

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 $\pm 1\%$ 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 $+125^{\circ}\text{C}$.

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
 - 150 μA Operating Current
 - 8 μA Power-Down Mode
- High Precision
 - Selectable 102.5% to 110% OV Monitors
 - Selectable 97.5% to 90% UV Monitors
 - $\pm 1\%$ Accuracy over Entire Temperature Range
 - $\pm 0.8\%$ Accuracy from -10°C to $+105^{\circ}\text{C}$
 - 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 $+125^{\circ}\text{C}$ Operating Temperature

[Ordering Information](#) appears at end of data sheet.

Simplified Block Diagram



