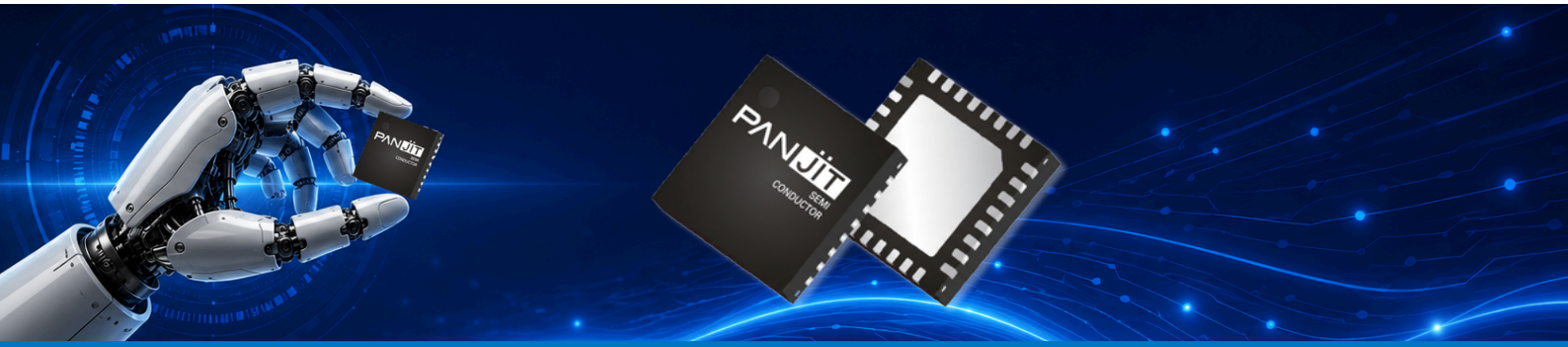


# All-in-One Motor Driver for Dexterous Hands

PM30225V-0401 | Integrated MCU, Driver & MOSFET Solution



## ► Designed for Intelligent Motion Control (Demo Board Specification)

- Supports up to 25 W input power
- Wide input voltage range: 5–24 V
- Speed & position control
- Sensorless & sensed FOC (SPI Encoder)
- OVP, UVP, OCP & stall protection



## ► PM30225V-0401 for Brushless Coreless Motor

- ▼ 30% less PCB space
- ▲ 50% more power
- ▼ 80% fewer components

Performance	Traditional DC Motor	All-in-One Brushless Coreless Motor
Efficiency	Around 50%	> 80%
Speed	< 5,000 rpm	> 10,000 rpm Mechanical response time < 100 $\mu$ s
Operational Stability	Average	High
Lifespan	< 500 hours	> 1,000 hours
AI Core	None	32-bit AI Motor MCU



## ► PM30225V-0401 Key Features

- Single input voltage: 5 V to 24 V
- Built-in LDO: 5 V / 3.3 V, 30 mA
- CPU: ARM® Cortex®-M0, 64 MHz
- System tick timer: 24-bit
- Memory: 32 KB Flash, 4 KB SRAM
- Package: QFN4040-32L
- Math unit:
  - Division and square-root unit (DVSQ)
- Timers:
  - 1 × 16-bit motor-dedicated advanced timer (ATU)
  - 2 × general-purpose timers (UTU1: 32-bit, UTU2: 16-bit)
  - 1 × 24-bit Hall timer (HTU)
- Power stage:
  - Integrated gate driver and MOS power devices
  - Maximum output current: 3 A
  - Built-in overcurrent protection, overtemperature protection, and undervoltage lockout (UVLO)
- I/O interfaces:
  - 20 GPIOs, 2 UARTs, 1 I<sup>2</sup>C, 1 high-speed SPI
- Analog functions:
  - 2 voltage comparators
  - 2 programmable operational amplifiers
  - 1 × 12-bit SAR ADC
  - Internal reference voltage (VREFINT)

## ► Motor Product Roadmap

