



Ideal Power

Nasdaq: IPWR

Global Leader in Low-Loss Bidirectional Power
Semiconductors for EVs, Renewables and Electrification

Investor Presentation

October 2024

Safe Harbor

All statements in this presentation that are not based on historical fact are "forward looking statements." While management has based any forward-looking statements included in this presentation on its current expectations, the information on which such expectations were based may change.

These forward-looking statements rely on a number of assumptions concerning future events and are subject to a number of risks, uncertainties and other factors, many of which are outside of our control, that could cause actual results to materially differ from such statements.

Such risks, uncertainties, and other factors include, but are not limited to, whether the patents for our technology provide adequate protection and whether we can be successful in maintaining, enforcing and defending our patents, whether demand for our products, which we believe are disruptive, will develop and whether we can compete successfully with other manufacturers and suppliers of power semiconductor products, both now and in the future, as new products are developed and marketed.

Furthermore, we operate in a highly competitive and rapidly changing environment where new and unanticipated risks may arise. Accordingly, investors should not place any reliance on forward looking statements as a prediction of actual results. We disclaim any intention to, and undertake no obligation to, update or revise forward looking statements.



Ideal Power

Investment Highlights

- ✓ B-TRAN™ disruptive semiconductor power switch with compelling advantages over conventional power switch technologies
- ✓ Uniquely positioned to displace conventional power semiconductor solutions in many large, growth markets – EV, renewables, energy storage, solid-state circuit breakers (SSCBs) and motor drives
- ✓ Asset light, fabless business model leveraging existing silicon processing infrastructure
- ✓ Initial sales of B-TRAN™ discrete and SymCool® power module products to large, global customers
- ✓ Engagement with multiple target customers in key market segments
- ✓ Ongoing development program with Stellantis, a top 10 global automaker, for custom B-TRAN™ module for EV drivetrain
- ✓ Multiple years of cash with no debt
- ✓ Broad patent estate – 89 issued & 46 pending patents

What is B-TRAN™?

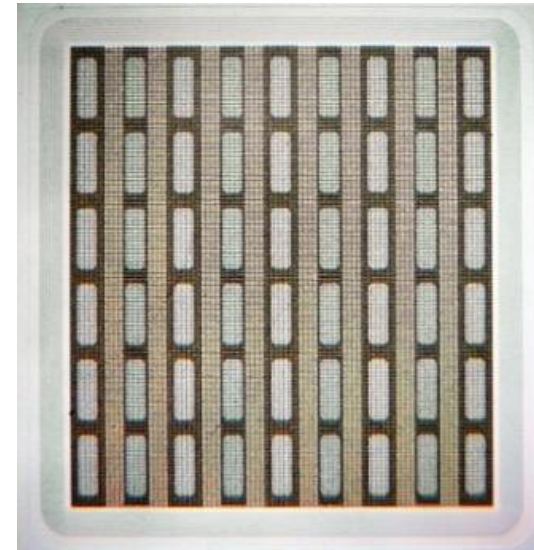
B-TRAN™ is a proprietary semiconductor power switch

- New, disruptive design (architecture)
- Fabrication on both sides of wafers
- Leverage same B-TRAN™ die across many applications

B-TRAN™ Architecture has 3 compelling advantages

- Bidirectional switching
- Lower losses = lower user costs
- Smaller, lower cost product designs

