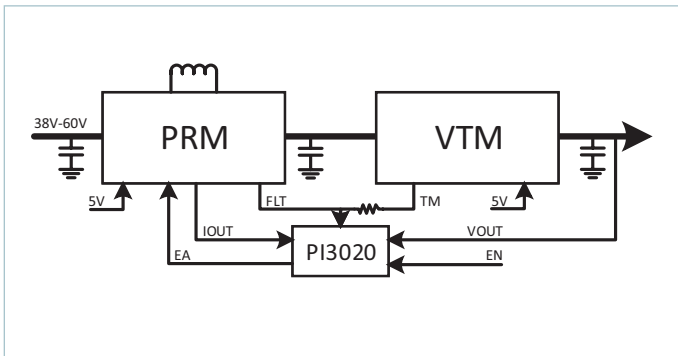


## Digital Control and Telemetry Device with SVID

### Product Description

The PI3020 is a Digital Control and Telemetry (DCT) device with two independent power control outputs. It provides a programmable precision reference, high bandwidth analog error control loop, internal analog compensation, precision current sensing and optional programmed impedance control. Moving the sensitive analog compensation components internal to the PI3020 simplifies system implementation and circuit layout. I<sup>2</sup>C commands support, telemetry, power sequencing, and system programming. A 12 bit A/D is provided with multiple input options, and an auxiliary 3.1 V, 2.5 V or 1.8 V reference output pin is also provided. The PI3020 includes the proprietary Intel SVID control interface with full support for Server VR13, and backwards compatibility support for Server VR12.5 designs. Internally programmable analog control loop architecture enables high bandwidth linear operation with 3 zero and 6 pole control. The high speed linear control loop enables very fast dynamic response to line and load transients without concerns prevalent in sampled systems. The PI3020 is designed to control power systems with large input to output conversion ratios and allows additional optimization of Factorized Power™ PRM™ + VTM™ systems. The PI3020 also includes an independent control loop with DrMOS compatible PWM output.

### Typical Application



Applications Diagram for use within a Factorized Power, CPU or DDR4 Design

### Features & Benefits

- I<sup>2</sup>C Interface for Control or Telemetry
- SVID Support for VR13 and VR12.5
- Digitally Programmable Internal Analog Compensation Network
- Digitally Programmable Precision Load Line
- High Bandwidth Analog Control Path
- Output Margining Option
- Second Control Loop with DrMOS Compatible PWM Output
- 12-Bit A/D for Telemetry and System Monitoring
- Auxiliary Reference Output 3.1 V, 2.5 V or 1.8 V
- Programmable Power Sequencing Outputs
- Programmable Fault Behavior
- Input Over/Under Voltage Lockout (OVLO/UVLO)
- Output Over Voltage Protection (OVP)
- Output Under Voltage Protection (UVP)
- Output Over Current Protection (OCP)
- Over Temperature Protection (OTP)
- -40°C to 125°C Operating Range (T<sub>J</sub>)

### Applications

- CPU, ASIC and DDR4 Systems
- Computing, Communications, LED Lighting
- Battery Charging, Solar Array MPPT

