

### 38 – 60V<sub>IN</sub>, 240W ZVS Buck-Boost Regulator

#### Product Description

The PI3751-02 is a high-efficiency, wide input range DC-DC ZVS Buck-Boost regulator. This high-density module integrates controller, power switches, and support components. The integration of a high-performance Zero-Voltage Switching (ZVS) topology, within the PI3751-02, increases point-of-load performance providing best-in-class power efficiency.

The PI3751-02 requires an externally applied 5V bias to the VDR input, an external inductor, resistive divider and minimal capacitors to form a complete DC-DC switching mode buck-boost regulator.

The ZVS architecture also enables high-frequency operation while minimizing switching losses and maximizing efficiency. The high switching frequency operation reduces the size of the external filtering components, improves power density, and enables very fast dynamic response to line and load transients. The PI3751-02 sustains high switching frequency up to the rated input voltage without sacrificing efficiency and supports large conversion ratios.



#### Features & Benefits

- Over 97.5% efficiency at 2.5MHz F<sub>SW</sub>
- Wide input voltage range of 38 – 60V
- Wide output voltage range of 38 – 50V
- Up to 240W continuous output power / 512.5W peak
- Power density exceeding 1,389W/in<sup>3</sup>
- Fast transient response in VRM 13 applications
- Light-load mode < 200mW no-load power dissipation
- VTM™ compatibility mode
- High-side current sense amplifier
- User-configurable differential amplifier
- Input / Output Over / Undervoltage Protection
- Temperature lockout protection
- Fast and slow current limits
- –40 to 125°C operating range (T<sub>J</sub>)

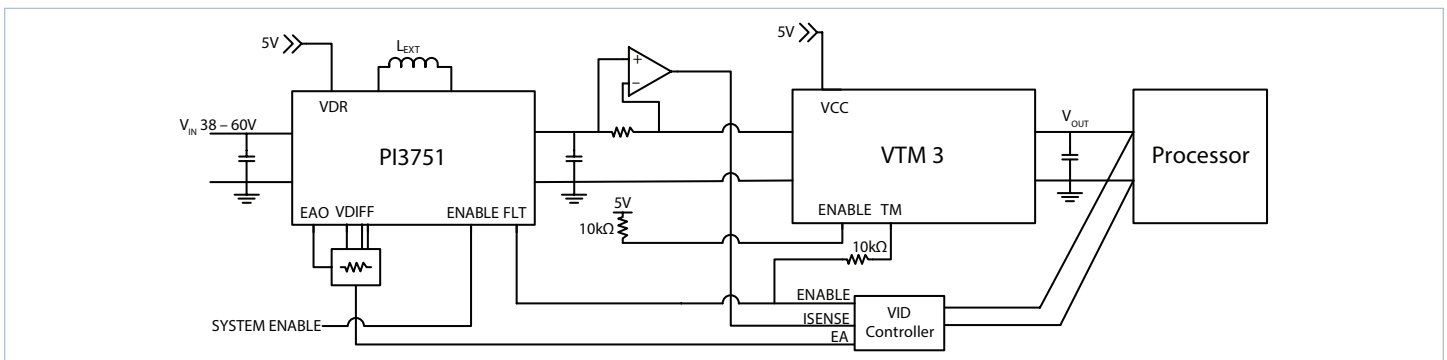
#### Applications

- Factorized Power Solution (when coupled with a VTM device)
- Computing, Communications, Processor, DDR Memory
- 48V to PoL Power Solutions

#### Package Information

- 10 x 14 x 2.56mm Land Grid Array Module

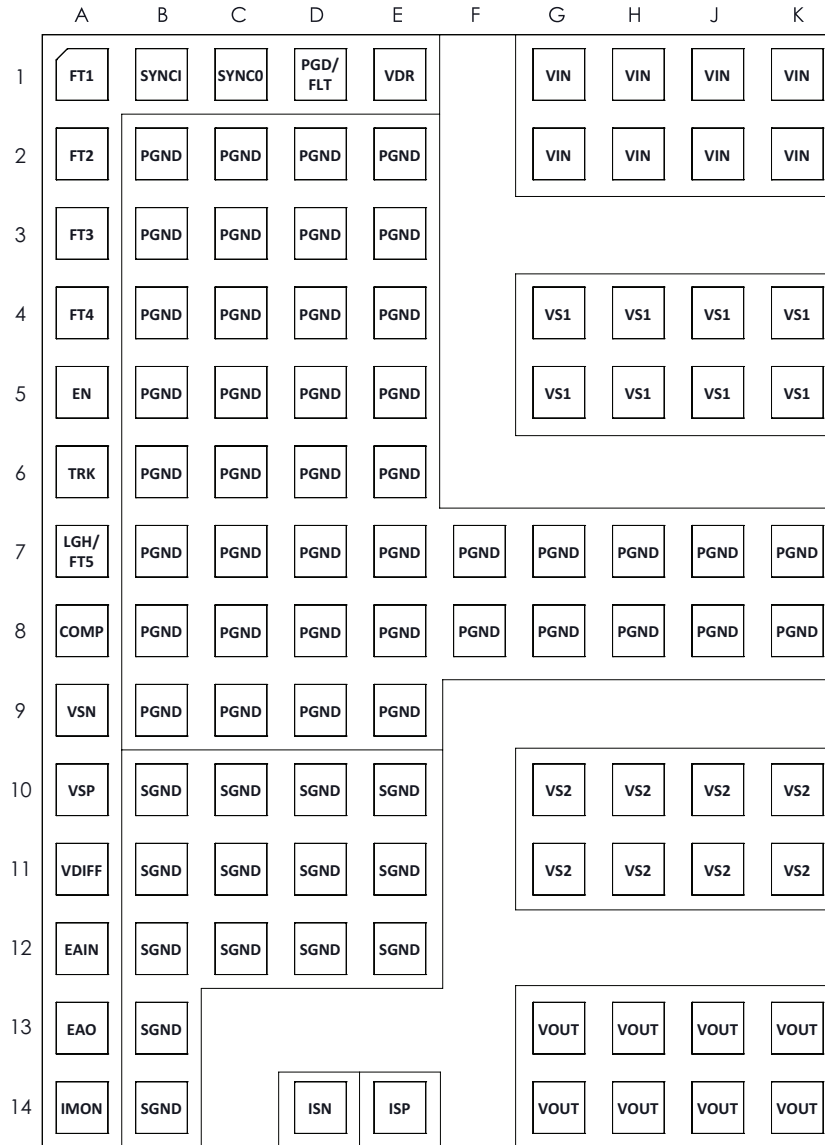
#### Typical Application



Applications diagram for use within a Factorized Power, VR13.0 design

Note: Product images may not highlight current product markings.

Package Pinout



BB 10x14mm SiP

TOP VIEW THROUGH THE PRODUCT

Large Pin Blocks

Pin Block Name	Group of pins
VIN	K1-2, J1-2, H1-2, G1-2
VS1	K4-5, J4-5, H4-5, G4-5
PGND	K7-8, J7-8, H7-8, G7-8, F7-8, E2-9, D2-9, C2-9, B2-9
VS2	K10-11, J10-11, H10-11, G10-11
VOUT	K13-14, J13-14, H13-14, G13-14
SGND	E10-12, D10-12, C10-12, B10-14

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