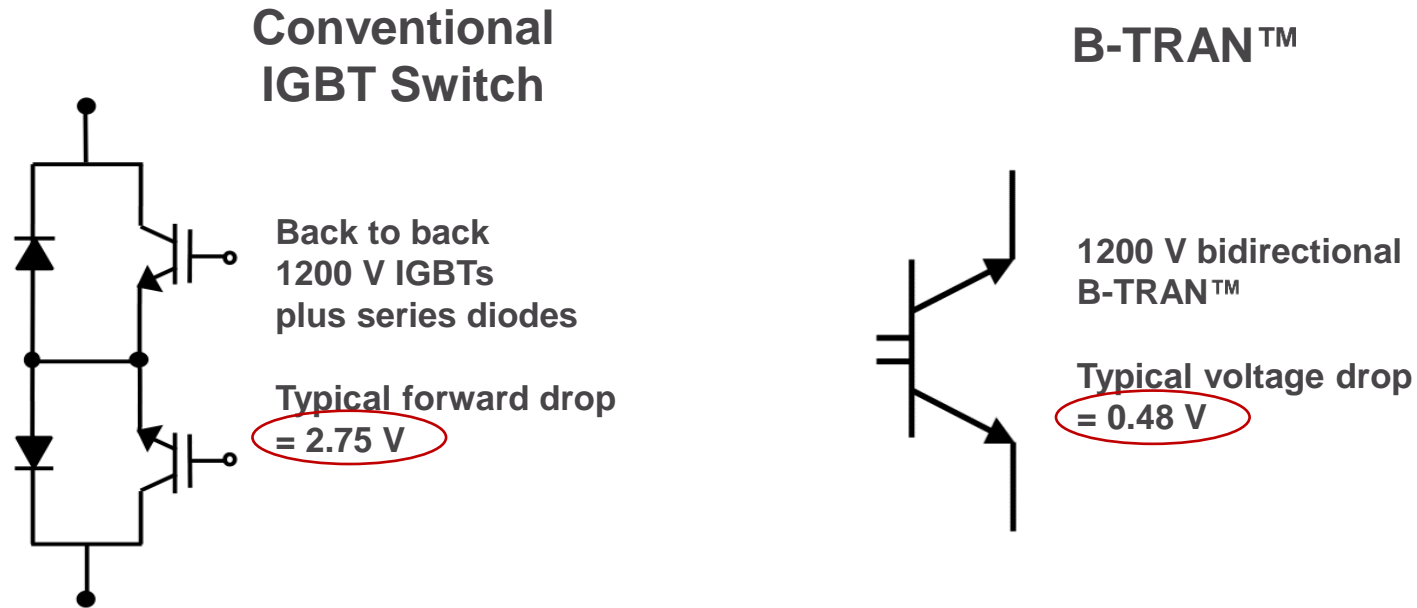
Critical performance characteristics validated through testing of hundreds of packaged devices



B-TRAN™ addresses many power switching needs

B-TRAN™ Bidirectional Switching

B-TRAN™ replaces 4 conventional devices to provide a bidirectional switch



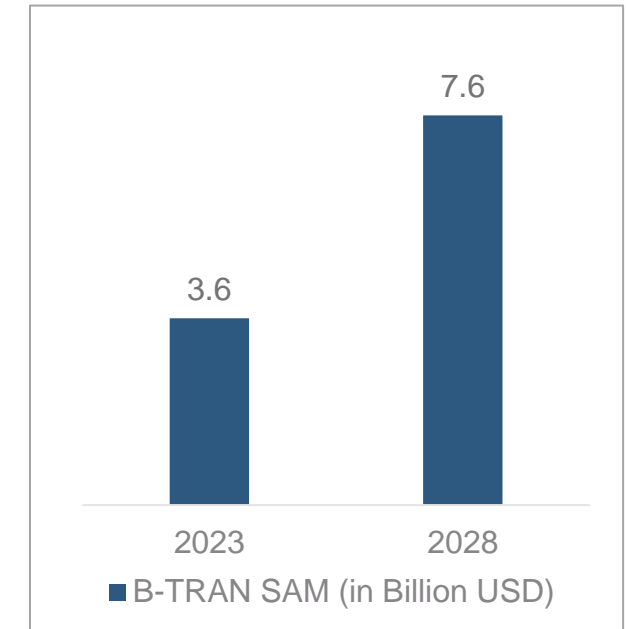
**Conduction Losses in Bidirectional Applications
>5x better than IGBT + Blocking Diode**

Serviceable Addressable Market (SAM)

