Multi-Channel (9) PMIC for S32G Processor – 8 High Power, 1 Low Power, Fit for ASIL D Safety Level
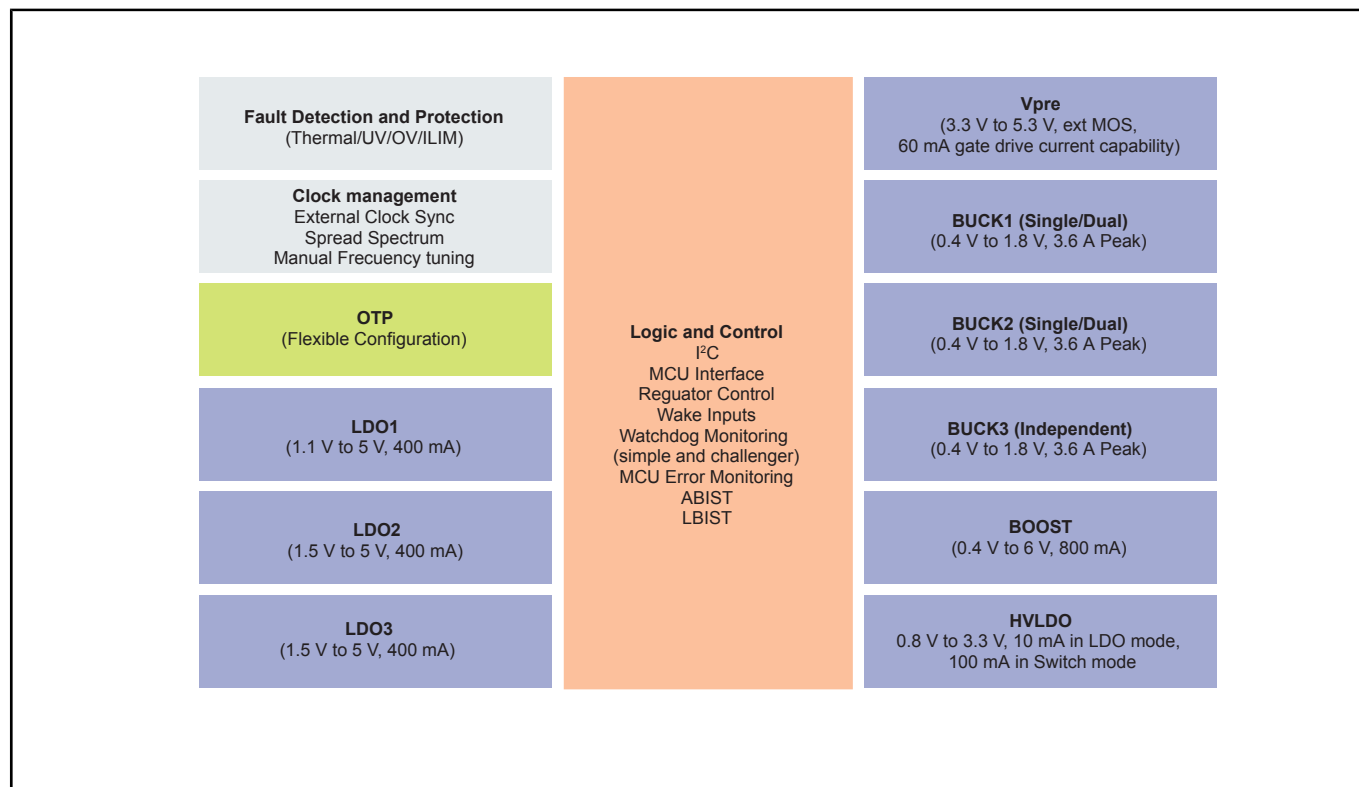
VR5510

Last Updated: Dec 24, 2025

The part numbers with the TS suffix (MVR5510AxxxTS) are recommended for new designs.

The VR5510 is NXP's multi-channel high-voltage PMIC device designed to be used for high performance automotive and industrial applications. The VR5510 is designed specifically for the S32G vehicle network processor family targeting service-oriented gateways, domain controllers, and safety controller applications.

Integrated and independent voltage monitoring circuits ensure compliance with ISO 26262 standard and functional safety up to ASIL D level. The VR5510 is also available as a standard ASIL B device or a non-safety device for applications that have different ISO compliance requirements.

The VR5510 is also suitable for a variety of applications including infotainment, ADAS, vision, and radar either as a standalone power solution or in combination with other NXP PMICs like PF502x family or PF8x family.

VR5510 Block Diagram

Fault Detection and Protection
(Thermal/UV/OV/ILIM)

Clock management
External Clock Sync
Spread Spectrum
Manual Frecuency tuning

OTP
(Flexible Configuration)

LDO1
(1.1 V to 5 V, 400 mA)

LDO2
(1.5 V to 5 V, 400 mA)

LDO3
(1.5 V to 5 V, 400 mA)

Logic and Control
I²C
MCU Interface
Reguator Control
Wake Inputs
Watchdog Monitoring
(simple and challenger)
MCU Error Monitoring
ABIST
LBIST

Vpre
(3.3 V to 5.3 V, ext MOS,
60 mA gate drive current capability)

BUCK1 (Single/Dual)
(0.4 V to 1.8 V, 3.6 A Peak)

BUCK2 (Single/Dual)
(0.4 V to 1.8 V, 3.6 A Peak)

BUCK3 (Independent)
(0.4 V to 1.8 V, 3.6 A Peak)

BOOST
(0.4 V to 6 V, 800 mA)

HVLDO
0.8 V to 3.3 V, 10 mA in LDO mode,
100 mA in Switch mode

View additional information for Multi-Channel (9) PMIC for S32G Processor – 8 High Power, 1 Low Power, Fit for ASIL D Safety Level.

Note: The information on this document is subject to change without notice.