Melexis
INSPIRED ENGINEERING

MLX81113

LIN RGB LED DRIVER

FOR AUTOMOTIVE AMBIENT LIGHTING
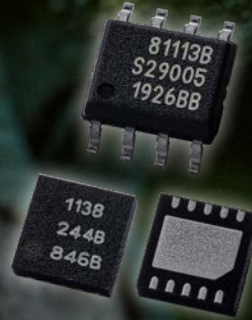
SINGLE-CHIP RGB LED CONTROL

Like the chameleon we can set the RGB LED to every possible color.

MLX81113

The MLX81113 IC is a fully integrated low-end LIN slave for ambient light applications in automotive environments to drive via LIN bus RGB LEDs. It is suitable for bus systems according to LIN 2.x as well as SAE J2602.

The combination of a physical layer LIN transceiver and a LIN protocol controller together with current-controlled outputs make it possible to develop in a short timeframe simple, but powerful and cost-efficient ambient light modules connected to LIN bus systems.

KEY FEATURES

- 16-bit pipelined RISC microcontroller with
  - 32 kByte Flash
  - System ROM with bootloader and LIN driver
  - 2 kByte RAM
  - 576 Byte EEPROM
- Math co-processor for 32-bit MUL/DIV operations
- Watchdog timers with independent clocks
- Internal RC oscillator
- LIN protocol controller according to LIN 2.x and SAE J2602
  - Baudrate up to 19.2 kBaud
  - Frame processing
  - Low interrupt load to the application

- LIN transceiver according to LIN 2.x and SAE J2602
  - Support for autoaddressing according to bus shunt method
- 4x high voltage I/Os with free configurable current sources (up to 60 mA) for RGB+W
- Diagnostic capability for connected LED (short, open, threshold)
- 4x 16-bit PWM outputs
  - Configurable resolution

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- ✅ 10 bit ADC with DMA
  - Multiple channels (outputs, VS, temperature sensor, IOs)
  - Different reference voltages
  - Differential as well as single-ended measurement capability
  - DMA access
- ✅ Low standby current consumption of typ. 25 µA (max 50 µA) in sleep mode
- ✅ Integrated battery monitor including over- and under-voltage detection

- ✅ Automotive temperature range of -40 °C to 125 °C
- ✅ 28 V jump start
- ✅ Integrated temperature sensor
- ✅ Developed following ISO26262 supporting safety system up to ASIL-A
- ✅ AECQ-100 qualified
- ✅ SOIC8 package with exposed pad
- ✅ DFN10 3x3 package with exposed pad

EASY APPLICATION CONFIGURATION

VBat | VS | LC0 | VS
LC3 | LC1
LIN_IN | LC2
LIN_OUT
LIN Interface with autoaddress
GND
MLX81113