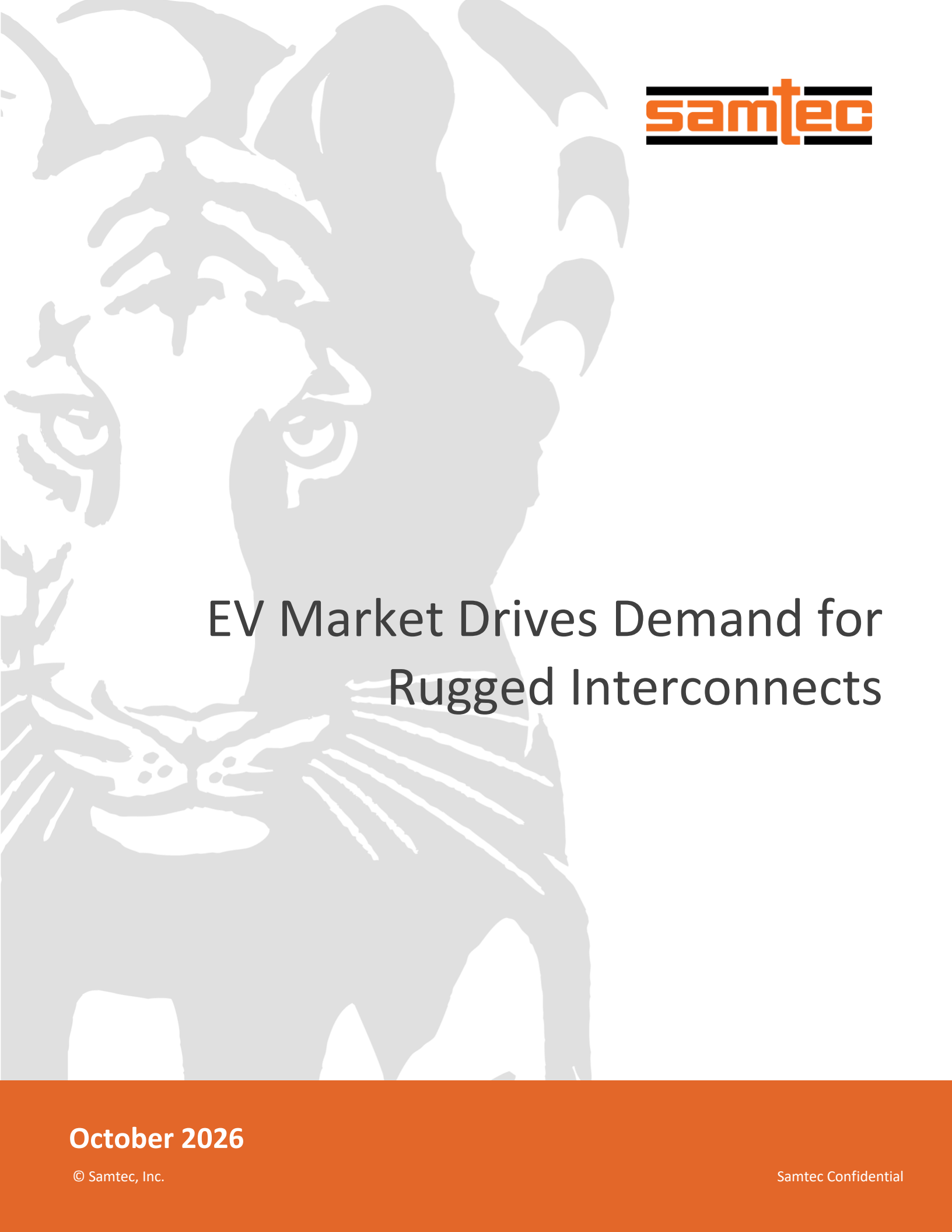


A large, light gray tiger is the background of the slide. The tiger is facing forward, with its head slightly tilted. Its eyes are looking directly at the viewer. The tiger's fur is detailed with stripes, and its mouth is slightly open, showing its teeth. The tiger's front paws are visible, with claws extended. The tiger's back and legs are also visible, showing the same striped pattern.

EV Market Drives Demand for Rugged Interconnects

October 2026

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Abstract

This white paper surveys the current state of the global EV market, with special attention to the Asia Pacific region. It also covers what EV designs need from interconnects, and how Samtec's products can suit these emerging needs.

Integration leads to Innovation

Samtec is structured like no other company in the interconnect industry: we work in a fully integrated capacity that enables true collaboration. The result is innovative solutions and effective strategies supporting optimization of the entire signal channel.

For more information contact AutoSalesGroup@samtec.com.

Introduction

The electric vehicle (EV) market around the world continues to expand, in no small part because of local demand for alternative fuels and a desire for lower pollution levels in urban areas. For Samtec, this has resulted in an increased demand for our rugged interconnects across the EV ecosystem.

