RGBW LED Driver with LIN Interface

E521.39

Production Data - Jan 19, 2026

RoHS compliant

Features

- Supply range 5V to 28V, max. 40V
- 4 high-precision LED drivers with current sinking capabilities up to 60mA for RGB and RGBW LEDs
- 4 PWM generators with 48MHz and 16bit resolution
- Increased current capability by driving an external transistor via the GPIO
- Integrated 16-Bit Microcontroller with WatchDog
  - 32 KB Flash/ 2 KB RAM
  - 24 KB SysROM containing LIN Driver API & Boot Loader
  - 128 Byte non-volatile memory
  - Hardware divider / multiplier
  - Programming via JTAG debug interface or Highspeed LIN
- Integrated 12-Bit ADC with 400kSa/s
- Integrated diagnostics capabilities, temperature and voltage sense
- 2 Timers with 16bit resolution
- JTAG_IO pin usable as: Multi-purpose pin, Analog input, GPIO
- LIN interface according to IEC 62228-2, ISO 17987-6/-7 and the SAE J2602-2:2021 with automatic baud rate synchronization
- LIN Auto Addressing supporting 0.2 Ohm and 1 Ohm bus shunt method
- Package SO8EP
- Qualified according to AEC-Q100 and AEC-Q006

General Description

The E521.39 is a one chip solution for RGB ambient light application. It provides an integrated 16-bit microcontroller with 32kByte FLASH memory as well as non-volatile memory, a LIN transceiver supporting LIN auto-addressing. The integrated current sources can be controlled by a 16bit PWM with a 48MHz clock. This enables PWM cycle frequencies up to ~730Hz with full resolution. Each of the four drivers can be used to drive external loads with a current capability up to 60mA. For higher LED currents the JTAG_IO pin can be used as GPIO to drive an external transistor while maintaining full diagnosis capabilities.

For power management and temperature compensation the device provides an integrated temperature sensor as well as a supply voltage sensing circuitry. Furthermore, with the 12 bit ADC in the measurement system and the differential measurement of the forward voltage an effective compensation for ageing and temperature can be implemented.

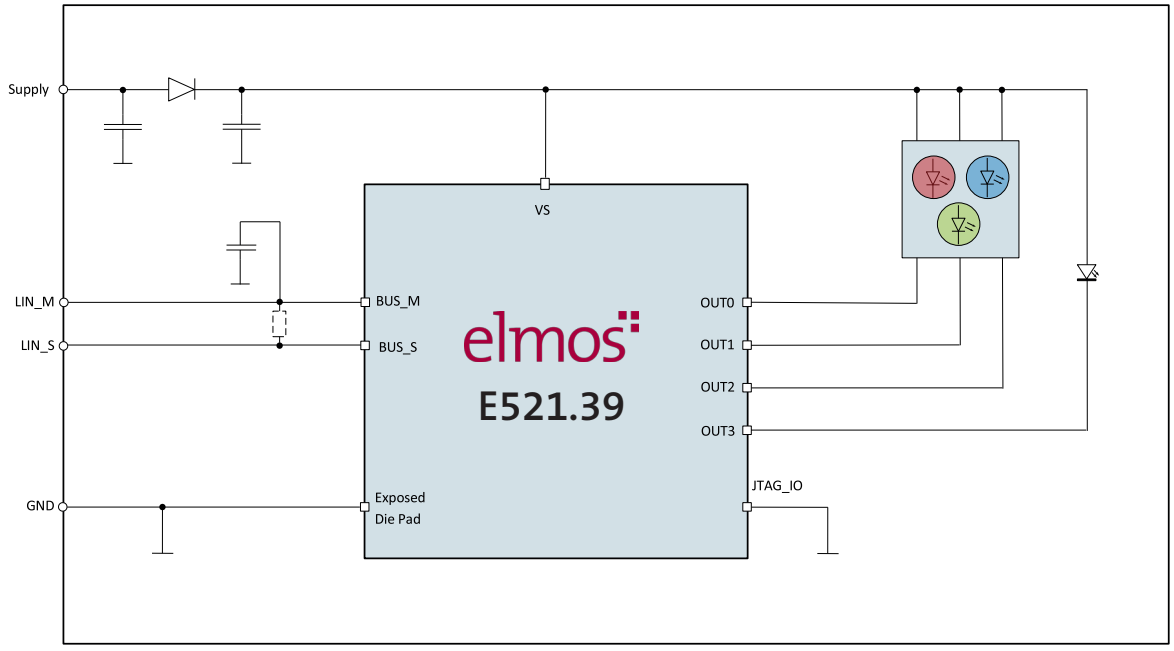
Ordering Information

Ordering-No.:	Temp Range	Package
E52139B80D	-40°C to +125°C	SO8-EP

Applications

- Interior lighting
- Control units with LIN interface

Typical Application Circuit



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