

# Quasar Bi-directional DC Charger

High-performance UnitedSiC FETs significantly reduces losses.

## OVERVIEW

By using the industry's lowest RDS(on) SiC FETs from UnitedSiC, Wallbox was able to significantly reduce losses, improve efficiency and reliability in their award winning Quasar Bi-directional EV charger.

## SOLUTION

UF3SC065007K4S  
UF3SC120009K4S

## BENEFITS

- Higher efficiency
- Reduced losses by 30%
- Improved reliability
- Increased product lifetime

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[unitedsic.com/group/sic-fets/](https://unitedsic.com/group/sic-fets/)



Wallbox, based in Barcelona, Spain, is a global smart charging company that designs and manufactures electric vehicle charging solutions. The new **Quasar** charger is the first bi-directional DC charger for the home. It is the lightest, smallest charger of its kind and it will revolutionize the way we all use and store energy—from turning your electric vehicle into a power source for your home to selling energy back to the grid. The Quasar charger has won Endgaget's "Best of CES" in 2020, along with three other major awards.

Wallbox chargers, as well as the myWallbox platform, are carefully designed to make charging electric vehicles simple for consumers so they can take full advantage of the possibilities that electric vehicles offer to people, businesses and cities. Quasar's two-way charging allows EV batteries to be used to power homes, offices and even return energy to the grid in times of high demand. To achieve maximum power performance, Wallbox needed to increase overall efficiency, based on reducing power losses, and reduce the size of their charger.

## SOLUTION

To support their need for maximum efficiency from lower losses at high-speed switching, Wallbox employed two UnitedSiC SiC FETs devices:

UF3SC065007K4S – 650V @ 7mohms, TO247-4L kelvin package  
UF3SC120009K4S – 1200V @ 9mohms, TO247-4L kelvin package



Juan Ignacio Talpone  
Head of Power Electronics

“UnitedSiC gave us technical support, sent us development kits and provided samples to test. I think that due to actual and near future Wallbox projects, our relationship grew stronger.”

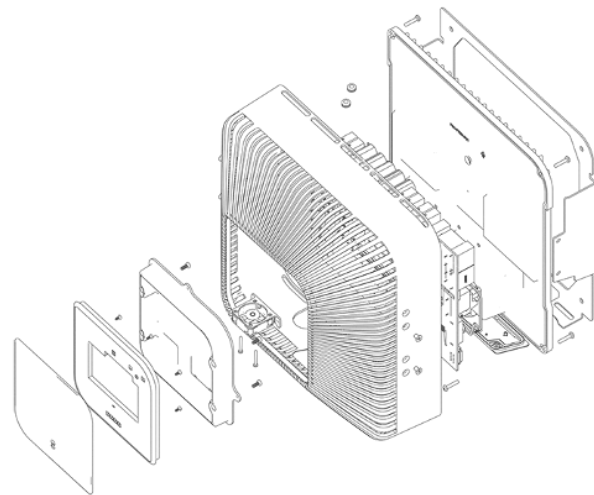


Figure 1: Internal structure of Quasar charging system

## BENEFITS

UnitedSiC devices facilitated an increase in efficiency and **30% reduction in losses** in the power stages of the Quasar. The losses reduction allowed Wallbox to reduce internal temperatures and improve the system's reliability and lifetime. It also avoided increasing the required heatsink size.