

# Application Note

## Film capacitors for Automotive

Increasing xEV battery capacity requires design for EV on-board chargers with higher and higher power output. To meet this need, metallized PP film capacitor ECQUA, ECWFG and EZPV series are featuring large current handling ability, high reliability and high safety.



# On-board charger

**Panasonic**  
INDUSTRY

## PRODUCT

AEC-Q200-compliant metallized polypropylene film capacitors (box type)  
ECQUA, ECWFG, EZPV series

## PURPOSE

Reliability and especially humidity resistance is critical for components for Automotive on-board chargers. Panasonic proprietary enclosure sealing technology and aluminum vapor deposition achieve humidity resistance along with compliance to AEC-Q200 and high safety (thanks to built-in fuse function).

## FEATURES

- High Safety: patterned metallization with fuse function
- High Humidity Resistance
- High Thermal Shock Resistance (ECQUA and ECWFG series only)
- AEC-Q200 Compliant
- RoHS Compliant



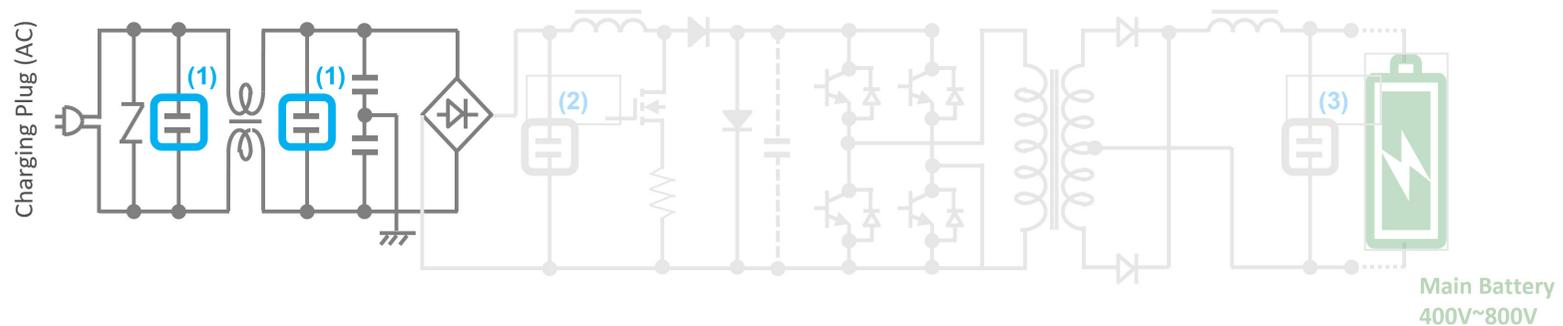
# On-board charger

## FACTS & FUNCTION

As the most essential part in an electric vehicle, batteries' increasing capacity is the key for development nowadays. This requires design for on board charger and DC/DC converter with high safety and high power output.

Panasonic offers its automotive metallized PP film capacitors to meet this need.

As EMI suppression (1) film capacitor is placed at the input side of AC/DC circuit, it is required to handle high voltage impulses and protect users from harm due to electrical shock. Thanks to Panasonic's in-house patterned metallization technology (also well known as „built-in fuse function“), its ECQUA series (safety class X2) offer overvoltage impact reduction to realize high safety with open failure mode. Both voltage values of 275VAC and 310VAC are available, and capacitance range is up to 10 $\mu$ F.



