iDEAL semiconductor

Silicon. Reinvented.

Next-generation silicon power semiconductors engineered for high efficiency, ruggedness, and scalable manufacturing.









Industry-Leading
Cost x Performance

AEC-Q101
Qualified

Global
Operations

Mass Production
Capabilities

Company Overview

Redefining What Silicon Can Do



iDEAL Semiconductor is a US-based power semiconductor company developing next-generation silicon power devices for industrial, automotive, e-mobility, computing, and power conversion applications.

Founded in 2017, iDEAL combines deep semiconductor expertise with innovative device architectures to deliver breakthrough performance using standard CMOS manufacturing.

Our proprietary SuperQ® technology enables lower conduction and switching losses, high short-circuit ruggedness, and scalable manufacturing across voltage classes from 60V to 1200V

Founded	Headquarters	Experience	Portfolio	Global Presence
2017	Lehigh Valley PA, USA	**300+** Years Power Semi	60V - 1200V MOSFETs & IGBTs	Local Support

idealsemi.com

Moving Silicon Forward

SuperQ technology redefines the silicon MOSFET architecture to deliver exceptional performance while maintaining the scalability, reliability, and cost efficiency of silicon.

Lowest $R_{DS(on)}$
Industry's lowest resistances per package per voltage

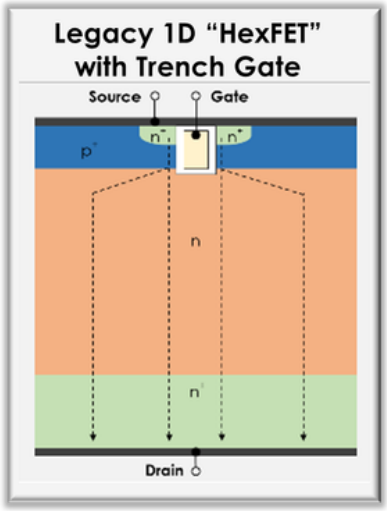
Fast Switching
Lowest switching loss for higher efficiency

Ruggedness
High short circuit withstand and 100% UIS tested

Cost x Performance
Simpler manufacturing flows for better value

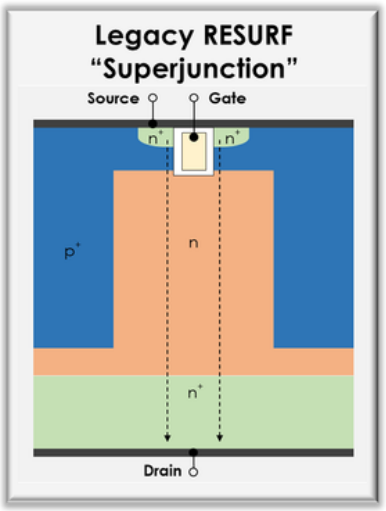
The Evolution of Silicon Power Devices

1979



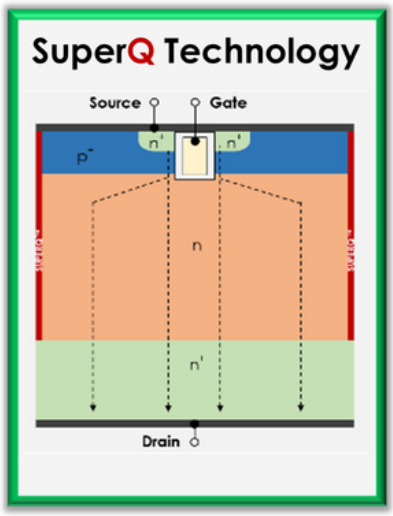
100% conduction area
Good for low voltage
or high resistance only

1998



~50% conduction area
Voltage blocking at
13-15V/µm

2025



~95% conduction area
Voltage blocking at
19-20V/µm

SuperQ is a platform technology applicable across a wide range of products, applications, and semiconductor materials.

Beyond JEDEC Built for Real-World Reliability

AEC-Q101 Qualified

At iDEAL Semiconductor, we go **Beyond JEDEC** to deliver power semiconductors engineered to ensure field reliability and system safety

Reliability Test Highlights

Test	JEDEC Requirement	iDEAL Validation	How We Go Beyond
HTRB (High Temperature Reverse Bias)	1,000 hrs	4,000 hrs	1,000 hrs → 4,000 hrs **4X**
HTGB+ (High Temperature Gate Bias)	1,000 hrs	3,000 hrs	1,000 hrs → 3,000 hrs **3X**
IOL (Intermittent Operating Life)	10,000 cycles	25,000 cycles	10,000 cycles → 25,000 cycles **2.5X**
Temp Cycle	1,000 cycles	2,000 cycles	1,000 cycles → 1,000 cycles **2X**

- AEC-Q101 Qualified
- Tested beyond JEDEC Requirements
- 100% UIS Tested
- Robust & Reliable

Applications

Powering Next-Generation Systems

SuperQ technology delivers high efficiency, power density, and rugged performance across a wide range of applications.















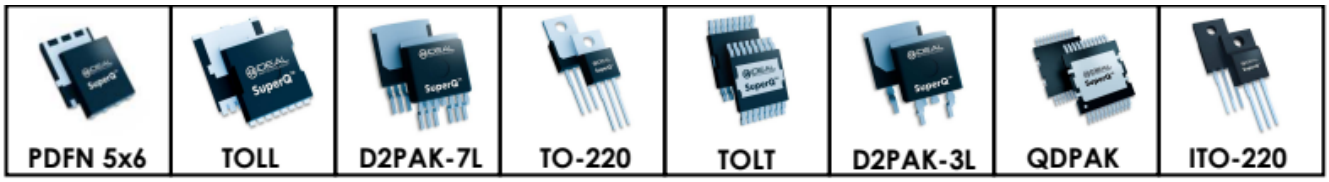




Expanding Product Portfolio

Featured Products			
Part Number	**Voltage (V)**	**RDS(on), max (mΩ)**	**Package**
iS15M2R5S1T	150	2.5	TOLL
iS20M3R9S1T	200	3.9	TOLL
iS25M012S1T	250	12	TOLL
iS30M012S1T	300	12	TOLL
iS60M022S1TK	600	22	TOLL-4P
iS65M070S1L	650	70	DFN 8x8

Standard packages. Standard gate drive. Standard layout practices.



Scan to view all products

Built for Scalable Production

iDEAL partners with established, trusted manufacturing and assembly partners to ensure scalable capacity, quality, and long-term supply security.



iDEAL Semi

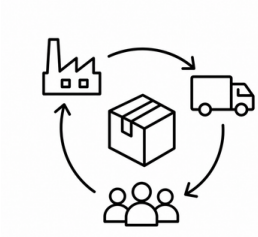
Headquarters:
Bethlehem, PA
Sales & Marketing:
US, Germany, Spain, China, Taiwan
Applications:
US, Taiwan

Manufacturing Partners

Wafer Fab:
Polar Semi (US)
Assembly & Test:
China, Malaysia, Philippines
A/T Planning:
Mexico



Global Engineering Support



Long-Term Supply Continuity

Silicon. Reinvented.

Schedule a Design Review

Connect with our global team

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