
Standex Electronics
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STANDEX
The Power Magnetics Powering Up the Future of Semiconductor Devices
Your project, electrified with the trends of tomorrow
StandexElectronics.com

Consumer preferences and industry innovation hold a persistent gaze towards the future, always anticipating what's next. Devices are shrinking, but their power demands are soaring. Electronics need to fit in the palms of our hands and on the width of our wrists, inside automotive dashboards and in the joints of robotic arms. Innovators are on a quest to miniaturize for mobility and to squeeze a more sophisticated suite of features — including artificial intelligence — into every device. At the heart of these advancements is the unyielding need for high-quality power magnetics that are crucial for efficient power conversion, signal processing, and long-term reliability — all in a small, high-performance package.

Table of Contents

Powering Up Modern Electronics with Smarter, Smaller Power Magnetics

Power magnetics engineered for high-density, high-power, and high-performance electronics.

MINIATURIZED FOR THE BIG SHRINKING

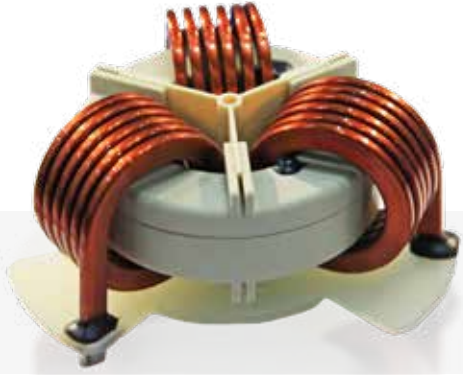
Semiconductor devices are getting exponentially smaller, slimmer, and lighter — but they're also more complex and powerful. Inside slender designs are more smart features and advanced functions than ever before. Industrial robotics, vehicle infotainment systems, and wearables put pressure on power magnetics to support smart sensing, artificial intelligence decisioning, camera modules, and always-on data transmission. Innovative materials, ingenious windings, and advanced potting techniques make more compact power magnetics possible.

OPTIMIZED FOR HIGH-PERFORMANCE THERMAL MANAGEMENT

The trend towards smaller, high-powered devices not only squeezes more components into tighter quarters — it also generates significantly more heat and constricts its dissipation. Power magnetics for semiconductors have the tall responsibility for maintaining optimal efficiency in the face of elevated system temperatures. By incorporating materials with superior thermal properties and leveraging design innovations enhancing heat dissipation, power magnetics not only safeguard a device's integrity, but extend its overall lifespan.

SUPPORTS HIGH-SPEED, HIGH-FREQUENCY SIGNALS

Smart technologies drive an increase in data transmission and processing speeds. Power magnetics need to excel in high-frequency applications, maintaining uncompromised integrity and performance. Advanced solutions minimize losses and boost efficiency, pushing the boundaries of what's possible in electronics design and functionality.



ENGINEERED FOR SUPERIOR EMI SUPPRESSION

Densely packed technologies push the problem of electromagnetic interference (EMI) mitigation to the forefront. EMI can disrupt the operation of electronic devices, confusing signals, degrading performance - even cause operational failure.

High-quality power magnetics are mindful of their surroundings, filtering out unwanted noise and shielding sensitive parts of the circuit from interference. Using optimized materials and winding techniques, electronics operate reliably and efficiently in increasingly crowded electromagnetic environments.


How Standex Powers
Today’s Electronics

Power Magnetics

POWER INDUCTORS

Power inductors store energy to manage power supply fluctuations and ensure stable voltage. Their role in smoothing out currents and minimizing power losses directly influences the efficiency and reliability of your electronic devices. Selecting superior inductors protects semiconductor components from power irregularities, prolonging device longevity and upping system-wide performance.

POWER TRANSFORMERS

Power transformers adjust voltage levels to suit the operational needs of electronics, from consumer gadgets to advanced control systems and AI-powered robotics. Whether your project is an arm that picks, packs, or paints, or is a hand held device, transformers deliver power matching the requirements of your specific device for safe, efficient performance.

DC/DC CONVERSION

The right power magnetics in DC/DC conversion applications enhance efficiency by minimizing power losses and pushing the envelope on high-density, compact designs. Smartly engineered power magnetics provide stable operation across a wide variety of input and output voltages, power sources, and loads.

