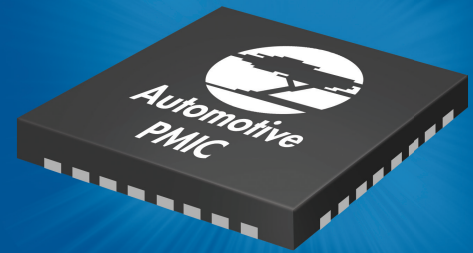


CYPRESS

S6BP401A

HIGHLY INTEGRATED, FLEXIBLE AND ENERGY-EFFICIENT
6-CH AUTOMOTIVE PMIC FOR ADAS APPLICATIONS



PRODUCT OVERVIEW

INTRODUCTION

Cypress S6BP401A is a six-channel power management IC (PMIC) necessary and sufficient for camera-based ADAS. An integrated watchdog timer and voltage supervisors are to satisfy the demand of the safety functions by the system.

HIGH INTEGRATION

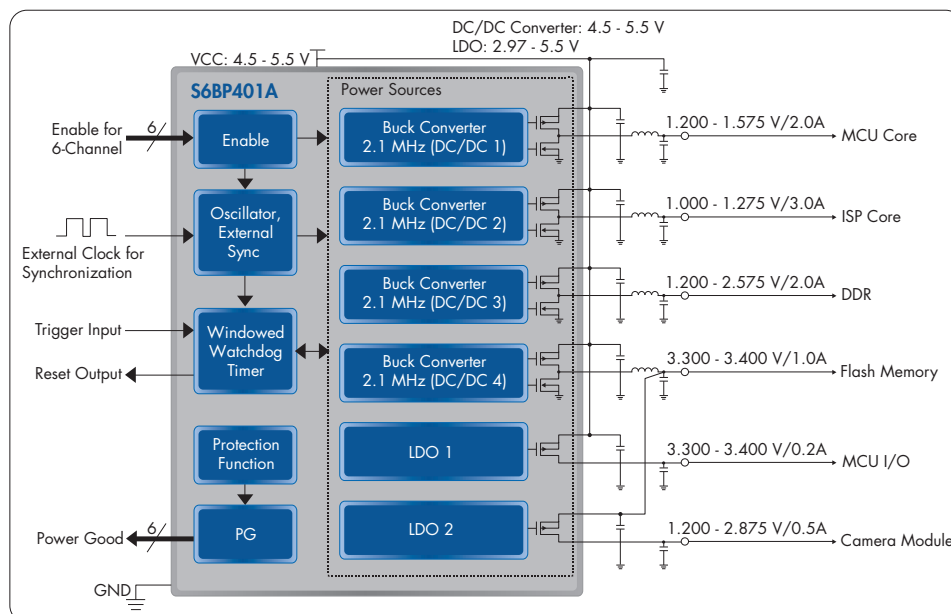
ADAS ECUs are required to fit in small assemblies. S6BP401A offers a compact single-chip PMIC solution that integrates watchdog timer as well as 6-channel supplies, providing up to 7-W power while enhancing the safety functions.

FLEXIBLY SELECTABLE OUTPUT VOLTAGE SETTINGS

S6BP401A offers a sole power supply design that is applicable for different system configurations (e.g., MCU, ISP, Memory, Camera) thanks for its fine and various voltage settings. Also, the integrated output voltage setting resistors and compensation network help the PMIC system to be smaller.

HIGH CONVERSION EFFICIENCY

Thermal design is one of the work that needs most devotion to design an ADAS ECU. S6BP401A achieves industry-leading conversion efficiency that reduces heat generation.

