet 1200V rating

Validated process for large-scale device fabrication currently in use to manufacture product samples

Secured commitments from 3 customers to evaluate Gen1 product samples, currently planned to be assembled in Q4 2022 and delivered in Q1 2023



Actual photo of 1200V vertical GaN FETs currently in fab

THE OPPORTUNITY



Sustainability AND Electrification AND Availability AND Affordability

ODYSSEY SEMI



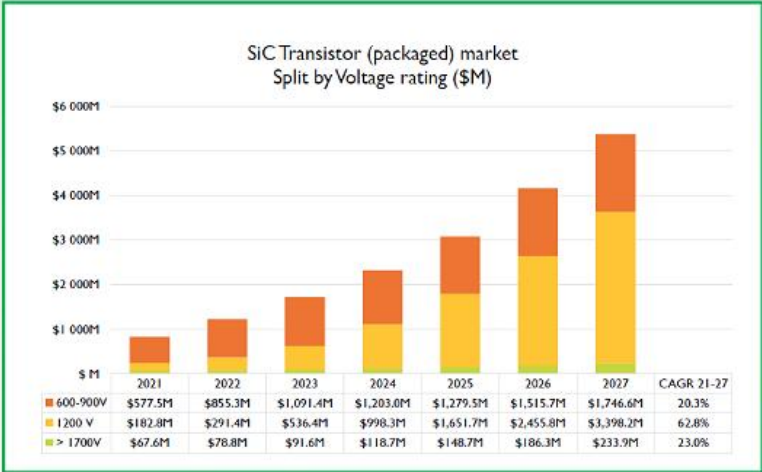
Odyssey Semiconductor is uniquely positioned as the premier company to address all of these needs due to our vertical GaN intellectual property

THE MARKET IS ENORMOUS AND GROWING



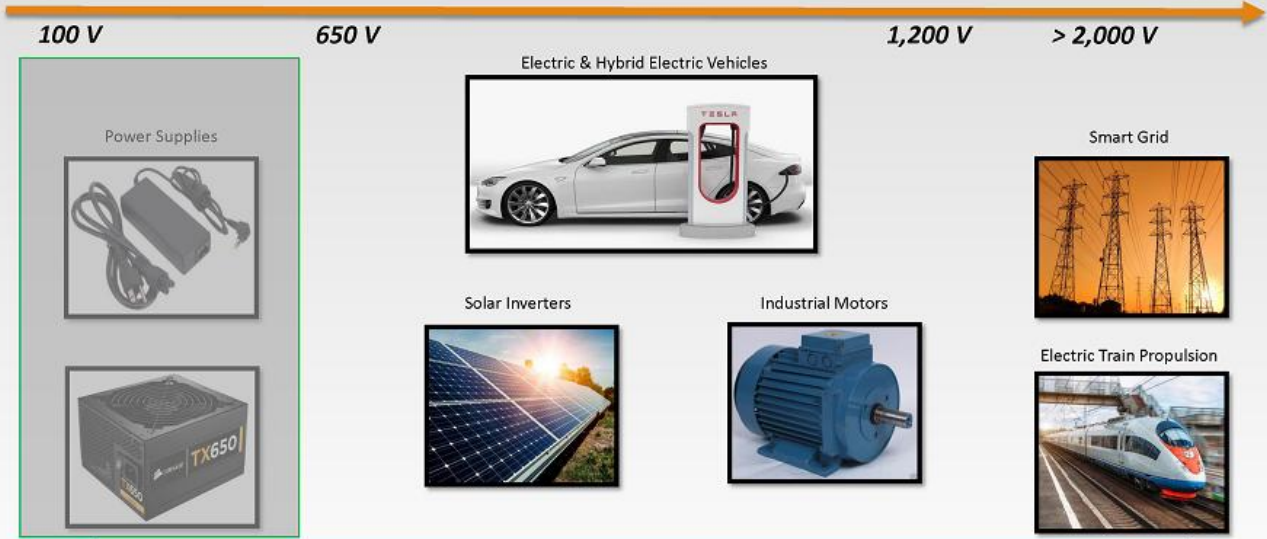
Odyssey will disrupt the \$3B+ silicon carbide market

Strong Growth in Addressable Markets 2021 to 2027
 600 to 900V: **+20% CAGR**
 1200V: **+63% CAGR**
 >1700V: **+23% CAGR**



Power SiC 2022 | www.yole.fr | ©2022

WE FOCUS ON HIGH VOLTAGE APPLICATIONS



Odyssey delivers dramatic energy savings over competition for industrial motors, electric vehicles, and renewable energy

HIGH VOLTAGE CONSERVES ENERGY



As operating voltages increase, energy efficiency improves
 There are limited power converters at these higher voltages, which keeps prices high
THIS PRESENTS THE BREAKTHROUGH OPPORTUNITY FOR ODYSSEY

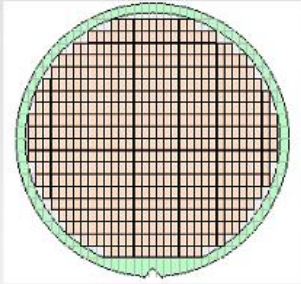
SILICON CARBIDE ECONOMICS FALL SHORT



Silicon Carbide prices need to erode 2.5x to meet EV economics

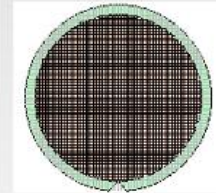


THE ECONOMICS FAVOR VERTICAL GaN



6" SiC Wafer
522 die

	SiC	Vertical GaN
Wafer Size	6"	4"
Product per wafer	522	2128
Wafer Cost	\$812	\$1500
Revenue per wafer	\$35,036	\$142,831