### Package Information

- 6 mm x 6 mm x 0.9 mm, 48 pin QFN

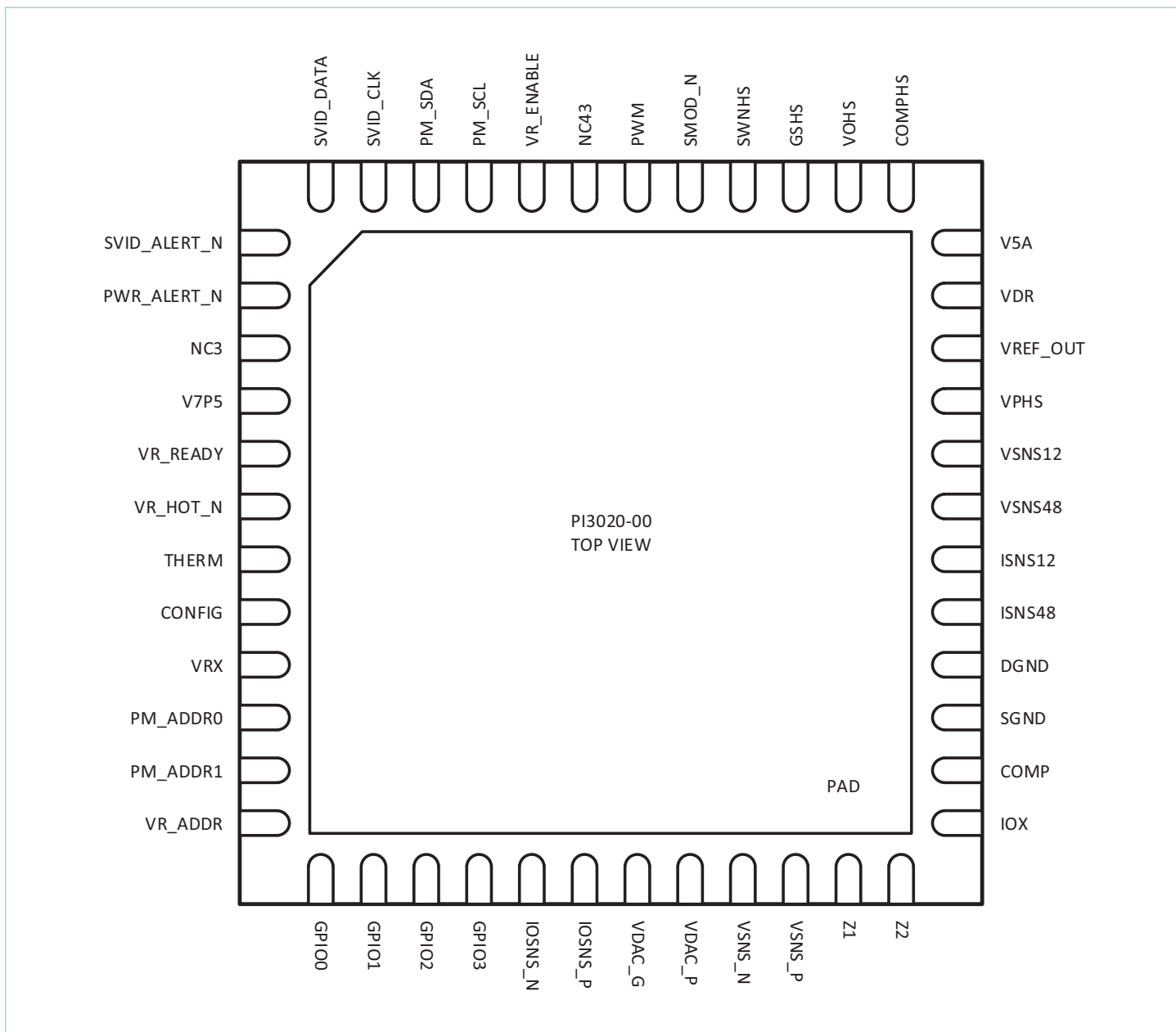
### Order Information

Cool-Power	RoHS Compliance	Package	Transport Media
PI3020-xx-QCHG	Yes	6 mm x 6 mm 48-pin QFN	TRAY

### Pin Description

Pin Descriptions for the PI3020 are available with NDA. Contact Vicor for details on obtaining product information.

