Photovoltaic OLED Driver for Low-Power Stand-Alone Light-to-Light Systems

Photovoltaic (PV) stand-alone systems need to achieve multiple energy conversion modes. I.e. the energy conversion from PV to a local energy storage as well as energy conversion from the energy storage to the load. This paper documents the practical design considerations for the development of a three-port-converter for this purpose optimized for the specifications for driving an Organic Light Emitting Diode (OLED) panel intended for lighting purposes. By using a three-port-converter, featuring shared components for each conversion mode, the converter reaches 97 % efficiency at 1.8 W during conversion from photovoltaic panel to the battery, and 97 % in the area 1.4 W to 2 W for power delivery to the OLED.

General information
Publication status: Published
Organisations: Department of Photonics Engineering, Diode Lasers and LED Systems, Department of Electrical Engineering, Electronics
Contributors: Ploug, R. O., Knott, A.
Pages: 50-55
Publication date: 2016
Peer-reviewed: Yes

Publication information
Journal: Elektronika ir Elektrotechnika
Volume: 22
Issue number: 3
ISSN (Print): 1392-1215
Ratings:
Scopus rating (2016): CiteScore 0.85 SJR 0.294 SNIP 0.689
Web of Science (2016): Impact factor 0.859
Web of Science (2016): Indexed yes
Original language: English
Keywords: Power electronics, Photovoltaic systems, Organic light emitting diodes, Energy efficiency
Electronic versions:
Ploug_OLED_driver.pdf
DOIs:
10.5755/j01.eie.22.3.15314
Source: PublicationPreSubmission
Source-ID: 124281182
Research output: Contribution to journal › Journal article – Annual report year: 2016 › Research › peer-review