4" GaN Wafer
2128 die

4" Vertical GaN outproduces 6" SiC by 4x/wafer

ODYSSEY IS UNIQUELY POSITIONED IN VERTICAL GaN



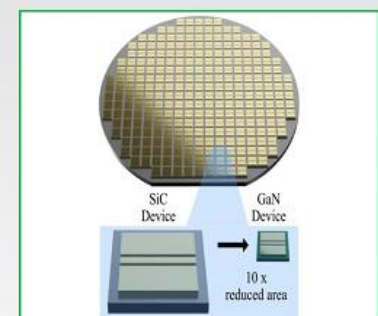
We have the expertise across technology, marketing and manufacturing

We have protected our IP that makes Vertical GaN practical

We are developing two product lines to be commercialized:
650V and 1200V

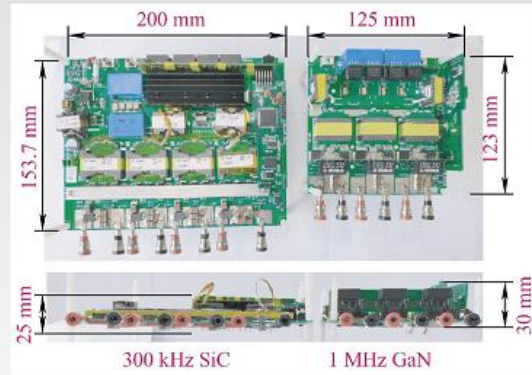
We have our own foundry, which means:

- We control our supply
- We can innovate fast



Vertical GaN delivers higher performance with 1/10th the die area vs. SiC

WITH UNMATCHED PERFORMANCE



40% smaller solution | higher efficiency | same output power

CUSTOMER ENGAGEMENT



We have prioritized and will deliver samples to customers in Q1 2023

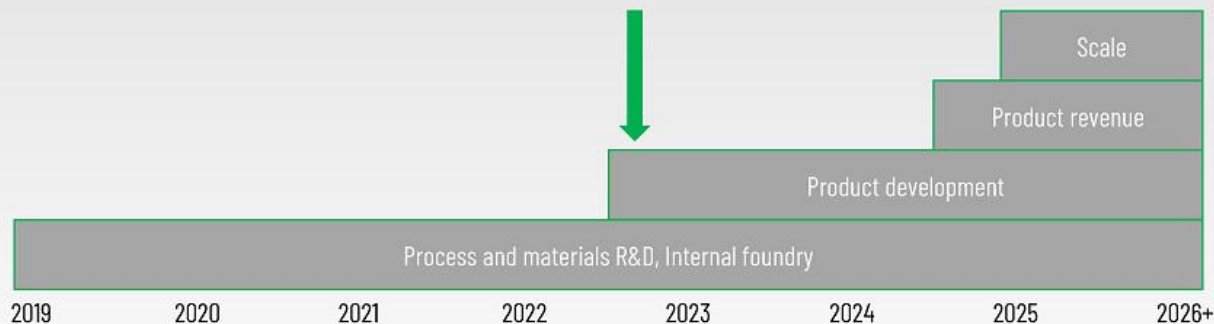
We have narrowed to 3 initial customers with 3-5 additional customers to be added later in Q1 2023

Fast Adoption Cycles	Ideal customers to <u>scale new</u> products	Ideal customers to <u>scale established</u> products
Sustained Adoption Cycles	Initial Customer Focus Ideal customers to <u>develop new</u> products	Ideal customers to <u>scale established</u> products
	Technology Drivers	Fast Followers

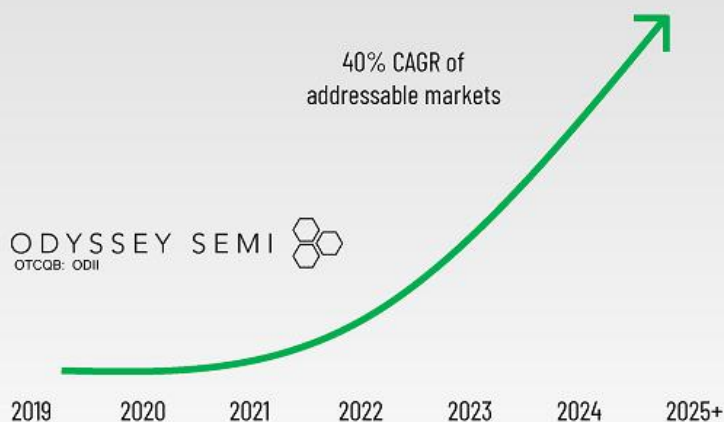
THE TIME IS NOW



Odyssey is at an inflection point - it is time to bring the technology to market as high-value products



ODII: THE EMERGING LEADER IN VERTICAL GaN



High growth megatrends of Electrification and Sustainability create market opportunity where silicon and silicon carbide cannot deliver

Vertical GaN delivers the performance and economics needed for continuous, high-margin growth

Odyssey Semi is uniquely positioned to capture significant market-share

Odyssey Semiconductor: Positioned for Long Term Growth

ODYSSEY SEMICONDUCTOR AT A GLANCE



OTCQB: ODII

Odyssey's proprietary technology is designed for GaN to replace SiC as the leading high-voltage power switching semiconductor material

Previous rounds of financing

August 2019 - \$2.9M @ \$1.50

March 2021 - \$5M @ \$4.00

Shares outstanding at 3/31/22 - 12.7M

Bridge loan (convertible note) executed August 8, 2022 for \$1.25M

S-1 filed in 2022

ODYSSEY SEMI



THANK YOU

OTCQB: ODII

Mark Davidson, CEO
mark.davidson@odysseysemi.com