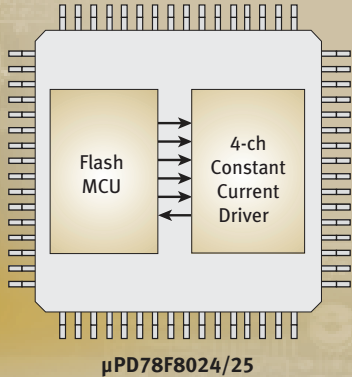


8-bit HCD/LED MCUs

NEC ELECTRONICS AMERICA

With a high-performance flash microcontroller and four-channel constant high-current driver, the NEC Electronics μ PD78F8024 and μ PD78F8025 are well positioned for emerging high-power LED lighting applications. These devices offer valuable benefits from reduced system cost in space constrained system to intelligence to dim and adjust light quality. These devices are supported by a complete hardware and software development tool set.



78K0 Microcontrollers with Constant Current Driver

Key Features

- › Flash microcontroller
 - High-performance 8-bit 78K0 flash microcontroller
 - Up to 32 KB flash memory and 1 KB SRAM
 - Internal 8MHz oscillator
 - 4-ch 8-bit pulse-width modulation (PWM) timers
 - 4-ch 10-bit A/D converter
 - 3-ch serial interfaces (UART, UART/CSI, I²C)
 - Watchdog timer
 - 16-bit capture/compare timer
- › Constant high-current driver
 - 4-ch buck or boost hysteretic current regulators
 - Up to 1MHz switching frequency
 - 350mA – 1.5A drive per channel with external field-effect transistors (FETs)
 - 9-38V supply voltage
 - Soft start (for reduced EMI)
 - Thermal shutdown
 - Automatic lockout upon detection of voltage underages

Key Benefits

- › Saves space by integrating MCU and constant current driver in one chip
- › Enables efficient lighting system by supporting switch-based circuits (boost or buck)
- › Reduces cost with the use of a small inductor (using up to 1 MHz switching frequency)
- › Enhances system flexibility by enabling:
 - Dimming control
 - Color management
 - Thermal management
 - Communication
- › Supports different kinds of LEDs from 350 mA to 1.5A with external MOSFETs

4-ch Constant Current Driver (CCD)	20MHz 78K0 8-bit CPU Core		UART/LIN
	Operating Voltage 1.8V to 5.5V		
	4.5 to 5.5V with CCD		I ² C
	Flash 8 to 32 KB	RAM 512B to 1 KB	
Internal OSC 240 kHz	LVI		
Internal OSC 8 MHz +/- 5%	On-chip Debug		
Available when CCD is not used		POC	

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Target Applications

- › High-power LED lighting
 - General illumination
 - Display backlighting
 - Architectural and entertainment lighting
 - Emergency vehicle lighting
 - Gaming machine lighting
- › Industrial control
 - Stepping motor and solenoid drivers
 - Switching-mode power supply

Development Tools

- › EV-K0-HCD evaluation board
 - 4-ch LED driver (up to 700 mA per channel)
 - On-board Luxon Rebel LEDs
 - On-board light and temperature sensors
 - RS-232 and RS485/DMX512 interface
 - LED light engine interfaces
 - Flash programming via USB interface
- › Software development tools
 - Applilet-EZ reference code generator
 - Integrated development environment
- › Hardware tools
 - Full-function IECUBE emulator
 - On-board USB debugger

Ordering Information

Part Number	Flash Memory	RAM Memory	Pin Count	Availability
μPD78F8024	8 KB	512 byte	64	Mass Production
μPD78F8025	32 KB	1 K	64	Samples

For the latest list of new development tools and device availability and pricing, contact your NEC Electronics America sales representative.

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