

NANOPELEX



SOLUTION BRIEF



PEAK FOR **ELECTRIC VEHICLES [EVs]**



100%
ENGINEERED
+ MANUFACTURED
IN THE US

NANOPLEX FOR EVS

Company Data

- NanoPlex is 100% US-engineered and manufactured – with no reliance on China. NanoPlex-based capacitors can store 2-4x more energy to optimize EV acceleration and torque delivery better than industry standard BOPP film.
- NanoPlex-based capacitors can be up to 50% smaller, enabling faster charging and reducing draw-on batteries, extending the ranges of EVs.
- NanoPlex-based film capacitors enable faster discharge with lower impedance, making EV charging more efficient.
- NanoPlex-based capacitor films can be rated up to 135 degrees C, which is over 35 degrees C better than conventional capacitors.



PEAK NANOPLEX™-BASED CAPACITORS FOR EVS AND CHARGING

NanoPlex Optimizes EV Acceleration

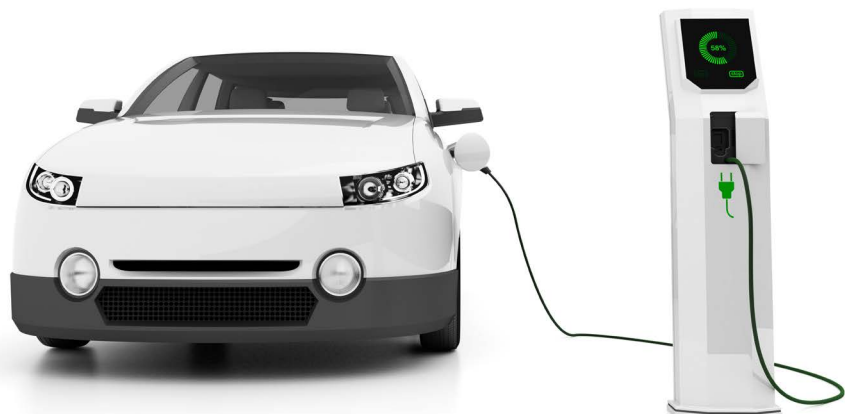
When powering EVs (cars, trucks, buses, semis, planes, boats, and drones), battery life often gets the headlines, but it's the capacitors that deliver the power to run these vehicles. Capacitors sit between the battery and the electric motor to rapidly deliver energy based on the performance demands. When a Tesla wants maximum acceleration in "Ludicrous Mode," capacitors deliver the burst of pulsed power required to create that acceleration. Capacitors also aid in braking by rapidly turning kinetic energy into electricity. NanoPlex capacitor films provide the next-generation power boost demanded by big workloads, delivering the acceleration and torque required to move heavy cargo effectively.

NanoPlex Improves EV Efficiency, Effectiveness and Designs

EV manufacturers want the higher performance enabled by NanoPlex-based capacitors to improve the effectiveness of their designs, reduce supplemental cooling system requirements, and expand performance capabilities. The higher energy density, reduced impedance, and smaller size of NanoPlex-based capacitors allow vehicle capacitors to be more compact and lightweight. Operationally, these benefits, combined with the increased rated temperature range of NanoPlex-based capacitors, simplify vehicle powertrain layout and eliminate the need for thermal mitigation measures. NanoPlex-based capacitors can reduce vehicle weight and size plus improve acceleration and braking for electric and large hybrid vehicles.

NanoPlex Helps EVs Charge Faster and More Safely

NanoPlex-based capacitors improve the performance of EV charging stations by reducing charging times and protecting against power surges. They work by quickly storing and releasing high energy levels, enabling rapid charging during peak demand periods. NanoPlex-based capacitors help regulate power flow, reducing strain on the electrical grid and allowing faster, more efficient charging by providing instantaneous power when needed. Their ability to swiftly discharge energy enhances charging station efficiency, making the overall process faster and more effective for electric vehicle users.



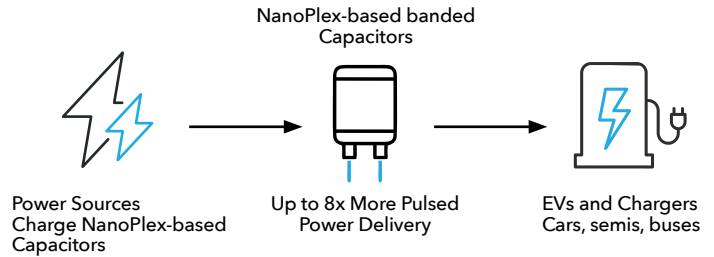


4 Ways NanoPlex Helps EVs and Charging

During acceleration, NanoPlex-based capacitors discharge more quickly than industry standard Biaxially Oriented Polypropylene (BOPP) based capacitors to provide the necessary high power, reducing battery demand. They efficiently handle the frequent charge and discharge cycles associated with abrupt acceleration and braking, prolonging the battery lifespan. NanoPlex-based capacitors help manage the energy flow, enhancing the overall efficiency and performance of the EV drivetrain by complementing the batteries' energy storage capabilities. At Peak, we see four ways NanoPlex-based capacitors can achieve these objectives:

- 1 | **Improves EV Distances** - NanoPlex-based capacitors improve EV distances by offering significant weight savings versus industry-standard BOPP capacitors through the elimination of secondary cooling devices.
- 2 | **Optimized Torque and Power Delivery** - NanoPlex-based capacitors assist in discharging energy efficiently, which can optimize raw acceleration or maximize torque required for semis, buses, and trucks transporting heavy cargo.
- 3 | **Extended Battery Life** - NanoPlex-based capacitors discharge faster than BOPP to provide the reduced battery demand and extend their usable lifetime to lower total ownership costs.
- 4 | **Reduce Cooling Requirements** - NanoPlex-based capacitors simplify vehicle powertrain layout and eliminate the need for thermal mitigation measures.
- 5 | **Reduce EV Vehicle Weight** - NanoPlex-based capacitors can reduce vehicle weight and size and improve acceleration and braking for electric and large hybrid vehicles.

NANOPLEX OPTIMIZES EV ACCELERATION AND CHARGING



Peak is The Leader in Nanotechnology Metamaterials

Peak is at the forefront of nanolayered metamaterial technology. Our patented NanoPlex solutions are engineered and manufactured in the United States.

NanoPlex represents a revolutionary leap, empowering researchers and engineers to rethink solutions for global challenges.

With our films boasting up to 4096 layers, we're pushing the boundaries of material science, fostering collaboration with researchers, engineers, and partners to pioneer groundbreaking innovations.

Metamaterials, engineered to exhibit unique properties absent in natural substances, are meticulously crafted at a nanoscale level. This precise arrangement, often smaller than the wavelengths of light, sound, or electromagnetic waves, unlocks unprecedented control over our environment and facilitates the miniaturization of materials in various products. NanoPlex, Peak's cutting-edge metamaterial, offers versatility, programmability, and optimization for diverse applications, empowering our team to redefine how we harness and manipulate light, power, and structural integrity.

<p>NANOPLEX MANAGES LIGHT AT THE WAVE LENGTH LEVEL</p>	<p>NANOPLEX INCREASES POWER STORAGE AT THE MOLECULAR LEVEL</p>	<p>NANOPLEX CREATES STRENGTH AT THE META- STRUCTURE LEVEL</p>
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