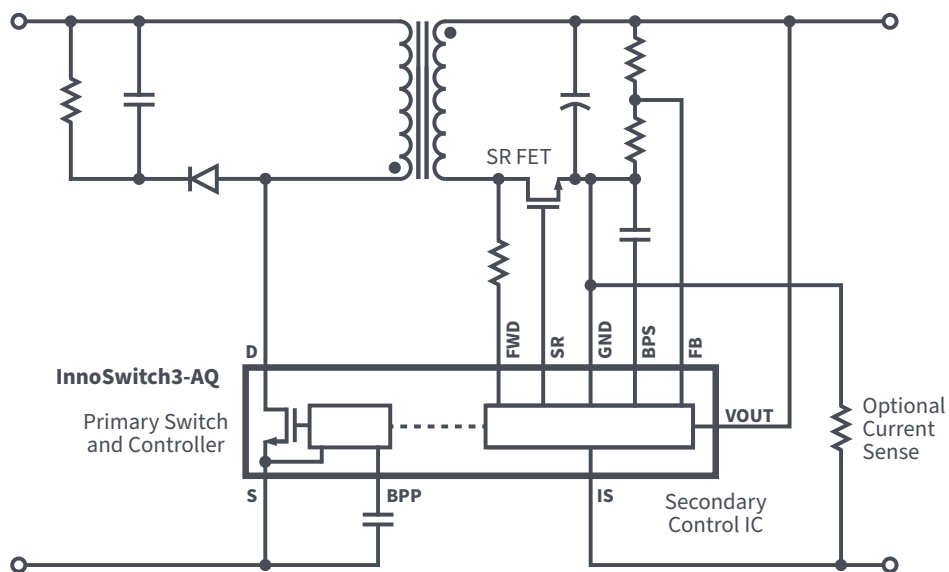


InnoSwitch™ 3-AQ

- Wide input voltage range: 30 V to 1200 V
 - Supports 400 V and 800 V DC bus
- >90% efficient across load
- Integrated FluxLink™ feedback
 - Reinforced isolation
 - Eliminates opto-isolator
- AEC-Q100 qualified
- Less than 30 mW no-load

CV/CC Valley Switching Flyback Switcher IC with Integrated 750 V to 1700 V MOSFET, GaN, Si and SiC Options and FluxLink Feedback for Automotive BEV and PHEV Applications



PI-8184a-031320

Applications

Auxiliary, standby and bias power supplies for:

- Traction inverters
- Power distribution units (PDUs)
- uDCDC Converters
- On-board chargers
- Battery management systems
- Emergency power supplies (EPS)

Output Power¹

Product	30 VDC (W)	60 VDC (W)	400 VDC (W)	800 VDC (W)
INN3977CQ	10	20	30	N/A
INN3996CQ	7	14	20	N/A
INN3997CQ	10	20	55	N/A
INN3999CQ	10	30	85	N/A
INN3990CQ	10	40	100	N/A
INN3947CQ	10	23	50	50
INN3949CQ	10	40	120	120
INN3947FQ ²	10	23	50	50
INN3949FQ ²	10	40	120	120

¹ Max output power is dependent on the design. With condition that package temperature must be < 125 °C. Uses PCB copper for heat sinking.

² Package options: InSOP™-24D, InSOP-28G.



InSOP-24D Package



InSOP-T28G package

Design Support

Design Tool	PI Expert online (www.power.com/pi-expert-online)
Application Note	InnoSwitch3-AQ family design guide for automotive applications (AN-106Q) (www.power.com/an-106q)
Design Example	86 W power supply for 800 V bus using InnoSwitch3-AQ (DER-952Q) (1700 V SiC Switch) (www.power.com/der-952q)
Design Example	70 W power supply replacing 12 V battery in 400 V BEV systems using InnoSwitch3-AQ (DER-1035Q) (1700 V SiC Switch) (www.power.com/der-1035q)
Design Example	100 W power supply replacing 12 V battery in 400 V BEV system using InnoSwitch3-AQ (DER-953Q) (900 V PowiGaN Switch) (www.power.com/der-953q)
Design Example	35 W power supply for 800 V bus with 30-1000 VDC input and 15 V output using InnoSwitch3-AQ (DER-948Q) (1700 V SiC Switch) (www.power.com/der-948q)
Design Example	13 W dual output power supply for 800 V bus using InnoSwitch3-AQ (DER-956Q) (1700 V SiC Switch) (www.power.com/der-956q)
Design Example	10 W, 7.5 V output power supply for 800 V bus using InnoSwitch3-AQ (DER-946Q) (1700 V SiC Switch) (www.power.com/der-946q)
Design Example	35 W power supply for 800 V bus with 40-1000 VDC input using InnoSwitch3-AQ (DER-913Q) (1700 V SiC Switch) (www.power.com/der-913q)
Design Example	13 W triple-output power supply for 400 V bus with 40-530 VDC input using InnoSwitch3-AQ (DER-926Q) (www.power.com/der-926q)
Design Example	30 W power supply for 400 V bus with 30-550 VDC input using InnoSwitch3-AQ (RDR-840Q) (www.power.com/rdr-840q)
Video	800 V automotive emergency power supply solution (EPS) (www.power.com/innoswitch3-aq-video)
Video	InnoSwitch3-AQ ICs with 900 V PowiGaN switch support 400 V EV systems up to 100 W (www.power.com/community/videos/innoswitch3-aq-900v-powigan)
Video	InnoSwitch3-AQ now supports 30-1000 V input with 1700 V SiC switch (www.power.com/community/videos/innoswitch3-aq-now-supports-30-1000-v-input-1700-v-sic-switch)