CONVENTIONAL AND LINEAR MOTORS

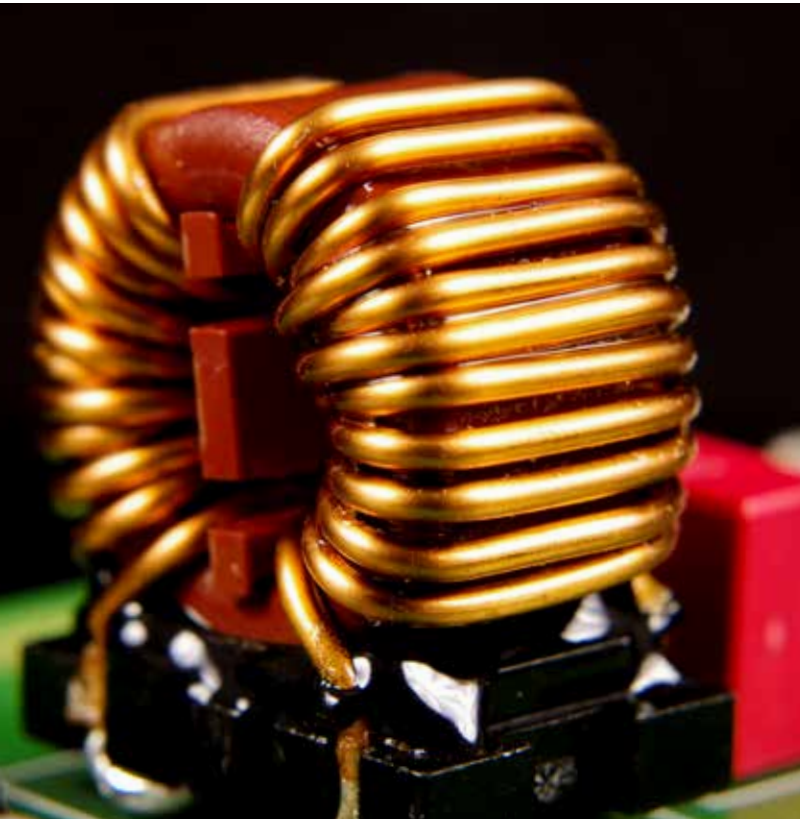
In conventional and linear motors, properly chosen power magnetics improve torque and speed control accuracy, reduce energy consumption by optimizing electromagnetic field generation, and extend the motor's lifespan through efficient thermal management and reduced electrical stresses.

GATE DRIVERS

For gate drivers, especially those controlling MOSFETs, IGBTs, and other semiconductor power switches, the right power magnetics significantly enhance signal integrity and timing precision — crucial for minimizing energy loss and improving efficiency in applications ranging from electric vehicles to smart manufacturing equipment.

POWER FACTOR CORRECTION

Power Factor Correction (PFC) is an essential strategy in modern electronics, aimed at optimizing the efficiency of power consumption and improving the quality of power delivered to devices. Advanced power magnetics play a pivotal role in effective PFC by providing the necessary inductance to correct the power factor, so today's smarter, more intricate devices operate closer to their ideal efficiency levels.



RESONANT AND FILTER INDUCTORS

Resonant and filter inductors manage energy flow and signal integrity within electronic circuits. Resonant inductors optimize energy transfer and minimize losses in applications demanding precise control over power delivery, like power converters and wireless charging devices. Filter inductors excel in eliminating unwanted frequencies and noise for clean and stable signals filtering out interference. By selecting the appropriate magnetics solutions, designers can significantly enhance the performance and reliability of devices — and smarten-up their products with even more advanced technologies.

CUSTOM-WOUND ASSEMBLIES

Our focus is on the best, not merely the easiest, solution for your project. From the very beginning, we imagine custom solutions powered by forward-thinking strategies, guaranteeing the power magnetics backing your vision are as innovative as the product you're building.

Planar Magnetics

Wire-wound components once set the standard, but smart electronics and more sophisticated technologies are calling for smaller power solutions without compromising performance.

LIGHTER WEIGHT MOBILE ELECTRONICS

Planar transformers are lighter than their traditional counterparts, thanks to their flat, compact design and the use of lighter core materials. The weight reduction is particularly beneficial for portable semiconductor electronics and applications where every ounce costs, without sacrificing power or efficiency.

MORE ROOM TO KEEP COOL

The streamlined design of planar transformers not only saves space but also facilitates better airflow and heat dissipation within electronic devices. The extra room provided by flattening the windings allows for more efficient cooling solutions, keeping devices running smoothly at optimal temperatures.