This white paper surveys the current state of the global EV market, with special attention to the Asia Pacific region. It also covers what EV designs need from interconnects, and how Samtec's products can suit these emerging needs.

Global Market Forces

The EV market encompasses several variants. There are four-wheel automobiles, such as those from [BYD](#), [Tesla](#), and [Volkswagen Group](#). These four-wheel vehicles can be further divided into hybrid electric vehicle (HEV), battery electric vehicle (BEV), and plug-in hybrid electric vehicles (PHEV) categories. Globally, there is significant growth in demand for two-wheel and three-wheel EVs, from suppliers such as [Bajaj Auto](#) and [Ola](#).

According to Fortune Global Insights (see Figure 1), the global EV market is expected to grow from USD 927.69 billion in 2025 to 1023.81 billion in 2026. Projections forecast a CAGR of 9.97%, achieving a global EV market of 2190.37 billion by 2034 [1]. Within this growth is great opportunity for innovation and efficient design.

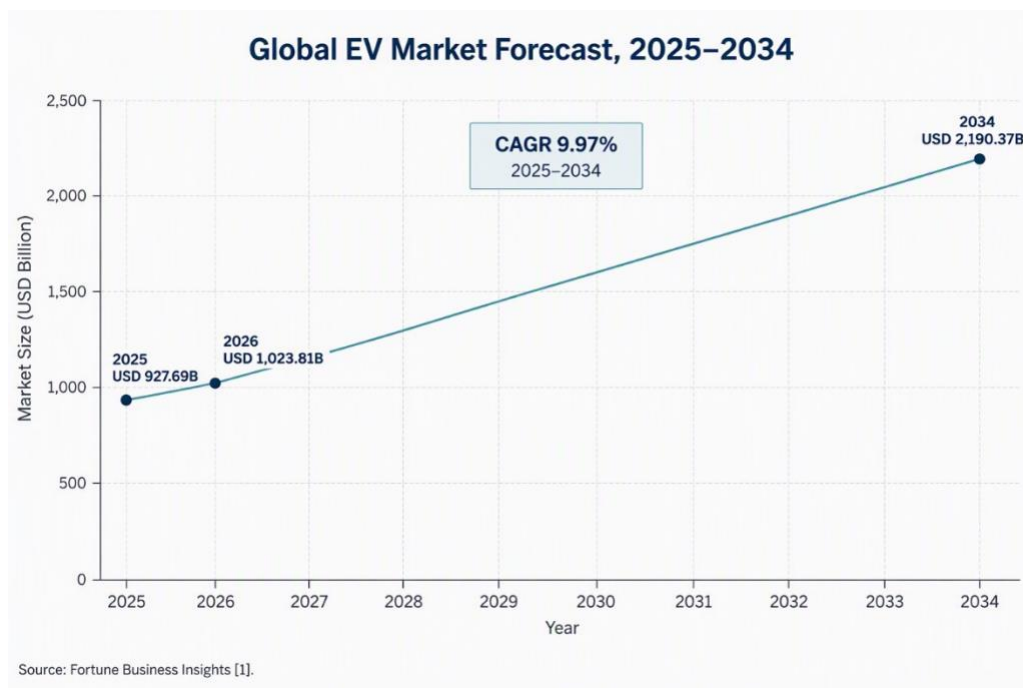


Figure 1: The global EV market is expected to achieve a CAGR of nearly 10% from 2025 to 2034.

Strong Markets in APAC

The Asia Pacific (APAC) region is seeing particularly strong growth for EVs. Factors driving growth here include government incentives and mandates, local battery manufacturing, and expanded availability of fast-charging infrastructure. According to Mordor Intelligence, the APAC EV market size is valued at USD 419.66 billion and is projected to reach USD 927.96 billion by 2030, registering a 17.20% CAGR during the forecast period. Emerging markets include India, Indonesia, and Thailand, where active government support is resulting in local manufacturing capabilities [2].

Samtec connectors are used extensively in EV charging infrastructure as well as within the electric vehicles themselves, such as those by [Simple Energy](#), [Ultraviolette Automotive](#), and [Hero Vida](#). Notably, Samtec India has seen dramatic growth in two-wheeler (see Figure 2) and three-wheeler (see Figure 3) applications for Samtec connectors.



Figure 2: Bajaj Chetak premium electric scooters displayed inside a showroom in Salem, Tamil Nadu, India.

According to India Brand Equity Foundation (IBEF), the Indian electric two-wheeler market reached 1,233.6 thousand units in 2025 and is projected to reach 12,263.2 thousand units by 2034, which translates to a CAGR of 28.20% across 2026-2034. IBEF says, “Electric scooters and mopeds dominate with 88.6% share in 2025, while lithium-ion batteries account for 82.7% of total demand. North India leads the country with 28.6% revenue share in 2025, followed closely by West and Central India at 27.4%” [3].