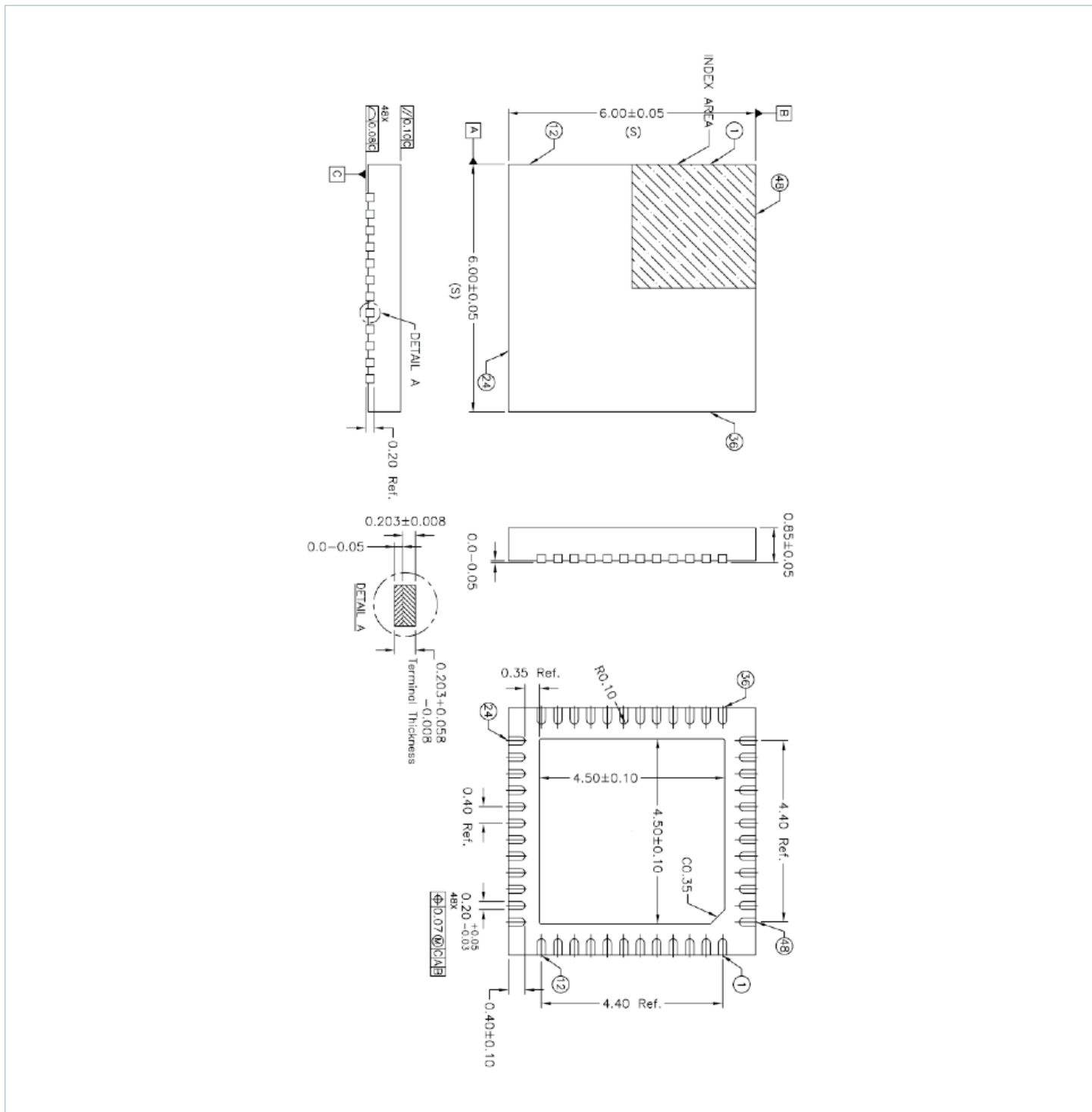
### Package Pin-Out



Package Top View 48-Lead QFN (6 mm x 6 mm)

I<sup>2</sup>C is a trademark of NXP Semiconductors. All other trademarks are the property of their respective owners.

Package Drawings



- [1] All Dimensions are in mm. Angles are in Degrees.
- [2] Coplanarity applies to the exposed pad as well as the terminals. Coplanarity shall not exceed 0.08 mm.
- [3] Warpage shall not exceed 0.10 mm.
- [4] Package Length / Package Width are considered as special characteristic (S).
- [5] Refer to JEDEC MO-220.
- [6] Use of NSMD pads is recommended. Refer to IPC-7525 for Stencil design considerations.

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