



Power Management Integrated Circuits (PMICs)

STPMIC1L & STPMIC2L

Optimized power solutions for
STM32MP1/MP2 microprocessors

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Power Management Integrated Circuits (PMICs)



What is a Power Management Integrated Circuit (PMIC)?

A PMIC is a highly integrated device managing **multiple power rails, voltage regulation, and power sequencing** to efficiently **supply power to microprocessors and peripherals**.

PMICs are essential components in electronic systems, providing efficient power management and distribution.



Why is power management essential for microprocessors applications?

Efficient power management ensures **system stability, minimizes power consumption, and supports advanced microprocessor unit (MPU)** applications in industrial, networking, and healthcare sectors.

Benefits of using PMICs in MPU systems



Simplifies power architecture with integrated DC/DC converters and LDOs

Supports a wide input voltage range (2.8 V to 5.5 V), compatible with USB, wall adapters, and batteries

Enhances system reliability through programmable power control and advanced safety features

Enables operation across extended junction temperature rating (-40°C to +125°C)



Introducing STPMIC1L and STPMIC2L

High integration for advanced MPU applications



Buck DC/DC Converters	2	3
LDOs (fixed and adjustable)	4	7
LDO for DDR memory	1	1
Power Control Pins	2	3
Programmability	I ² C	I ² C



Why choose STPMIC1L and STPMIC2L?

Flexibility

- Wide input voltage range (2.8 V to 5.5 V) supports various power sources, including Li-ion and Li-Po batteries
- Compatible with 5 V wall adapters and USB power sources

High integration & cost effectiveness

- Multiple DC/DC converters and LDOs reduce minimize the number of external components and reduce PCB size
- Power control pins allow precise power sequencing and management

Robust performance

- Adaptive constant on-time (COT) control for fast transient response
- Dynamic voltage scaling and programmable output discharge modes
- Selectable overcurrent protection (OCP) with advanced safety management



STPMIC

Key Applications

Industrial automation



Robust and reliable power solutions for motor control, sensor systems, and communication modules

Retail POS and barcode terminals



STM32-based payment and barcode scanning systems, all powered by one PMIC

White goods and major appliances



STM32-based washing machines, refrigerators, ovens and dishwashers powered by one PMIC

EV charging stations



STM32-based charge controllers with payment, communication, and HMI, using robust power sequencing from a single PMIC





STPMIC

STPMIC1L and STPMIC2L provide

Efficient, flexible, and reliable power management tailored for STM32MP1/MP2 microprocessor units

High integration simplifies design and reduces costs

Advanced features ensure system safety and performance in demanding environments

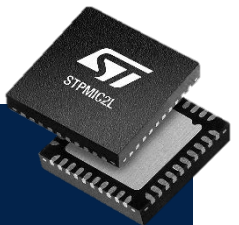
STPMIC1L

- 2 buck SMPS converters with adaptive constant on-time (COT) topology
- 2 adjustable general purpose LDOs
- Ideal companion device for the STM32MP13/15 MPUs



STPMIC2L

- 3 buck SMPS converters with adaptive constant on-time (COT) topology
- 5 adjustable general purpose LDOs
- Ideal companion device for the STM32MP21/23/25 MPUs



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