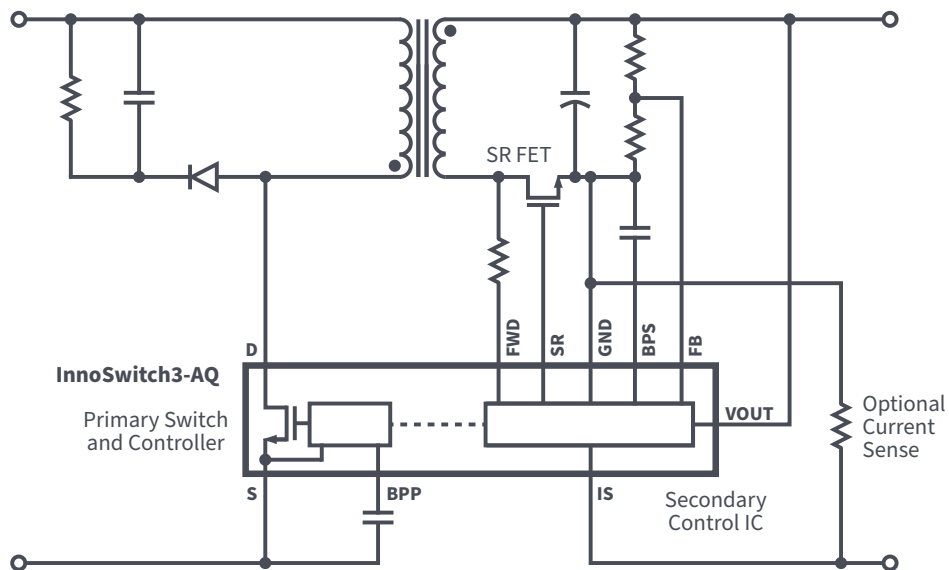


# InnoSwitch™ 3-AQ

- 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, 900 or 1700 V Switch Options – GaN, Si or Sic, and FluxLink (Magneto-Inductive) Isolated 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 Power<sup>1</sup>

Product	Switch Voltage Rating (V)	30 VDC (W)	60 VDC (W)	400 VDC (W)	800 VDC (W)
INN3977CQ	750	10	20	30	N/A
INN3996CQ	900	7	14	20	N/A
INN3997CQ	900	10	20	55	N/A
INN3999CQ	900	10	30	85	N/A
INN3990CQ	900	10	40	100	N/A
INN3947CQ	1700	10	23	50	50
INN3949CQ	1700	10	40	120	120
INN3947FQ <sup>2</sup>	1700	10	23	50	50
INN3949FQ <sup>2</sup>	1700	10	40	120	120

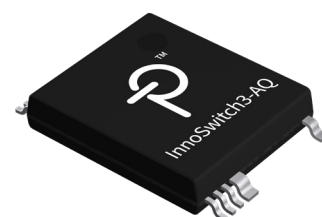
<sup>1</sup> Max output power is dependent on the design. With condition that package temperature must be < 125 °C.

Uses PCB copper for heat sinking.

<sup>2</sup> Package options: InSOP™-24D, InSOP-28G.



InSOP-24D Package



InSOP-28G package

## Design Support

Design Tool	PI Expert online ( <a href="http://www.power.com/pi-expert-online">www.power.com/pi-expert-online</a> )
Application Note	InnoSwitch3-AQ family design guide for automotive applications (AN-106Q) ( <a href="http://www.power.com/an-106q">www.power.com/an-106q</a> )
Design Example	15 W Flyback With Planar Transformer for 400 V EPSUs (DER-1109Q) ( <a href="http://www.power.com/DER-1109Q">www.power.com/DER-1109Q</a> )
Design Example	35 W power supply with planar transformer for 200-1000 VDC input - 1700 V SiC switch ( <a href="http://www.power.com/DER-994Q">www.power.com/DER-994Q</a> )
Design Example	20 W 4-output emergency power supply in 800 V BEV system - 1700 V SiC switch ( <a href="http://www.power.com/DER-1030Q">www.power.com/DER-1030Q</a> )
Design Example	18 W power supply with planar transformer in 800 V BEV systems - 1700 V SiC switch ( <a href="http://www.power.com/DER-1039Q">www.power.com/DER-1039Q</a> )
Design Example	16 W 4-output inverter gate drive power supply in 800 V BEV system - 1700 V SiC switch ( <a href="http://www.power.com/DER-1045Q">www.power.com/DER-1045Q</a> )
Design Example	120 W power supply with planar transformer replacing 12 V battery in 800 V BEV systems - 1700 V SiC switch ( <a href="http://www.power.com/DER-1054Q">www.power.com/DER-1054Q</a> )
Design Example	86 W power supply for BEV system - 1700 V SiC switch ( <a href="http://www.power.com/DER-952Q">www.power.com/DER-952Q</a> )
Design Example	70 W power supply replacing 12 V battery in 400 V BEV systems - 1700 V SiC switch ( <a href="http://www.power.com/DER-1035Q">www.power.com/DER-1035Q</a> )
Design Example	100 W power supply replacing 12 V battery in 400 V BEV system - 900 V PowiGaN switch ( <a href="http://www.power.com/DER-953Q">www.power.com/DER-953Q</a> )
Design Example	35 W power supply for 30-1000 VDC input and 15 V output in 800 V BEV system - 1700 V SiC switch ( <a href="http://www.power.com/DER-948Q">www.power.com/DER-948Q</a> )
Video	800 V automotive emergency power supply solution (EPS) ( <a href="http://www.power.com/innoswitch3-aq-video">www.power.com/innoswitch3-aq-video</a> )
Video	InnoSwitch3-AQ ICs with 900 V PowiGaN switch support 400 V EV systems up to 100 W ( <a href="http://www.power.com/community/videos/innoswitch3-aq-900v-powigan">www.power.com/community/videos/innoswitch3-aq-900v-powigan</a> )
Video	InnoSwitch3-AQ now supports 30-1000 V input with 1700 V SiC switch ( <a href="http://www.power.com/community/videos/innoswitch3-aq-now-supports-30-1000-v-input-1700-v-sic-switch">www.power.com/community/videos/innoswitch3-aq-now-supports-30-1000-v-input-1700-v-sic-switch</a> )