Ideal Power

Nasdaq: IPWR

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

Investor Presentation

April 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.

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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
- √ Launched first commercial products
- √ 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 – 82 issued & 42 pending patents

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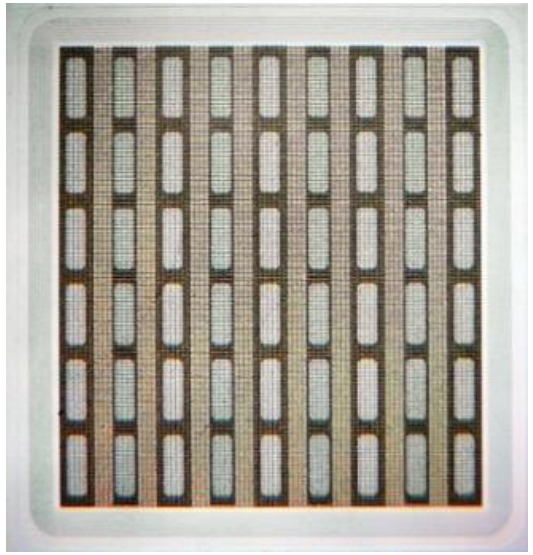
What is B-TRAN™?

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

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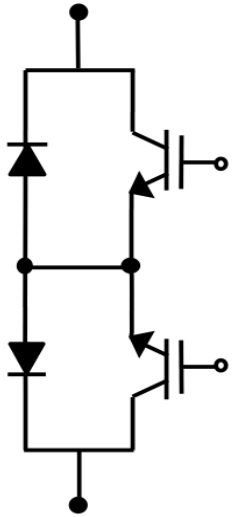
B-TRAN™ Bidirectional Switching

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

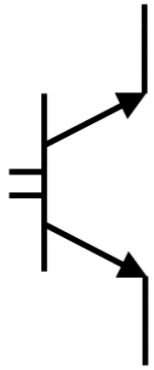
Conventional IGBT Switch



Back to back
1200 V IGBTs
plus series diodes

Typical forward drop
= 2.75 V

B-TRAN™



1200 V bidirectional
B-TRAN™

Typical voltage drop
= 0.48 V

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

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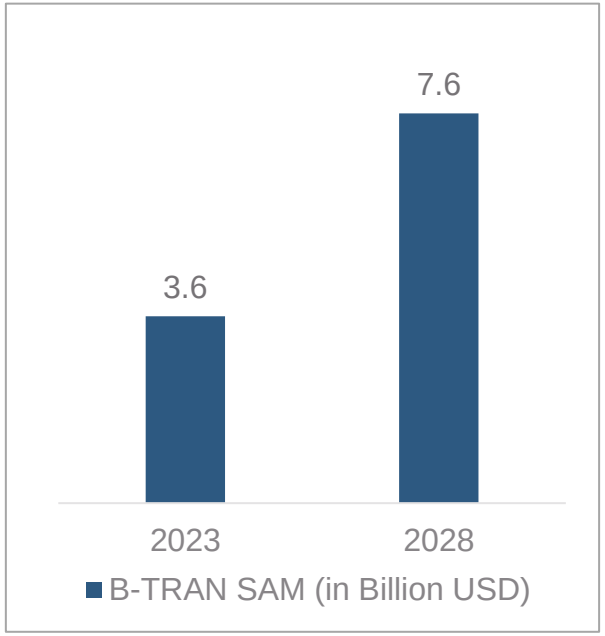
Serviceable Addressable Market (SAM)

$7.6B SAM for B-TRAN™

16% CAGR

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



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

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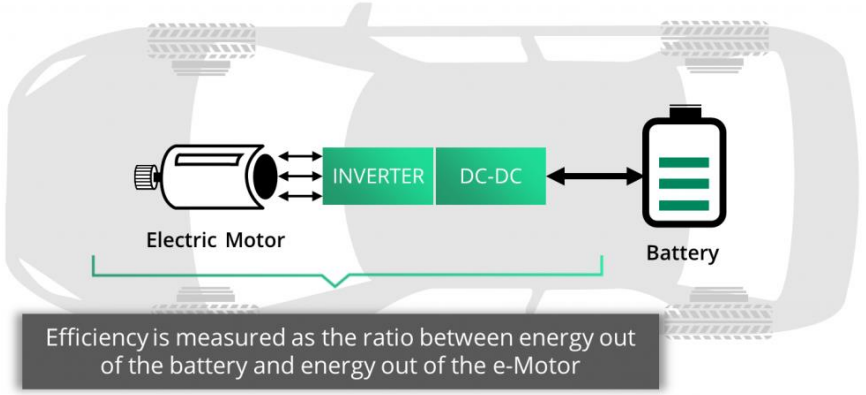
B-TRAN™ Impact in Electric Vehicles



