National Semiconductor

LM25066

PRELIMINARY
February 19, 2010

System Power Management and Protection IC with PMBus

General Description

The LM25066 combines high performance analog and digital technology to accurately measure, protect and control the electrical operating conditions of computing and storage blades connected to a backplane power bus. The LM25066 continuously supplies real-time power, voltage, current, temperature and fault data to the system management host via the I2C/SMBus interface with PMBus compliant protocol. The LM25066 monitoring block captures peak power and computes the average of subsystem operating parameters (Vin, Iin, Pin, Vout). LM25066 current measurement is ±3% accurate over the operating temperature range of -40°C to 125°C. The LM25066 protection block utilizes provides adjustable under/overvoltage and hysteresis. A temperature monitoring block on the LM25066 interfaces with a low-cost external diode for monitoring the temperature of the external MOSFET or other critical temperature source. The temperature sensor can be used to protect against MOSFET overheating. The LM25066 reports the status of all system warning and fault conditions and offers programmable warning thresholds through the SMBus interface. This feature provides design flexibility and dynamic system protection.

The LM25066 control block includes unique hot-swap architecture that provides current and power limiting to protect sensitive circuitry during insertion of boards from a live system backplane, or any other "hot" power source.

Features

- Operating range: +2.9V to +17V
- Current Limit Threshold: 25 mV or 50 mV
- I²C/SMBus interface and PMBus compliant command structure
- Real time system telemetry monitoring
- Current measurement accuracy: ±3%, 25 mV threshold, -40°C to 125°C
- True Input Power from simultaneous sampling of V_{IN} and I_{IN}
- Power limited control of hotswap insertions, inrush current, circuit breaker functions
- Multi-level configuration and monitoring of system fault conditions via PMBus
- Full featured application design and development software

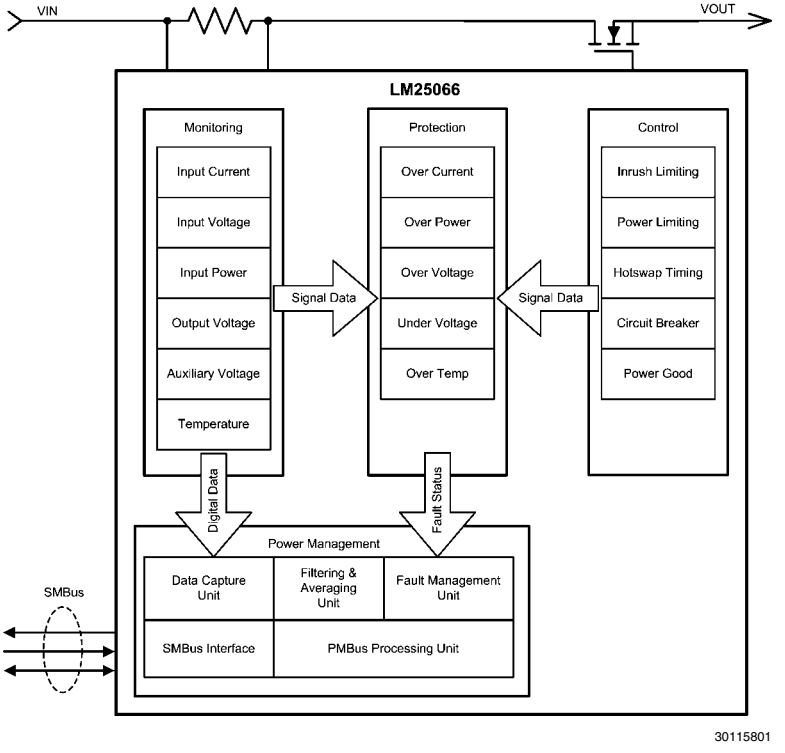
Applications

- Server Backplane Systems
- Base Station Power Distribution Systems
- Solid State Circuit Breaker

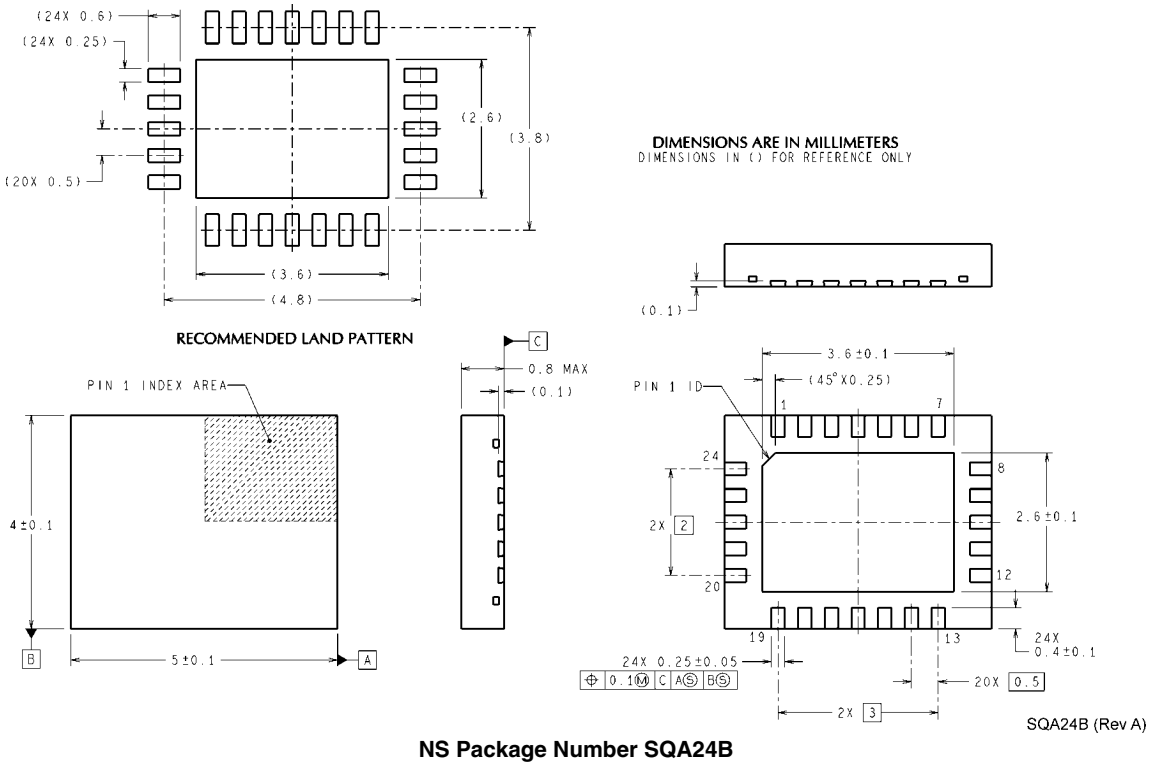
Package

24-Lead LLP Package

Block Diagram



Physical Dimensions inches (millimeters) unless otherwise noted



NS Package Number SQA24B

Notes

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LVDS	www.national.com/lvds	Packaging	www.national.com/packaging
Power Management	www.national.com/power	Green Compliance	www.national.com/quality/green
Switching Regulators	www.national.com/switchers	Distributors	www.national.com/contacts
LDOs	www.national.com/ldo	Quality and Reliability	www.national.com/quality
LED Lighting	www.national.com/led	Feedback/Support	www.national.com/feedback
Voltage References	www.national.com/vref	Design Made Easy	www.national.com/easy
PowerWise® Solutions	www.national.com/powerwise	Applications & Markets	www.national.com/solutions
Serial Digital Interface (SDI)	www.national.com/sdi	Mil/Aero	www.national.com/milaero
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