\$7.6B SAM for B-TRAN™

16% CAGR

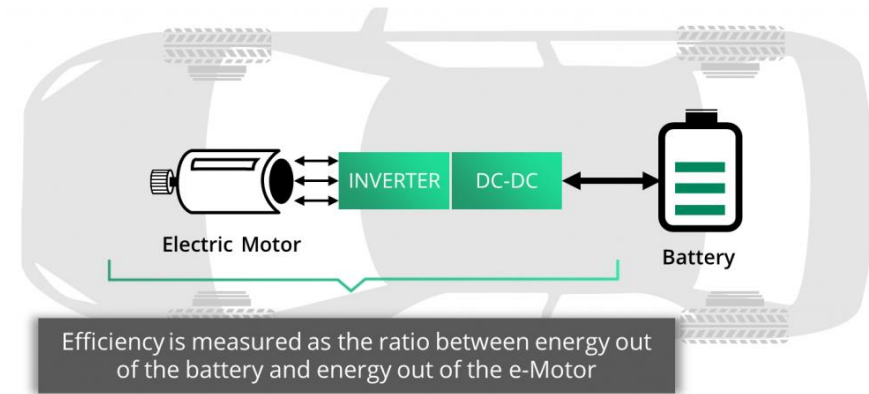
Short Term	<p>\$1.0 Billion</p> <p>Solid-State Switchgear</p> <p>Transmission and distribution and protection circuits such as solid-state circuit breakers, relays and contactors</p>	<p>\$1.4 Billion</p> <p>Energy & Power</p> <p>Renewable energy, energy storage systems, microgrids and electric vehicle charging</p>
	<p>\$1.6 Billion</p> <p>Industrial</p> <p>Industrial motor drives, UPS systems for data centers, power conversion systems</p>	<p>\$3.6 Billion</p> <p>Automotive</p> <p>Traction inverter, DC-DC converter, on-board charger and circuit protection</p>
Long Term		



Source: Mordor Intelligence: Global Power Electronics Market report 2023 and Company estimates.

Our SymCool™ power module targets the solid-state switchgear market and is expected to drive our initial sales ramp

B-TRAN™ Impact in Electric Vehicles



- Primary challenges to mass adoption of EVs are high cost and range anxiety driving need for lower cost and more efficient semiconductor solutions
- Power switches are needed in the EV Drivetrain including the Traction Inverter, DC-DC Converter, On-Board Charger (OBC) as well as for EV Contactors and other Circuit Protection
- Power semiconductor content in EV Drivetrain is approximately \$1,100 per vehicle (higher for luxury models)
- B-TRAN™ reduces the number of power devices needed in bidirectional circuits from 4 to 1 while increasing EV efficiency and range by an estimated 7 to 10%¹

B-TRAN™ enables new architectures and solutions to improve EV range and reduce cost

¹ Company estimate extrapolated from A Novel Carrier Accumulating Structure for 1220V IGBTs without Negative Capacitance and Decreasing Breakdown-Voltage by Toyota Motor Corporation



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Development Program with Stellantis

- Product development agreement for a custom B-TRAN™ power module for drivetrain inverter in Stellantis' next generation EV platform
- Successfully completed Phase 1 and Phase 2 of this multi-year development agreement
- 2023 Stellantis Venture Awards finalist
- Current expectation for Phase 3 scope is to take the custom B-TRAN™ module through automotive qualification
- Program target is production ready modules in 2025



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Commercial Agreements and Collaborations

- Announced collaborations with large companies including:
 - Three global automakers
 - Top 10 global solar power conversion provider
 - Two Forbes Global 500 diverse power management market leaders
 - Tier 1 global automotive supplier
 - Global provider of backup power and energy management solutions
 - Global power conversion supplier



Customer test kit

**Converted multiple large companies in our
B-TRAN™ Test and Evaluation Program to initial orders**

Commercial Products

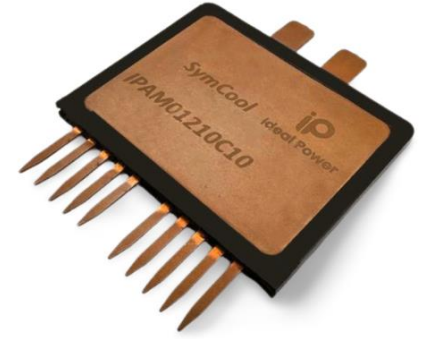
B-TRAN™ Discrete

- TO-264 packaged device rated at 1200V/50A
- Single die with double-sided cooling package
- Tested at up to 150A



SymCool™

- Multi-die module rated at 1200V/200A
- Enabling technology for SSCBs; also targets EV circuit protection
- \$1.0B SAM for solid-state switchgear market
- Tested at up to 430A



SymCool™ IQ

- Intelligent power module rated at 1200V/200A
- Adds integrated driver to SymCool™ module
- \$1.4B SAM for energy and power markets
- Targets renewables, energy storage and EV charging



**Estimate ~50% gross margins at scale
(excludes any benefit from licensing)**



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2024 Milestones

For 2024, the Company has set or achieved the following milestones:

