

# BMA7426, BMA7424, BMA7126 and BMA7124

## ASIL D Battery Cell Controllers with high sync, dedicated ADC per channel and EIS

The automotive Li-ion battery cell controller (BCC) ICs feature dedicated high-accuracy ADC on each voltage measurement channel with high synchronization capability. The BMA7426 and BMA7424 additionally integrate a Discrete Fourier Transform (DFT) engine required for Electrochemical Impedance Spectroscopy (EIS).

With a unified product family concept, pin compatibility and shared software platform, you can upgrade to EIS with a very compelling cost advantage. All four devices deliver low power consumption of only 4 mA thanks to their integrated DC-to-DC converter. Their fully redundant and independent internal architecture supports achieving ASIL D functional safety.

### Key features

- From 8 to 26 cells per device
- Dedicated, high accuracy ADC per voltage measurement channel with high synchronization capability required for EIS
- Integrated DFT (BMA7426 and BMA7424)
- Typical  $\pm 0.7$  mV measurement error with ultra low long-term drift
- ISO 26262 ASIL D support for cell voltage and temperature measurements
- Passive cell balancing with Timer/ Voltage/ PWM/ Temperature controlling methods
- External temperature and auxiliary voltage measurements

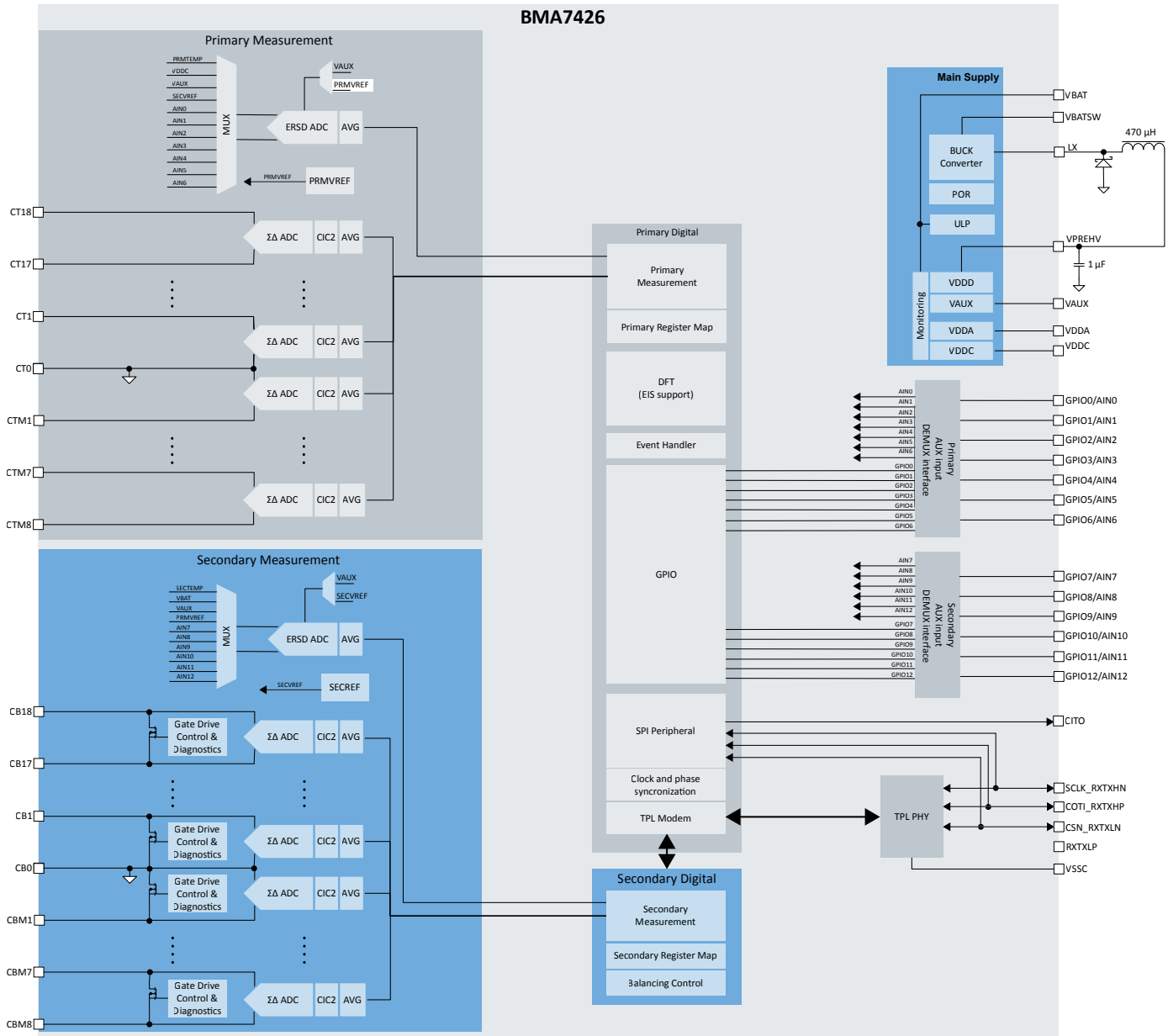


- Isolated daisy chain up to 62 nodes or SPI communication
- Diagnostics, functional safety and robustness
- Low external BOM cost

### Target applications

- **Automotive:**
  - Electric vehicle high voltage battery management
- **Industrial:**
  - Utility ESS
  - Commercial ESS
  - Residential ESS
  - Micromobility
  - eBike/eScooter

# BMA7426 device block diagram



## BMA7426 / BMA7424 / BMA7126 / BMA7124 Samples

Part Number	Number of channels	Electrochemical Impedance Spectroscopy (EIS)	Interface	Temperature Range	Number of GPIOs	Package Type
MBMA7426SBIAE	26	yes	SPI	-40 to 125 °C	13	HLQFP100
MBMA7426TBIAE	26	yes	TPL	-40 to 125 °C	13	HLQFP100
MBMA7424SBIAE	24	yes	SPI	-40 to 125 °C	13	HLQFP100
MBMA7424TBIAE	24	yes	TPL	-40 to 125 °C	13	HLQFP100
MBMA7126SBIAE	26	no	SPI	-40 to 125 °C	13	HLQFP100
MBMA7126TBIAE	26	no	TPL	-40 to 125 °C	13	HLQFP100
MBMA7124SBIAE	24	no	SPI	-40 to 125 °C	13	HLQFP100
MBMA7124TBIAE	24	no	TPL	-40 to 125 °C	13	HLQFP100

[nxp.com/BMA7426](http://nxp.com/BMA7426), [nxp.com/BMA7424](http://nxp.com/BMA7424), [nxp.com/BMA7126](http://nxp.com/BMA7126) and [nxp.com/BMA7124](http://nxp.com/BMA7124)

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Document Number: BMA7426FS REV 0