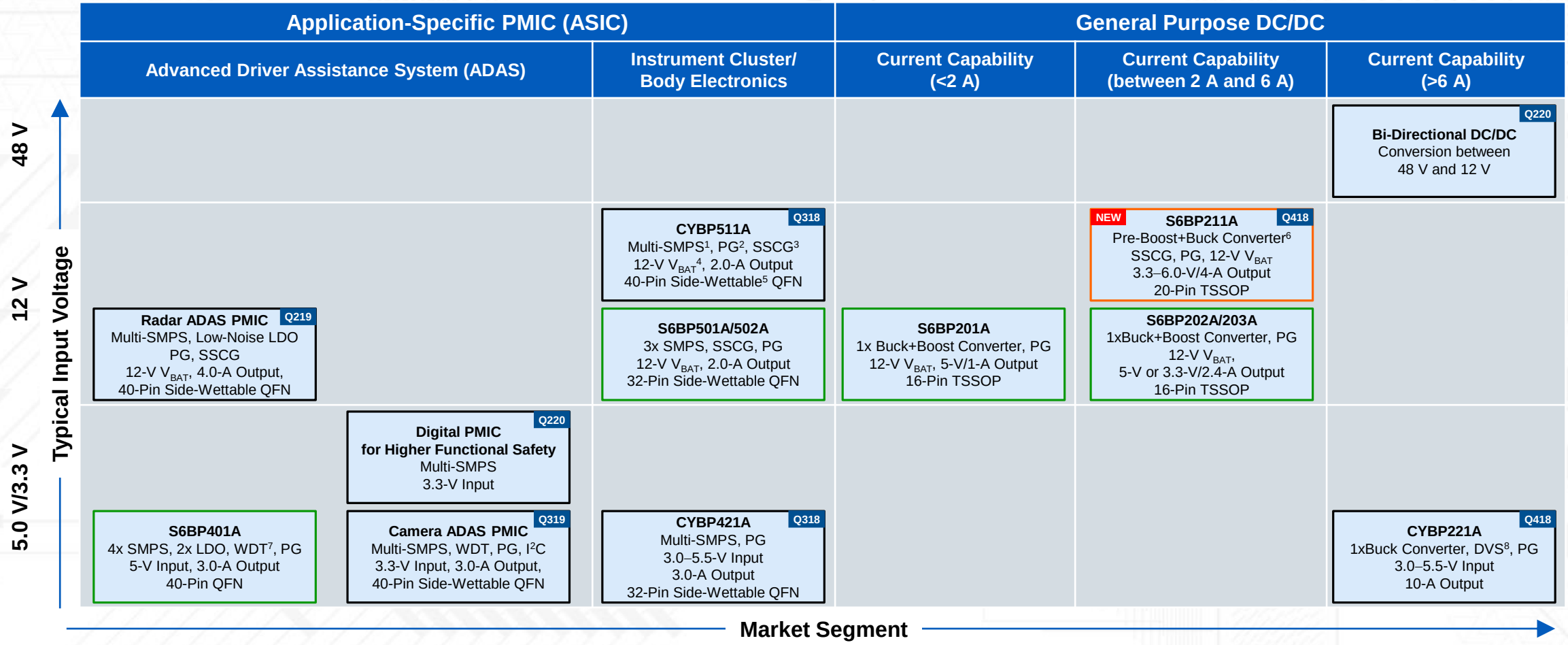
CYPRESS
EMBEDDED IN TOMORROW™

Cypress Roadmap:

Automotive PMIC

Q1 2018

Automotive PMIC Family Portfolio



[1] Switch-mode power supply: A general-purpose regulator IC that uses a switching circuit to up-convert and/or down-convert a voltage source to a different voltage for powering other ICs
[2] Power good: An output signal that PMICs provide to signify that the supplied power by PMICs is proper and ready
[3] Spread-spectrum clock generator
[4] Battery voltage
[5] A package whose flanks are processed to improve soldering adherence and to simplify the optical inspection, which follows soldering
[6] A general-purpose regulator IC that integrates power MOSFETs
[7] Watchdog timer
[8] Dynamic voltage scaling