SLIM FOOTPRINTS FOR SMART INTEGRATIONS

Planar transformers are defined by their slim, low height profiles, meeting tight board space restrictions. With windings flat against a printed circuit board (PCB), planar transformers welcome product innovators to pack more components and technologies into smaller housings and footprints. When space is at a premium, planar designs allow for smarter, more efficient integration from mobile devices to telecommunications.

HIGH POWER DENSITY IN A SMALL FORM FACTOR

Achieve 99%+ power density compared to traditional wire-wound transformers. Their efficiency stems from their unique construction, which maximizes the core material's effectiveness and reduces energy losses. For semiconductor electronics, this means more power in a smaller space, enhancing the overall performance of the device.

Core Strengths: Where Standex Leads the Charge in Custom Power Magnetics

ACCELERATE DEVELOPMENT WITH OUR HANDS-ON, PROACTIVE APPROACH

When it comes to dazzling your customers with smart technology, AI-fueled features, and exciting interfaces — you've got to keep your eye on tomorrow. We balance our legacy of delivering custom, on-time power solutions with the needs of the future. From innovative materials to automated and semi-automated manufacturing techniques, rapid prototyping technology and swift iterations, we're experts in providing a collaborative, interactive experience.

AN EXPANSIVE GLOBAL NETWORK BACKS YOUR PROJECT

We've been in business for more than a half century, making plenty of helpful friends along the way. Our network of top manufacturing partners and vendors spans the entire globe. These close-knit relationships give us unparalleled flexibility when it comes to experimenting with new materials and novel customizations. This worldwide reach also helps us synthesize the best, most creative ideas from across the industry, and shields your projects from supply chain volatility.

TAP OUR VAST EXPERTISE IN INSULATION AND SHIELDING

Our unparalleled expertise in UL/IEC standards highlights our dedication to the quality and safety of your products. In the intricate ecosystem of today's electronics, where hundreds of components operate in close proximity, achieving electromagnetic compatibility (EMC) is a top priority. Our commitment to advanced insulation and shielding techniques is key to preventing performance issues, ensuring the safety of users and enhancing the lifespan of delicate components.

CUSTOMIZATION IS ALWAYS AT OUR CORE

We know no two products are the same — and what worked in the past doesn't always mean it'll work now. While other vendors present off-the-shelf solutions, we think custom, allowing us to tackle challenging and unconventional projects in new and unexpected ways.

EXPLORE OUR EXTENSIVE IN-HOUSE CAPABILITIES

- High-Power Litz Wire Inductor and Transformer Design
- Planar Transformer and Inductor Design
- High-Reliability Industrial
- Ansys Maxwell 2D/3D High-Frequency Magnetic Simulation
- Potting Under Pressure
- Vacuum Encapsulation
- AS9100 - ITAR Certified

Current Achievements: Client Success Stories

Calibrating the Details

Mission: Improving power transfer and sensing solutions no matter the design phase

Not every big idea comes to us fully formed—sometimes they're just sparks of inspiration. It's common for our clients to involve us in the very early stages of their experimental endeavors, bringing us only the essentials. **In this project, we only had a handful of the specifics: the basic core type and a preliminary mechanical sketch. We navigated this project from an early rough draft to a tangible, practical solution**.

- Experimented with multiple heavy-wire winding configurations to accommodate tight space constraints.
- Pursued exhaustive trials of different potting cup materials, scrutinizing their viscosities and thermal properties to reduce the product's footprint even more.
- Our enthusiasm for exploring innovative avenues made us the go-to partner for this client, who now consistently engages us at the outset of their futuristic concepts. With this mindset, we quickly turn their visions into feasible, market-ready products, streamlining the path from idea to implementation.

Powering Strategic Manufacturing

Mission: Move manufacturing of a planar transformer assembly to a new geographic region

A premier producer of intelligent microgrid control systems sought to enhance their supply chain by establishing operations in new geographic areas. We took charge of every logistical detail involved in transitioning their manufacturing to North America.

- The Standex team re-envisioned the client's production approach, adopting a novel design-for-manufacturability perspective.
- We directed CapEx investments towards innovative, semi-automated processes, including advanced potting techniques.
- To improve product reliability and consistency, we infused our specialty in smart grid testing services into their workflow, performing everything from high-voltage testing to corona noise analysis.

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