

SECO-HVDCDC1362-15W-GEVB: 15 W SiC High-Voltage Auxiliary Power Supply for HEV & BEV Applications

SECO-HVDCDC1362-15W-GEVB is highly efficient and primary-side regulated (PSR) auxiliary power supply targeting HEV and EV automotive power trains. The design provides a stable 15 V output and 15 W over a wide input DC voltage range from 250 V to 900 V, and is therefore suitable for 400 V and 800 V battery systems. The board employs the NCV1362 quasi-resonant peak current PSR flyback controller, the 3-lead cost-optimized NVHL160N120SC1 160 m 1200 V silicon carbide (SiC) MOSFET, and the FFSD0665B-F085 SiC diode.



Thanks to the high blocking voltage capabilities and ultra-low gate charge (34 nC) value of the SiC FET, the switching losses are significantly reduced, and the board exhibits a superior efficiency for the application up to 86% in low line input conditions. The notable driving capabilities of the NCV1362 controller allows for direct operation of the SiC FET at 12V without a pre-driver, simplifying the layout and cutting down the component count.

The flyback transformer provides 4 kV isolation and is optimized to minimize the losses on the RCD snubber. Consequently the system effectively dampens the drain voltage overshoot at high line, and provides 100 V margin for the SiC FET. The board is fully realized with automotive qualified semiconductors and passive devices. Industrial grade replacements are also available.

Features and Applications

Features

- NCV1362 (Automotive) / NCP1362 (Industrial) Quasi-resonant Peak Current PSR Flyback Controller
- Fully Automotive Qualified Devices
- $V_{in} = 240\text{ V} - 900\text{ V DC}$ Only
- $V_{out} = 15\text{ V} / 15\text{ W}$ Continuous
- Electromagnetic Compatibility (EN 55015 Limits)
- High Efficiency up to 86%
- SiC FET Directly Operated at 12 V by the IC
- Excellent Thermal Performance

Benefits

- Superior Efficiency with SiC Devices
- Stable Performance across a Wide Input Voltage Range (250 Vdc ? 900 Vdc)
- Reduced Bill-of-Material and Cost-optimized
- Fully AEC-Q Qualified Parts
- EMC within EN 55015 Limits
- Single Layer PCB

Applications

- EV Charging and DC-DC Conversion





- Industrial DCDC Conversion, Solar Inverts (with Industrial grade)

Evaluation/Development Tool Information					
Product	Status	Compliance	Short Description	Parts Used	Action
SECO-HVDCDC1362-15W-GEVB	Active	Pb-free	15 W SiC High-Voltage Auxiliary Power Supply for HEV & BEV Applications	NCV1362AADR2G NVHL160N120SC1	Buy

Technical Documents			
Type	Document Title	Document ID/Size	Rev
Video	Automotive High Voltage Auxiliary Power Supply	WVD17468/D	
Eval Board: Manual	SECO-HVDCDC1362-15W-GEVB User's Manual	EVBUM2752/D - 2563 KB	2
Eval Board: BOM	SECO-HVDCDC1362-15W-GEVB Bill of Materials (ROHS Compliant)	SECO-HVDCDC1362-15W-GEVB_BOM_ROHS - 611 KB	2
Eval Board: Gerber	SECO-HVDCDC1362-15W-GEVB Gerber Layout Files (Zip Format)	SECO-HVDCDC1362-15W-GEVB_GERBER - 215 KB	1
Eval Board: Schematic	SECO-HVDCDC1362-15W-GEVB Schematic	SECO-HVDCDC1362-15W-GEVB_SCHEMATIC - 338 KB	1
Eval Board: Test Procedure	SECO-HVDCDC1362-15W-GEVB Test Procedure	SECO-HVDCDC1362-15W-GEVB_TEST_PROCEDURE - 755 KB	1

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