S6BP20x

One-Channel Buck-Boost Automotive PMIC

Applications

Instrument clusters, body electronics and ADAS

Features

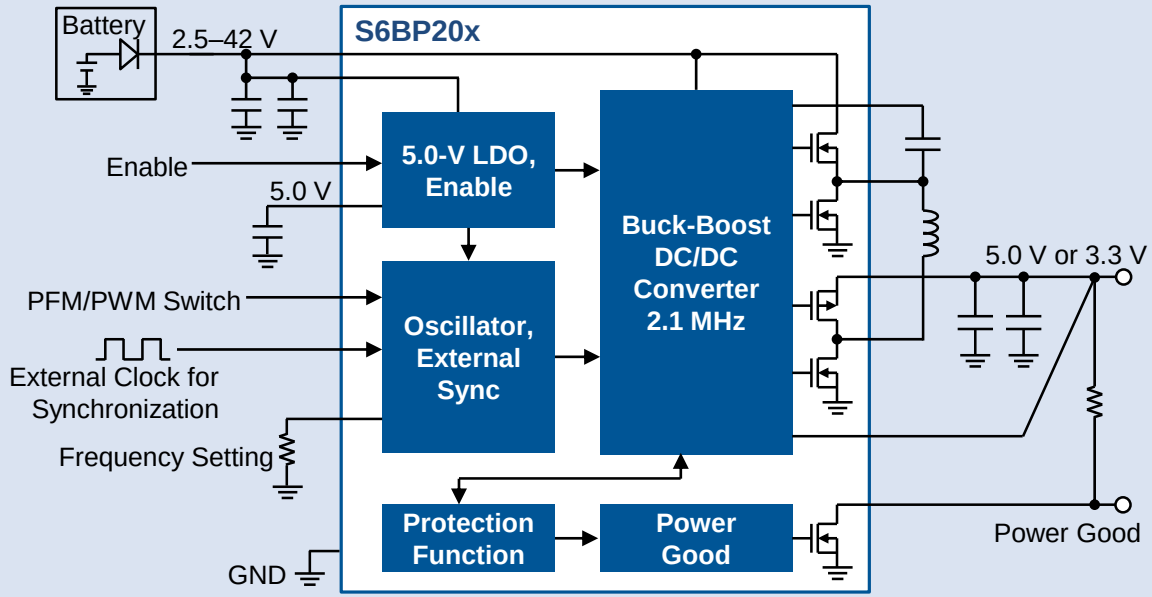
- **1-Channel PMIC:** Synchronous buck-boost converter
- **Wide Input Voltage Range:** 2.5–42 V
- **Low Quiescent Current:** 20 µA
- **Programmable Switching Frequency:** 0.2–2.1 MHz
  - Synchronization with external clock from 200 kHz to 400 kHz
  - Autonomous PFM/PWM[1] switching
- **BOM Integration:** Built-in switching transistors
- **System Safety Function[2] Support:**
  - Overvoltage protection (OVP), overcurrent protection (OCP), undervoltage lock-out (UVLO), thermal shutdown (TSD)
  - Window-monitoring voltage supervisors with power good[3] pin
- **Operating Temperature Range:** -40°C to +125°C
- **Package:** 16-pin thermally enhanced TSSOP (5-mm x 6.4-mm)
- **Qualification:** AEC-Q100 Grade-1

Collateral

Datasheet: S6BP201A, S6BP202A and S6BP203A
Evaluation Kit: S6BP201A, S6BP202A and S6BP203A

