# MCP16502TAC-E/S8B

Data Sheet

MCP16502 is a multi-channel PMIC intended for powering the SAMA7G eMPC

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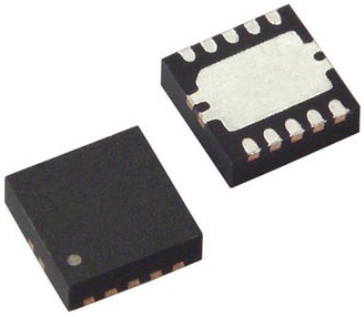
|---|---|
| Manufacturers | Microchip Technology, Inc |
| Package/Case | VQFN |
| Product Type | |
| RoHS | |
| Lifecycle | |



Images are for reference only

Please submit RFQ for MCP16502TAC-E/S8B or Email to us: sales@ovaga.com We will contact you in 12 hours. RFQ

## General Description

The MCP16502 is an optimally integrated PMIC compatible with Microchip's eMPUs (Embedded Microprocessor Units), requiring Dynamic Voltage Scaling (DVS) with the use of High-Performance mode (HPM). It is compatible with SAMA5DX and SAM9X6 MPUs, which are supported by dedicated device variants that optimize the solution BOM.

The MCP16502 integrates four DC-DC Buck regulators and two auxiliary LDOs, and provides a comprehensive interface to the MPU, which includes an interrupt flag and a 1 MHz I2C interface. All Buck channels can support loads up to 1A and are 100% duty cycle-capable. Two 300 mA LDOs are provided such that sensitive analog loads can be supported. The DDR memory voltage (Buck2 output) is selectable by means of a 3-state input pin.The voltage selection set allows easy migration across different generations of memory. The default power channel sequencing is built-in according to the requirements of the MPU. A dedicated pin (LPM) facilitates the transition to Low-Power modes and the implementation of Backup mode with DDR in self-refresh (Hibernate mode). The MCP16502 features a low no-load operational quiescent current and draws less than 10 µA in full shutdown. Active discharge resistors are provided on each output. All Buck channels support safe start-up into pre-biased outputs.

The MCP16502 is available in a 32-pin 5 mm x 5 mm VQFN package with an operating junction temperature range from -40°C to +125°C. MCP16502 is also available as AEC-Q100 qualified variant.

Check out MCP16502 in action powering the Wireless System-on-Module (WLSOM)

## Features

Input Voltage Range 2.7V to 5.5V

Four 1A Output Current Buck Channels with 100% Maximum Duty Cycle Capability

2 MHz Buck Channels PWM Operation

Low Noise, Forced PWM (FPWM) and Low IQ, Light Load, High-Efficiency Mode Available

I2C-Selectable Displacement (±16.5%) of PWM Switching Frequency

Two Auxiliary 300 mA Low-Dropout Linear Dropout Regulators (LDOs)

Pin-Selectable Output Voltages for DDR Supply

1MHz I2C Interface for Programming and Diagnostics

Built-in Channel Sequencing, Safe Start-up and Reset Assertion Delay

Support of Hibernate, Low-Power and High-Performance Modes with DVS

Push Button Long Press Time-out Function

Leakage-Free Interfacing to MPU in Any Operating Condition through Optimized ESD Protection

Less than 300 µA Low-Power Mode Typical Quiescent Current (Bucks and LDO1 ON, No Load)

10 µA Maximum Shutdown Current = +105°C)

Cost and Size-Optimized BOM

Thermal Shutdown and Current Limit Protection

User-Programmable Overcurrent Fault Response

32-Pin 5 mm × 5 mm VQFN Package

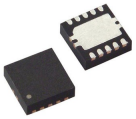
AEC-Q100 Qualified Variant Available

### Related Products


[MCP9808T-E/MS](#)

Microchip Technology, Inc

MSOP-8



[ATSAMC21G17A-MZTVAO](#)

Microchip Technology, Inc

VQFN

[MCP16362T-E/NMX](#)

Microchip Technology, Inc

VDFN

[BM64SPKS1MC1-00M2AA](#)

Microchip Technology, Inc

SMD

[MCP2517FDT-H/SL]

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SOIC-14

[MCP2517FD-H/SL]

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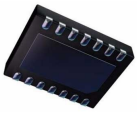
SOIC-14



[MCP2517FD-H/JHA]

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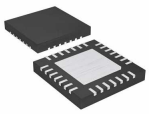
VDFN-14



[MCP25625-E/ML]

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