Four- to Seven-Input Automotive Power-System Monitor Family

MAX20480

General Description

The MAX20480 is a complete ASIL-compliant SoC power-system monitor with up to seven voltage monitor inputs. Each input has programmable OV/UV thresholds of between 2.5% and 10% with ±1% accuracy. Two of the inputs have a separate remote ground-sense input and support DVS through the integrated I²C interface.

The MAX20480 contains a programmable flexible power sequence recorder (FPSR). This recorder stores power-up and power-down timestamps separately, and supports on/ off and sleep/standby power sequences. The MAX20480 also contains a programmable challenge/response watchdog, which is accessible through the I²C interface, along with a configurable $\overline{\text{RESET}}$ output.

The MAX20480 improves reliability while significantly reducing system size and component count as compared to separate ICs or discrete components. The MAX20480 meets ASIL D reliability when used with a supervisory controller. The device is designed to operate over the ambient temperature range of -40°C to +125°C.

Applications

- ADAS
- Autonomous Driving Processing Systems
- Remote Sensor Modules
- Power System Supervision and MCU/SoC Monitoring

Benefits and Features

- Small Solution
  - 2.35V to 5.50V Operating Supply Voltage
  - Only One External Component Required
  - 150µA Operating Current
  - 8µA Power-Down Mode
- High Precision
  - Selectable 102.5% to 110% OV Monitors
  - Selectable 97.5% to 90% UV Monitors
  - ±1% Accuracy over Entire Temperature Range
  - ±0.8% Accuracy from -10°C to +105°C
  - 0.5% Step Size
  - ASIL D Compliance
- Highly Integrated
  - Five Fixed-Voltage Monitoring Inputs
  - Two Differential DVS Tracking-Voltage Monitoring Inputs with Remote-Ground Sense
  - Power-Sequencing Recording
  - Simple or Challenge/Response Windowed Watchdog
  - Fault Recording
  - CRC on I²C Interface
  - Programmable I²C Address
  - OTP Configuration with Error-Correcting Code and Reload Functionality
  - Programmable $\overline{\text{RESET}}$ Pin
- 16-Pin, Side-Wettable TQFN with Exposed Pad (3mm x 3mm)
- AEC-Q100 Qualified
- -40°C to +125°C Operating Temperature

***Ordering Information* appears at end of data sheet.**

Visit Web Support to complete the nondisclosure agreement (NDA) required to receive additional product information.

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Simplified Block Diagram