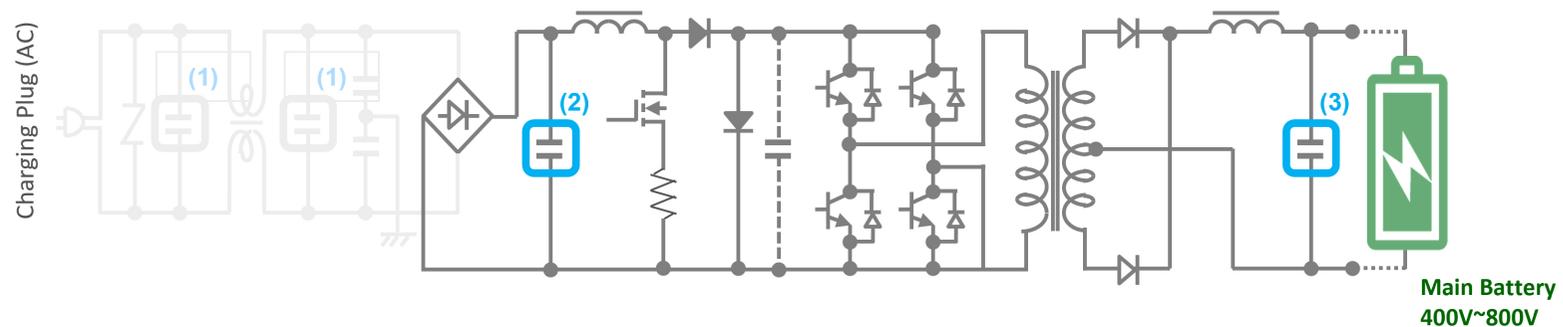
Function	(1) EMI Suppression	(2) Smoothing	(3) Smoothing
Voltage	275VAC, 310VAC	600VDC~1,100VDC	600VDC~1,100VDC
Product	ECQUA	ECWFG	ECWFG, EZPV

# On-board charger

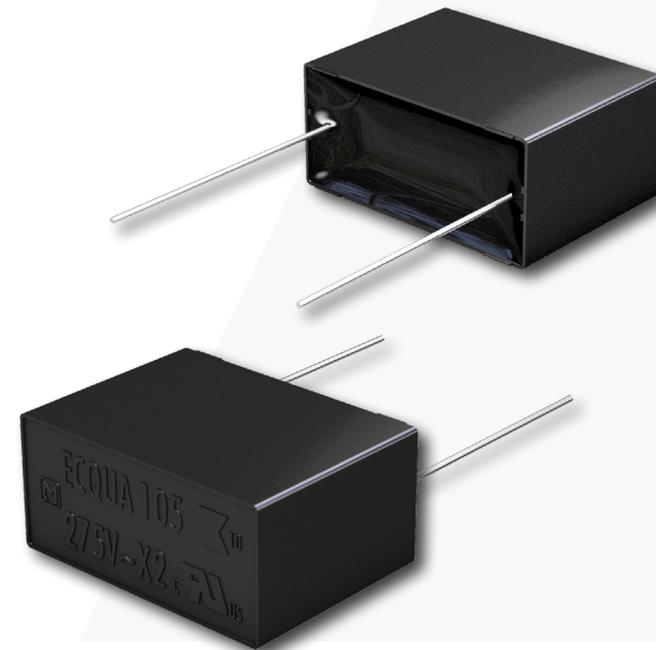
## FACTS & FUNCTION

Following power conversion from AC into DC, PFC circuit plays an important role to improve power factor and therefore power quality. Here is where ECWFG series come in as PFC film capacitor with its excellent smoothing (2) performance. Besides a wide DC voltage range of 600V up to 1100V, this series provide high ripples current handling ability at high temperature, and feature high thermal shock resistance.

At the output side of DC/DC converting circuit, ECWFG and EZPV series for smoothing (3) purpose offer high voltage capacity up to 1100VDC together with a wide capacitance range from 1 $\mu$ F to 110 $\mu$ F. High safety (thanks to built-in fuse function) and high ripple current capacity help these two series optimize the high power output performance of the circuit.



Function	(1) EMI Suppression	(2) Smoothing	(3) Smoothing
Voltage	275VAC, 310VAC	600VDC~1,100VDC	600VDC~1,100VDC
Product	ECQUA	ECWFG	ECWFG, EZPV



Application Note - How to solve various tasks with film capacitors for on-board chargers

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Notes: Data and descriptions in this document are subject to change without notice.

Product renderings are for illustration purposes only and may differ from the real product appearance.