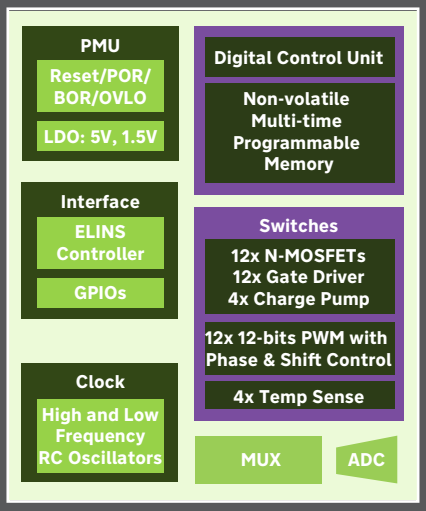
iND83080

Precision Matrix LED Controller for Exterior Lighting

iND83080 Features

- Matrix LED controller with 4 integrated sub-blocks of 3 series-connected MOSFETs with 170mOhm Rdson and up to 1.2A/channel
- 12-bit direct PWM with independent switch control
- Private protocol based on UART (ELIN bus) up to 1Mbps with CRC
- Internal MTP up to 2kbit for system configuration
- Programmable limp-home mode in case of communication failure
- Standalone mode for dynamic turn indicator
- ADC to monitor LED Binning, NTC, VBAT, and Charge Pump status
- On-chip temperature monitor
- Qualified for AEC-Q100 Grade 1



Applications

- Automotive matrix control
- Adaptive driving beam (ADB)
- External dynamic turn signal
- Dynamic position lighting

iND83080 is an automotive-grade matrix LED lighting controller that delivers pixel-level resolution control for adaptive driving beam (ADB) and dynamic turn signal applications. The chip's advanced operating modes enable users to offer headlights with very precise and selective illumination, automatic LED flashing, or moving/dancing lights without requiring a control processor.

The IC integrates four highly customizable switch blocks consisting of three series-connected MOSFETs per block. The MOSFETs can be arranged in parallel or in series and are controlled independently through integrated 12-bit pulse width modulation (PWM) with configurable slew rate and phase shift. The switch blocks can also be configured to different or common current sources.

iND83080 integrates a 2kbit non-volatile MTP (Multi Time Programmable) memory to store system configuration data such as limp-home mode control, auto mode PWM curves and standalone mode scenarios. A high-accuracy clock is also integrated to support high-speed UART communication of up to 32 devices at a maximum of 1Mbps.

An on-chip ADC monitors the switch temperature and can be used to read external NTC or LED binning values. Rich device protection features, such as LED open/short protection, switch slew rate control and phase shift control, charge pump status and watch dog timer for communication monitoring are also available.

The iND83080 is qualified for AEC-Q100 Grade 1. Evaluation kits that combine the device with all necessary components are available to enable rapid development and testing of advanced lighting prototypes.

Ordering Information

Device Name	Platform	Temp Range	Package	Pins
iND83080	Automotive	-40°C to +125°C	TQFP with EPAD	48 Pins @ 7x7mm