[1] Pulse-frequency modulation/pulse-width modulation
[2] A set of system functions that protect ECUs from damage and/or from generating erroneous results during abnormal power supply conditions
[3] An output signal that PMICs provide to signify that the supplied power by PMICs is proper and ready
[4] S6BP201A and S6BP202A have factory-selectable options of output voltage, power-on-reset time, UVP/OVP threshold, and SYNC Function

S6BP20x: One-Channel Buck-Boost Automotive PMIC



Family Table

Output Voltage[4]	Max. Output Current	MPN	UVP/OVP Threshold
5.0–5.2 V	1.0 A	S6BP201A	±4.5%
5.0–5.2 V	2.4 A	S6BP202A	±4.5%, ±8.0%
3.3 V	2.4 A	S6BP203A	±8.0%

Availability

Sampling: Now **Production:** Now

S6BP50x

Three-Channel Automotive PMIC

Applications

Low-end to mid-range hybrid automotive cluster systems

Features

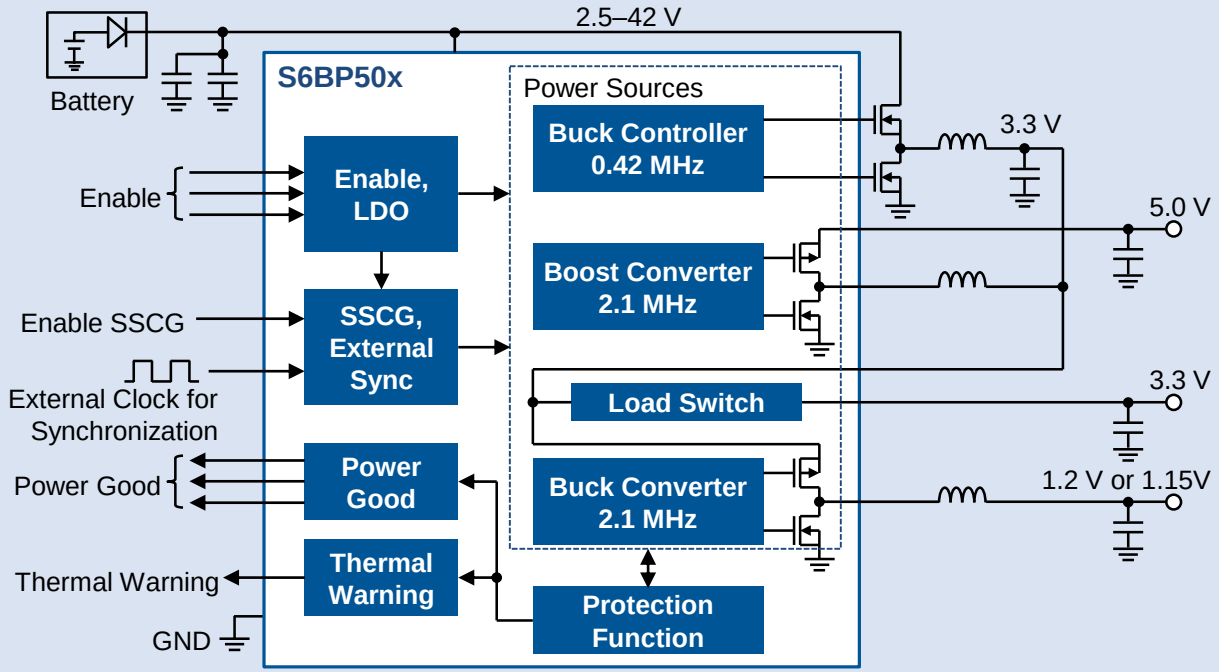
- **3-Channels:** Buck controller with load switch, boost converter, buck converter
- **Wide Range Input:** 2.5-42 V
- **Low Quiescent Current:** 15 µA
- **High Switching Frequency:**
  - Boost converter and buck converter: 2.1 MHz
  - Built-in spread-spectrum clock generator (SSCG)
  - Synchronization with external clock from 1.8–2.4 MHz
- **System Safety Function[1] Support:**
  - Overvoltage protection (OVP), overcurrent protection (OCP), undervoltage lock-out (UVLO), thermal shutdown (TSD)
  - Thermal warning
  - Window-monitoring voltage supervisors with independent power good[2] pins
- **Operating Temperature Range:** -40°C to +105°C
- **Package:** 32-pin thermally enhanced side-wettable[3] QFN (5-mm x 5-mm)
- **Qualification:** AEC-Q100 Grade-2

