

Two/Three-Input Automotive Voltage Monitor with Watchdog

MAX20478

General Description

The MAX20478 is a complete ASIL D-compliant system-on-a-chip (SoC) voltage monitor with two or three voltage monitor inputs. Inputs 1 and 2 can be configured to monitor a voltage between 0.5V and 3.6875V in 12.5mV steps, while input 3 can be configured to monitor a voltage between 0.5V to 5.6V in 20mV steps. Each input has programmable OV/UV thresholds of between 2.5% and 10% with $\pm 0.8\%$ accuracy. The MAX20478 also contains a programmable windowed watchdog. The MAX20478 significantly reduces system size and component count, while improving reliability, compared to separate ICs or discrete components. The device is designed to operate over the ambient temperature range of -40°C to $+125^{\circ}\text{C}$.

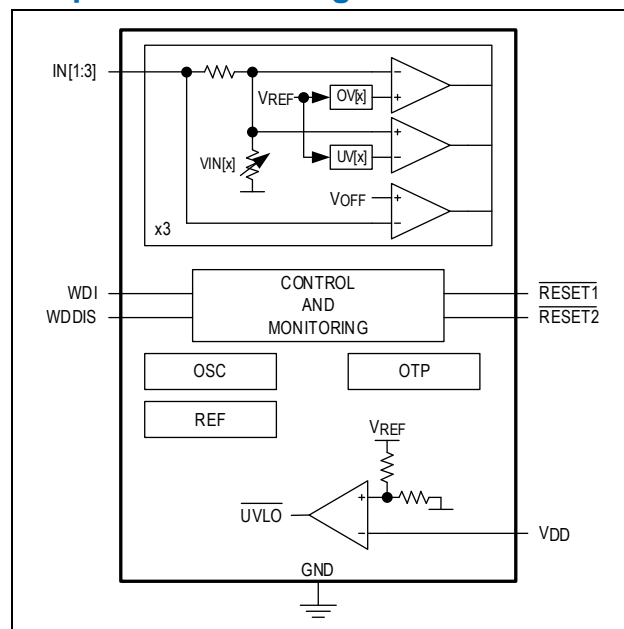
Applications

- Advanced Driver-Assistance Systems
- Autonomous Driving Processing Systems
- Remote Sensor Modules
- Power System Supervision and Microcontroller Unit/ System-on-a-Chip Monitoring

Benefits and Features

- Small Solution
 - 2.35V to 5.50V Operating Supply Voltage
 - Only One External Component Required
 - 125 μA Operating Current
- High Precision
 - Selectable 102.5% to 110% OV Monitors
 - Selectable 97.5% to 90% UV Monitors
 - $\pm 0.8\%$ Accuracy
 - 0.5% Step Size
 - ASIL D Compliance
- Highly Integrated
 - MAX20478A - Two Voltage Monitoring Inputs
 - MAX20478B - Three Voltage Monitoring Inputs
 - Windowed Watchdog
 - OTP Configuration with Error-Correcting Code
 - Programmable RESET1 and RESET2 Pins
- 10-Pin Side-Wettable TDFN with Exposed Pad (3mm x 3mm)
- AEC-Q100 Qualified
- -40°C to $+125^{\circ}\text{C}$ Operating Temperature

Simplified Block Diagram



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