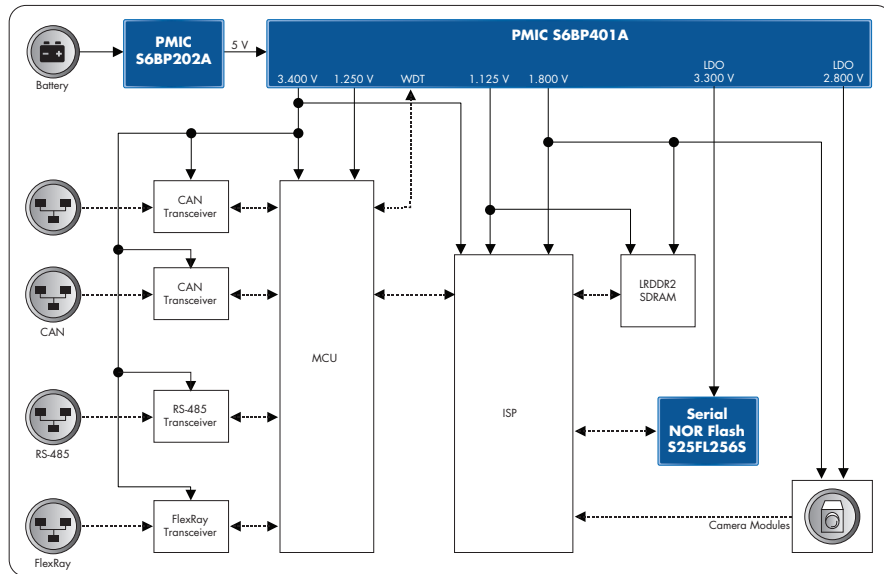


S6BP401A BLOCK DIAGRAM

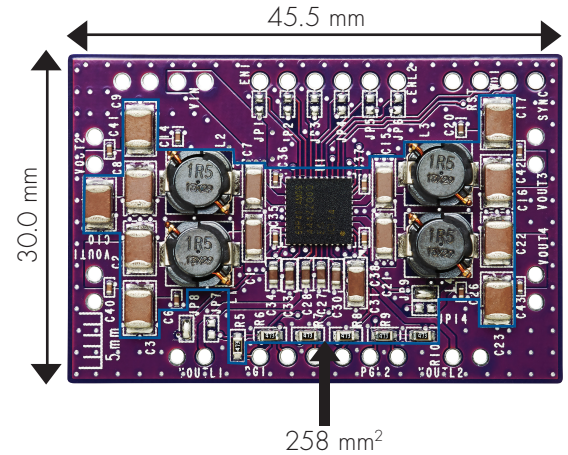
FEATURES

- INPUT VOLTAGE RANGE
 - VCC: 4.5-5.5 V
 - DC/DC Converter: 4.5-5.5 V
 - LDO: 2.97-5.5 V
- HIGH SWITCHING FREQUENCY
 - Internal clock: 2.1 MHz
 - External clock (optional): 1.8 to 2.4 MHz
- BOM INTEGRATION
 - Switching FETs and LDO driver FETs
 - Output voltage setting resistors
 - Compensation network
- HIGH CONVERSION EFFICIENCY
 - 96% @ 3.3-Vout from 5-Vin
 - 88% @ 1.2-Vout from 5-Vin
- SYSTEM SAFETY FUNCTIONS
 - Overvoltage protection (OVP)
 - Overcurrent protection (OCP)
 - Undervoltage lockout (UVLO)
 - Thermal shutdown (TSD)
 - Independent voltage supervisor and power good pin per channel
 - Independent enable pin per channel
 - Windowed watchdog timer
- OPERATING TEMPERATURE RANGE
 - Ta: -40 to +125 °C
- MAXIMUM JUNCTION TEMPERATURE
 - Tjmax: 150 °C
- PACKAGE
 - 40-pin QFN (6.0 x 6.0 x 0.9 mm, 0.5-mm pitch)
- QUALIFICATION
 - AEC-Q100 Grade 1

SOLUTION EXAMPLE: FRONT MONITORING MONOCULAR CAMERA SYSTEM



EVALUATION KIT (S6SBP401AJ0SA1001)



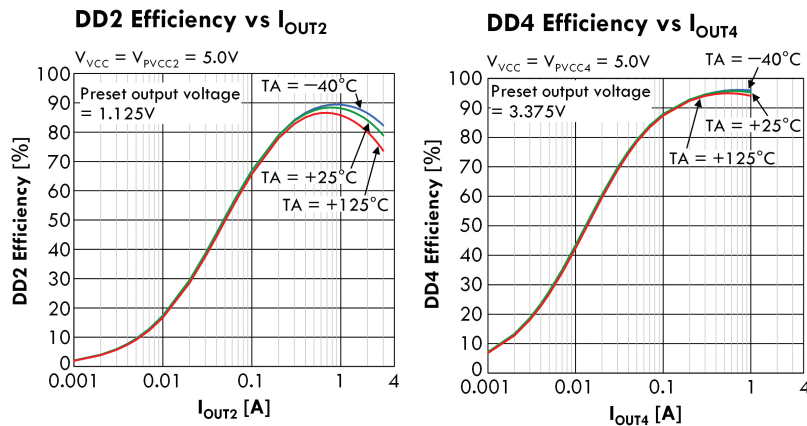
FEATURES

- S6BP401A automotive PMIC
- 258-mm² compact and highly-integrated solution that supplies 7 W

S6BP401A PRODUCT SELECTOR GUIDE

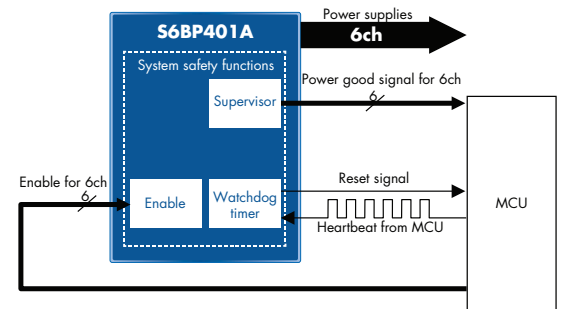
Part Number	Channel	Factory-Selectable Output Voltage Setting	Current Capability
S6BP401A	DC/DC 1	1.200, 1.225, 1.250, 1.275, 1.300, 1.325, 1.500, 1.525, 1.550, 1.575 V	2 A
	DC/DC 2	1.000, 1.025, 1.050, 1.075, 1.100, 1.125, 1.150, 1.175, 1.200, 1.225, 1.250, 1.275 V	3 A
	DC/DC 3	1.200, 1.225, 1.250, 1.275, 1.500, 1.525, 1.550, 1.575, 1.800, 1.825, 1.850, 1.875, 2.500, 2.525, 2.550, 2.575 V	2 A
	DC/DC 4	1.850, 3.300, 3.325, 3.350, 3.375, 3.400 V	1 A
	IDO 1	3.300, 3.325, 3.350, 3.375, 3.400 V	0.2 A
	IDO 2	1.200, 1.225, 1.250, 1.275, 1.800, 1.825, 1.850, 1.875, 2.800, 2.825, 2.850, 2.875, 3.350 V	0.5 A

CONVERSION EFFICIENCY EXAMPLES



CONTRIBUTION TO FUNCTIONAL SAFETY

Mutual monitoring between PMIC and MCU enhances the functional safety of the system



- Independent voltage supervisor and power good pin per channel
- Independent enable pin per channel
- Windowed watchdog timer

GET STARTED NOW

Visit the automotive PMIC web site – www.cypress.com/automotive-pmic

Download the datasheet – www.cypress.com/S6BP401A/Datasheet

Buy the \$73 evaluation kit (S6SBP401AJ0SA1001) – www.cypress.com/S6BP401AJ0/Kit-User-Guide

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