Collateral

Preliminary Datasheet: S6BP501A/S6BP502A
Evaluation Kit: S6SBP501A00VA1001/S6SBP502A00VA1001

[1] A set of system functions that protect ECUs from damage and/or from generating erroneous results during abnormal power supply conditions
[2] An output signal that PMICs provide to signify that the supplied power by PMICs is proper and ready
[3] A package whose flanks are processed to improve soldering adherence and to simplify the optical inspection, which follows soldering
[4] Output voltages are finely adjustable with external resistive dividers

S6BP50x: Three-Channel Automotive PMIC



Family Table

Buck Converter Output Specification[4]	MPN	Buck Controller Output Specification	Boost Converter Output Specification
1.15 V, 1.4 A	S6BP501A	3.3 V, 1.6 A	5.0 V, 1.3 A
1.2 V, 2.0 A	S6BP502A	3.3 V, 1.9 A	5.0 V, 1.3 A

Availability

Sampling: Now **Production:** Now

S6BP401A

Six-Channel Automotive PMIC

Applications

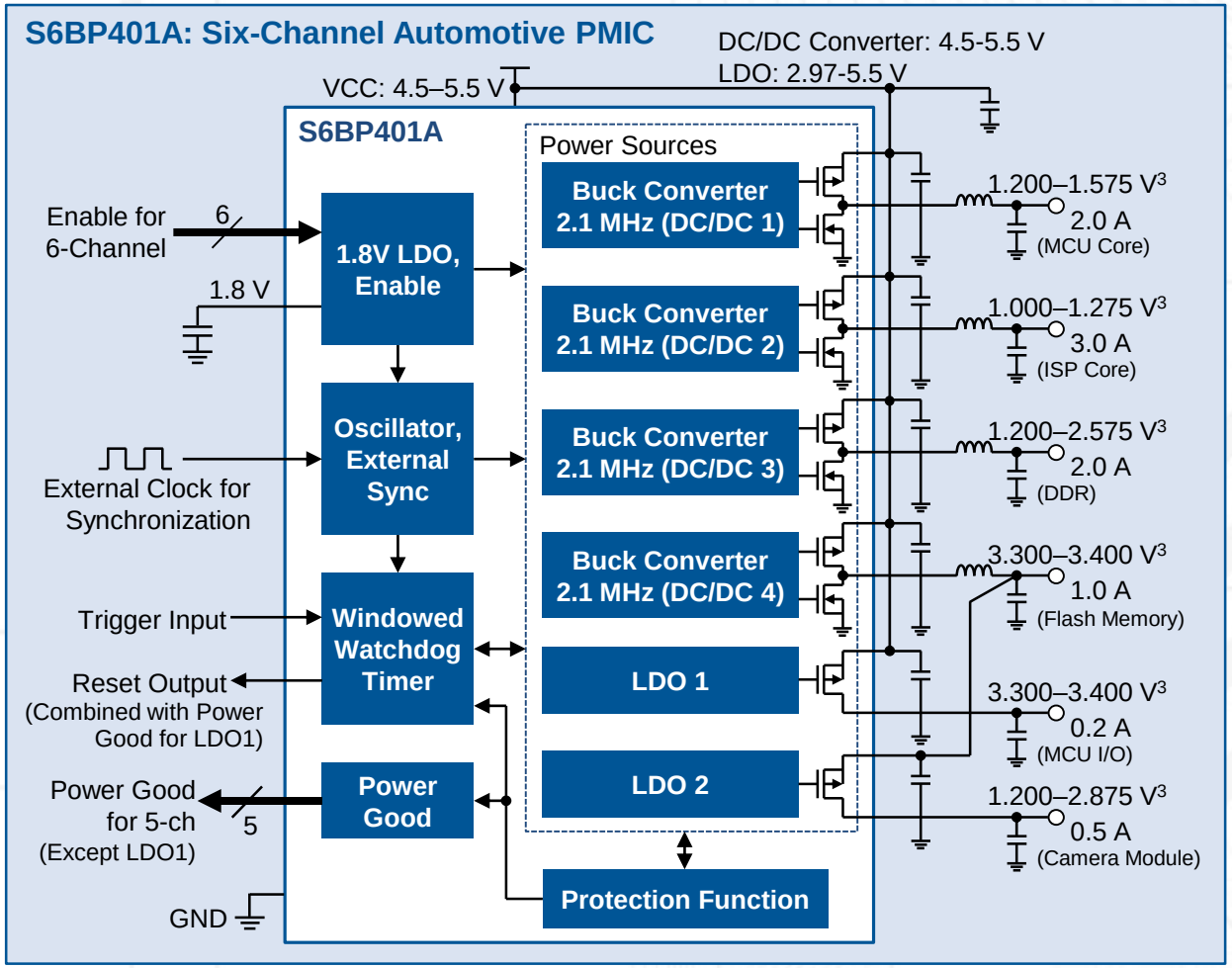
Advanced driver assistance systems (ADAS), security camera systems

