# EV Charging Spotlight

## Fast Charge Station

KYOCERA AVX offer a range of technologies to support the rapidly expanding E-charging market, from capacitors for DC Filtering and smoothing, low ESR SuperCaps to provide back-up power & antenna's to support wireless data communication.

### Film

The FFLI and FFLR series can be utilized in high power charging stations and Wallboxes for DC filtering and smoothing. The Controlled Self Healing Technology, essential to ensure a safe and reliable behaviour, is achieved using a fully dry solution with polypropylene metallized and segmented film.

FFLR has a voltage range: 600V to 3800V and capacitance range 105uF to 3000uF. FFLI has a voltage range: 1000V to 1400V and capacitance range 105uF to 3000uF.

### Supercapacitors

SCC series Supercaps support power hold-up in charging stations, with high specific power that can be rapidly discharged in case of input power source failure. KYOCERA AVX standard SCC range offers capacitance values from 1F – 3000F.

KYOCERA AVX provides various cell types to be combined into any serial connection to address various voltages. Including extremely low ESR cells (SCC LE range), ideal for creating the modules with minimal overall ESR.

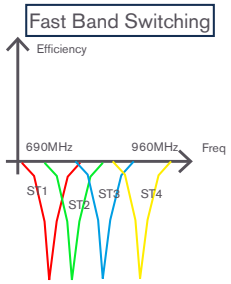

### Antenna

Low power technologies are mostly used like NB-Iot /CatM. KYOCERA AVX offers a range of small footprint tuneable embedded antennas in FPC style, FR4, Ceramic adhesive & stamped metal.

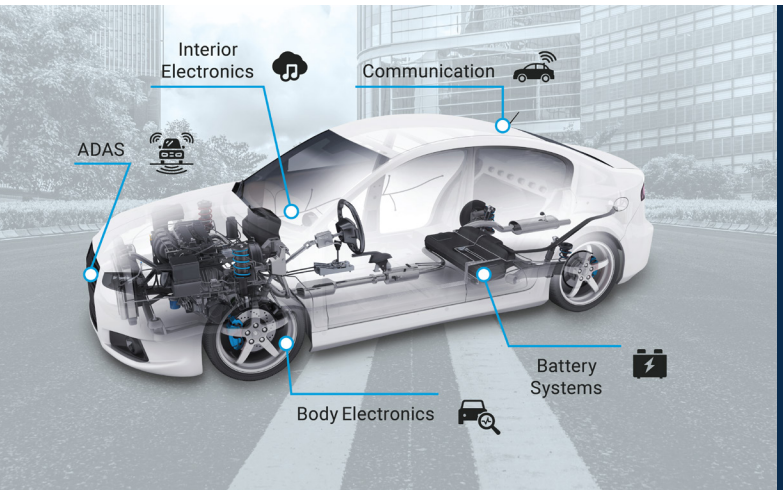
KYOCERA AVX has also released a combo LTE / 5G & Wi-Fi Dual-Band version in FPC + cable style, allowing a smaller footprint lower cost solution covering 600 MHz to 5GHz.


### Active Antennas

Band Switching in designs is getting more complex every day. KYOCERA AVX's patented RF band switching technology is ideal for meeting harsh specifications, when the environment reduces the original bandwidth (e.g. PCB size).



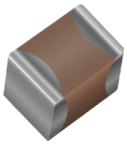
# EV Subsystems Spotlight




## Automotive EV/HEV

KYOCERA AVX Automotive EV/HEV Solutions covers a range of applications, including power conversion, advanced driver-assistance systems (ADAS), lighting, active body control, and powertrain.

These EV/HEV electronics face unique design challenges when it comes to communication and higher operating voltages when compared to traditional automotive electronics.



### HV MLCC

630v-2Kv Ratings to Accommodate DC Filtering and Resonant Circuits in On-Board Charging and Battery Management Systems. Available in flexible termination system - FLEXITERM®. 630v-2Kv Ratings to Accommodate DC Filtering and Resonant Circuits in On-Board Charging and Battery Management Systems. To improve mechanical and thermal resistance, KYOCERA AVX recommend to use flexible terminations system – FLEXITERM®.

### FILM

FHC series are Self-Healing DC Link Capacitors used in Inverters for Extremely Safe Operation. The FHC series capacitors are specifically designed to prevent ripple currents from reaching back to the power source, and to smooth out DC bus voltage variations.

### Antenna

Preventive maintenance and power consumption data are collected and sent wirelessly using antennas. KYOCERA AVX's passive antennas establish benchmarks for speed, range, efficiency and reliability. KYOCERA AVX also offers passive & active steerable antenna for V2X communication.


### Polymer Capacitors

TCQ low ESR conductive polymer series with AEC-Q200 qualified components developed to deliver high endurance & performance stability to address the reliability requirements of automotive applications. Available in 5 case sizes including low profile.

### SPINpad Position Sensor

In Battery Electric and Hybrid vehicles a fast and accurate rotor position measurement is essential for efficient E-motor controls. A precise position signal from stand still (0 rpm) to maximum rotation speed (100,000 rpm) is required for a high torque and high efficiency of the traction drive and for more power and extended driving range of the vehicle.