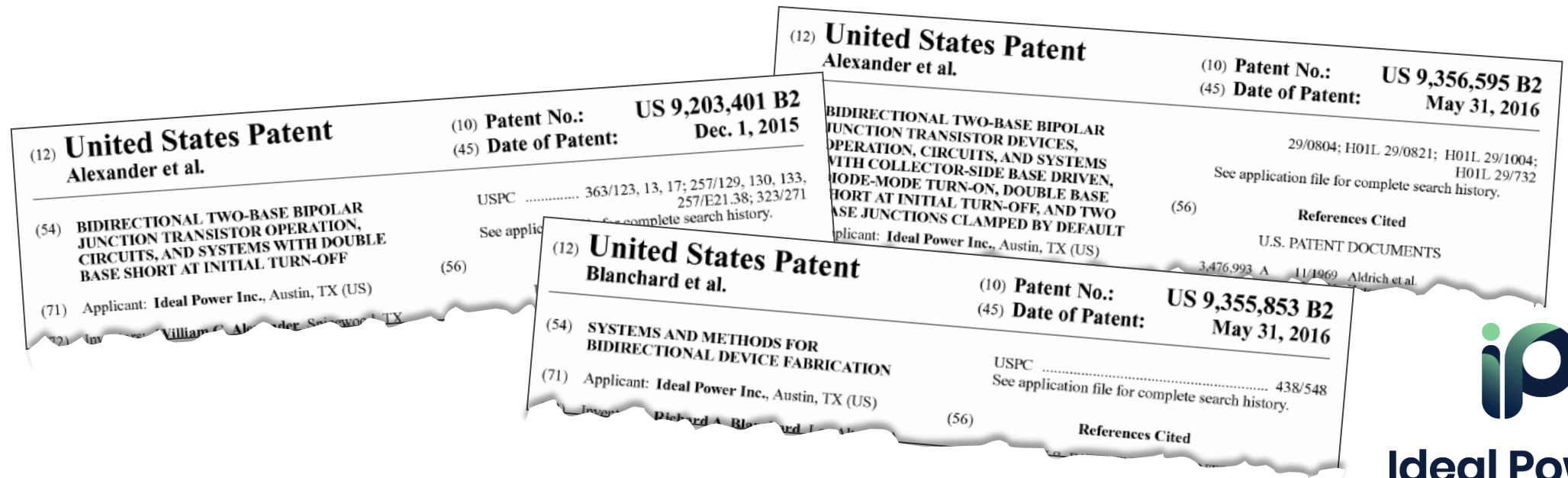
- ✓ Successfully completed Phase 2 of development program with Stellantis
 - Secure Phase 3 of development program with Stellantis
- ✓ Completed qualification of second high volume production fab
 - Convert large OEMs in our test and evaluation program to design wins / custom development agreements
- ✓ Added distributors for SymCool™ products
 - Initial sales of SymCool™ IQ intelligent power module
- ✓ Begin third-party automotive qualification testing

Ideal Power's Broad Patent Estate

Region	Issued Patents	Pending Patents
United States	48	14
Foreign	41	32
TOTAL	89	46

The Patents Cover

- B-TRAN™ device architecture and packaging
- Control methodologies and techniques
- Double-sided device manufacturing techniques
- Applications specific uses of B-TRAN™



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Recent News and Capital Structure

Recent News Releases

October 16, 2024

Ideal Power Begins Third-Party Automotive Qualification and Reliability Testing

September 23, 2024

Ideal Power Announces Distribution Agreement with Sekorm Advanced Technology (Shenzen) Co., Ltd.

August 8, 2024

Ideal Power Announces Global Distribution Agreement with RYOSHO U.S.A.

August 7, 2024

Ideal Power Announces Collaboration with Third Global Automaker

June 5, 2024

Ideal Power Successfully Completes Qualification of Its Second High-Volume Wafer Fabrication Supplier

May 7, 2024

Ideal Power Adds Global Circuit Protection Supplier to its B-TRAN™ Test and Evaluation Program

April 30, 2024

Ideal Power Announces Order from Forbes Global 500 Power Management Market Leader

IPWR

Nasdaq Listed

Headquarters: **Austin, TX**

Shares Outstanding¹: **7,693,917**

Options/Warrants¹: **2,650,893**

Cash Balance¹: **\$20.1 Million**

Debt Balance¹: **\$0.0 Million**

Year-End: **December 31**

1) As of June 30, 2024



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Thank you.

[idealpower.com](https://www.idealpower.com)