Factors driving the interest in two-wheel EVs include rising fuel costs, state subsidies, and growing concerns around urban pollution [4].



Figure 3: A Piaggio Ape Electric three-wheeler Cargo in Chandigarh, India.

Interconnect Needs for EV Designs

Regardless of whether it's a 2-, 3-, or 4-wheel design, EVs demand rugged, reliable, and high-performance interconnects that can withstand vibration, temperature extremes, and long service lifetimes. Interconnects need to support the high-speed data, power distribution, connectivity, and reliability requirements needed by modern EV systems. Many new EVs, particularly automobiles, tend to be more software-defined and feature-rich, demanding advanced computing, infotainment, wireless connectivity, sensing, and power management. Interconnect solutions need to help engineers connect these critical systems with high-performance and long-term reliability.

Samtec differentiates itself through a broad portfolio of proven interconnect technologies, extensive qualification testing, severe environment (high vibration and shock resistance) validation, and industry-leading engineering support and customization capabilities. Samtec's products are designed to support signal integrity, power delivery, compact packaging, and design flexibility while meeting the demanding requirements of EV automotive and transportation applications.

For EV charging infrastructure, Samtec interconnects support onboard chargers, electric vehicle supply equipment (EVSE), DC fast chargers, vehicle-to-grid systems, wireless communications, monitoring systems, user interfaces, and power conversion electronics.

Most Popular Samtec Connectors for EV Applications

Samtec interconnects can be found throughout the EV ecosystem, including:

- Battery Management Systems (BMS)
- Vehicle Control Units (VCU)
- Motor Controllers and Inverters
- Telematics and Connectivity Modules
- ADAS and Camera Systems
- Infotainment and Instrument Clusters
- Charging Systems and Charging Controllers
- Data Logging and Diagnostic Equipment
- Test and Validation Equipment used during EV development

These Samtec product families align well with EV applications:

[Rugged Edge Rate® systems](#) for high-speed computing, processing, and infotainment platforms.

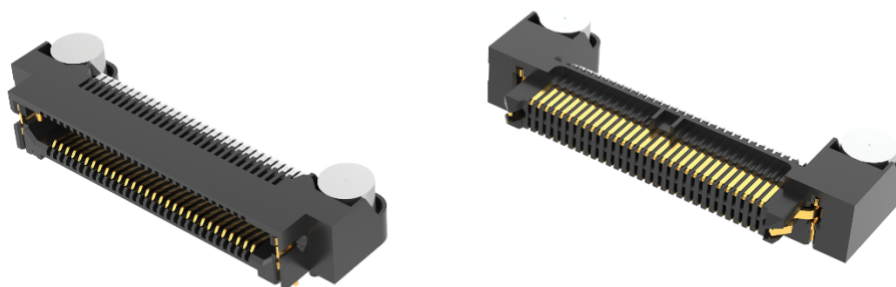


Figure 4: Samtec ERX8 Edge Rate® rugged high-speed socket (left) and terminal (right)

[Ultra Micro Interconnects](#) for compact, space-constrained electronic modules.

[Flexible Board-to-Board Solutions](#) that enable customizable stacking and packaging within vehicle electronics.

[RF Interconnect Solutions](#) supporting wireless communications, Wi-Fi, 5G, telematics, and vehicle connectivity.

[Ultra Micro Power](#) and [Extreme Power Systems](#) for power distribution, power conversion, charging equipment, and mixed power/signal applications.



Figure 5: Samtec mPower® ultra micro power connectors

IDC Cable Assemblies and Headers for internal subsystem connectivity and control electronics.

Summing It All Up

Common challenges for EV designers include increasing data bandwidth requirements, higher power density, thermal management, space constraints, reliability under harsh operating conditions, and the need to integrate more functionality into smaller electronic assemblies. Samtec helps address these issues through:

- High-speed interconnect systems optimized for signal integrity
- Compact, fine-pitch solutions that maximize PCB real estate
- Rugged designs tested for shock, vibration, durability, and environmental exposure
- Power interconnect systems capable of supporting higher current requirements
- Engineering support, simulation resources, and rapid product samples and prototyping capabilities to accelerate development cycles

Resources

- [1] [Electric Vehicle Market Size, Share & Global Analysis, 2034](#). Fortune Business Insights. Accessed 1 October 2026.
- [2] [Asia Pacific Electric Vehicle Market - Size, Share & Industry Analysis](#). Mordor Intelligence. Accessed 1 October 2026.
- [3] [India's Electric Vehicle Revolution: Trends, Challenges and Opportunities](#) | IBEF. Accessed 1 October 2026.
- [4] [Electric 2-Wheeler Manufacturers in India: Complete List](#). EV Talks News. Accessed 1 October 2026.

Also See

- [Infrastructure for Charging Electric Vehicles - The Samtec Blog](#)
- [Automotive Connectors and Product Applications](#)
- [Rugged-Power Interconnect Solutions Guide](#)