- 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) and 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 and shipped packaged B-TRAN™ devices to large companies including:
  - Second top 10 global automaker
  - 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

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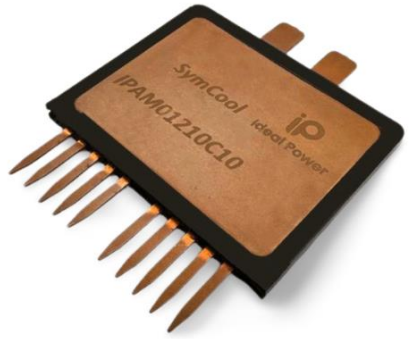
Commercial Products

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/160A
- 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/160A
- 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

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

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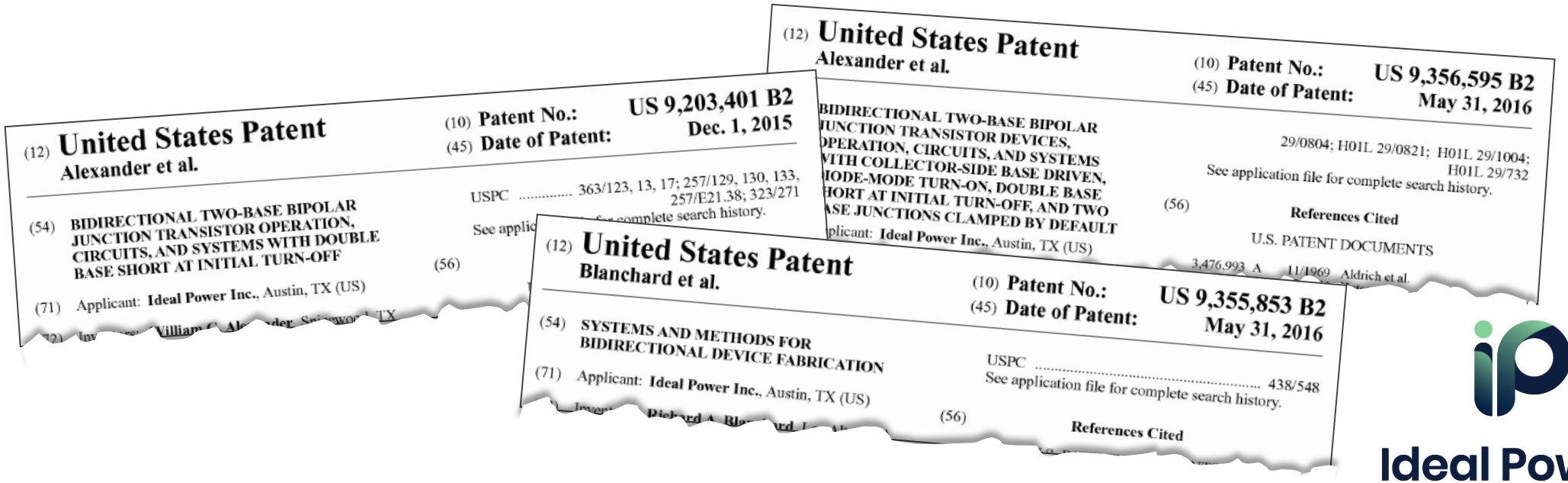
Ideal Power's Broad Patent Estate

Region	Issued Patents	Pending Patents
United States	46	12
Foreign	36	30
TOTAL	**82**	**42**

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

News Releases

April 10, 2024

Ideal Power Receives Order from Global Leader in Power Semiconductor and Power Electronics Solutions

March 28, 2024

Ideal Power Inc. Announces Closing of $15 Million Public Offering

March 18, 2024

Ideal Power Announces Global Distribution Agreement with Richardson Electronics, Ltd.

February 22, 2024

Ideal Power Successfully Completes Phase II of Development Program with Stellantis

February 20, 2024

Ideal Power Commences Shipment of SymCool™ Power Module to Fulfill Customer Orders

December 18, 2023

Stellantis Named Ideal Power Finalist in 2023 Stellantis Venture Awards

September 28, 2023

Ideal Power Adds SymCool™ IQ to its Commercial Product Offerings

IPWR

Nasdaq Listed

Headquarters:	**Austin, TX**
Shares Outstanding[1]:	**5,996,697**
Options/Warrants[1]:	**1,851,726**
Cash Balance[1]:	**$8.5 Million**
Debt Balance[1]:	**$0.0 Million**
Year-End:	**December 31**

1) As of December 31, 2023

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Thank you.

idealpower.com