

# SIGNET EV Fast Battery Chargers

**Achieving higher efficiency, improved noise immunity and durability, with design ease-of-use in fast-charging stations using UnitedSiC FETs and Diodes**

## OVERVIEW

SIGNET EV used a combination of UnitedSiC SiC FETs and Schottky diodes that delivered excellent efficiency and noise immunity in their newest family of fast charger stations

## SOLUTIONS

UJ3C120080K3S SiC FET  
UF3C065040K3S SiC FET  
UJ3D06530TS SiC Schottky diode

## BENEFITS

- Higher efficiency
- Improved noise immunity
- Ease of design - SiC FET replacement through standard gate drive

► **To learn more, go to:**

<https://unitedsic.com/group/sic-fets/>  
<https://unitedsic.com/group/sic-schottky-diodes/>



SIGNET EV is a leading EV battery charger provider to both the Korean and worldwide market, delivering fast, efficient, and scalable charging solutions, from single user chargers to integrated Micro Grid charging stations. New charger designs at SIGNET EV must deliver next-level performance with excellent durability to meet their customer needs. This means the power devices they select for their charging systems must provide the industry's best levels of efficiency, durability/reliability, while also being easy to design with. This was the case with the new SIGNET EV 175kW & 350kW EV battery chargers for EA project, USA, and the 50kW & 100kW battery chargers for domestic use.

## SOLUTIONS

SIGNET EV employed 3 different UnitedSiC devices in their new charger station designs to achieve their aggressive charge time and durability goals:

Design Manager  
SIGNET EV

**“Noise immunity is better than SiC competitors with 0.5% higher efficiency.”**

- UJ3C120080K3S SiC FET – 1200V, 80mohm, TO247-3L package
- UF3C065040K3S SiC FET – 650V, 40mohm, TO247-3L package
- UJ3D06530TS SiC Schottky diode – 650v, 30mohm, TO220-2L package



Figure 1. SIGNET EV chargers

## BENEFITS

**Higher efficiency** – Increased efficiency by 0.5% compared to previous design using competitor’s SiC devices

**Noise immunity** – New charger design had superior noise immunity with the UnitedSiC devices compared to other SiC technology providers, delivering a more “stable and durable” design

**Ease of Use** – Thanks to the UnitedSiC standard gate drive (0V ~ 12V), direct SiC FET drop-in replacement was possible, saving design time and ensuring overall cost-effectiveness.