Features

- **6-Channel PMIC:** 4-channel buck converters, 2-channel LDOs
- **Input Voltage Range:** 4.5–5.5 V
  - Input voltage for LDO: 1.62–5.5 V
- **High Switching Frequency:** 2.1 MHz
  - Synchronization with external clock from 1.8–2.4 MHz
- **BOM Integration:**
  - Switching transistors, voltage setting resistors, and compensation circuitry
- **System Safety Function[1] Support:**
  - Overvoltage protection (OVP), overcurrent protection (OCP), undervoltage lock-out (UVLO), thermal shutdown (TSD)
  - Window-monitoring voltage supervisors with independent power good[2] pins
  - Built-in windowed watchdog timer (WDT)
  - Independent enable pins
- **Operating Temperature Range:** -40°C to +125°C
- **Package and Qualification:** 40-pin QFN (6-mm x 6-mm), AEC-Q100 Grade-1

Collateral

Datasheet: S6BP401A
Evaluation Kit: S6SBP401AJ0SA1001, S6SBP401AM2SA1001



Availability

Sampling: Now **Production:** Now

[1] A set of system functions that protect ECUs from damage and/or from generating erroneous results during abnormal power supply conditions
[2] An output signal that PMICs provide to signify that the supplied power by PMICs is proper and ready
[3] S6BP401A has factory-selectable options of output voltage for each channel

Compatibility with Traveo™ MCU

		Cypress Automotive PMIC for Traveo MCU				
		S6BP201A (5V/1A)	S6BP202A (5V/2.4A)	S6BP203A (3.3V/2.4A)	S6BP501A (5V, 3.3V, 1.15V/1.4A)	S6BP502A (5V, 3.3V, 1.2V/2.0A)
Traveo MCU for Instrument Cluster	S6J3120 Series (Virgo)	✓	✓			
	S6J3300 Series (Jupiter, Minerva)	✓	✓			
	S6J3300 Series (Juno, Artemis)				✓	✓
	S6J3200 Series (Amber, Amethyst)					✓
Traveo MCU for Body Control	S6J3110 Series (Leo, Aries)	✓	✓			
	S6J3400 Series (Athena)	✓	✓	✓		
	S6J3500 Series (Harmonia)	✓	✓	✓		
	S6J3350 Series (Neptune)				✓	✓


CYPRESS®
EMBEDDED IN TOMORROW™