Automotive LED drivers

Interior & exterior lighting, synchronized



Melexis

INNOVATION WITH HEART

Static and animated lighting

Melexis's scalable LED driver solution offers unparalleled flexibility, enabling stunning visual effects and seamless integration.

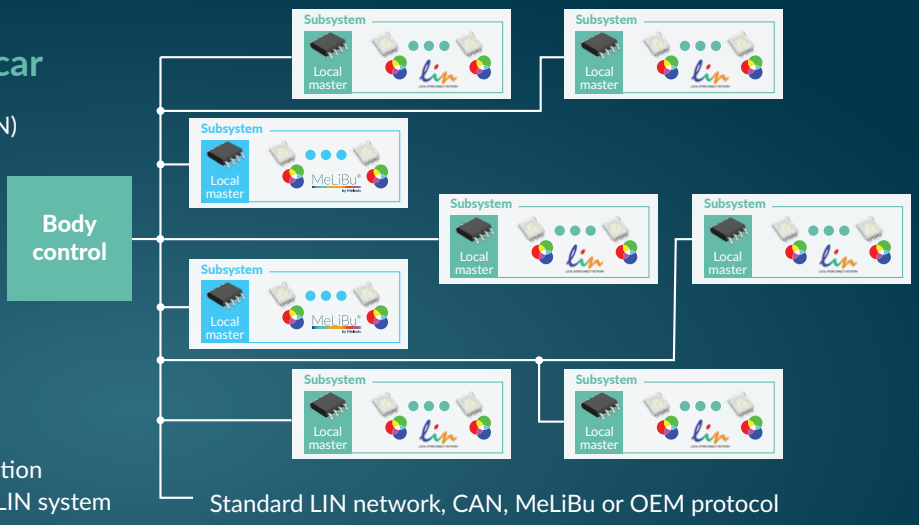


RGB

Scalable architecture

Single control for every LED in the car

- Connect all LEDs via LIN and MeLiBu (UART over CAN)
- Easily adjust the number of RGB LEDs
- Create light animations for multiple cases
- Complete synchronization over the whole system



RGB LED drivers working together

- Multi-channel MeLiBu® for high speed animation
- Single-channel system on chip for streamlined integration
- LIN to LIN gateway to extend the physical limits of a LIN system

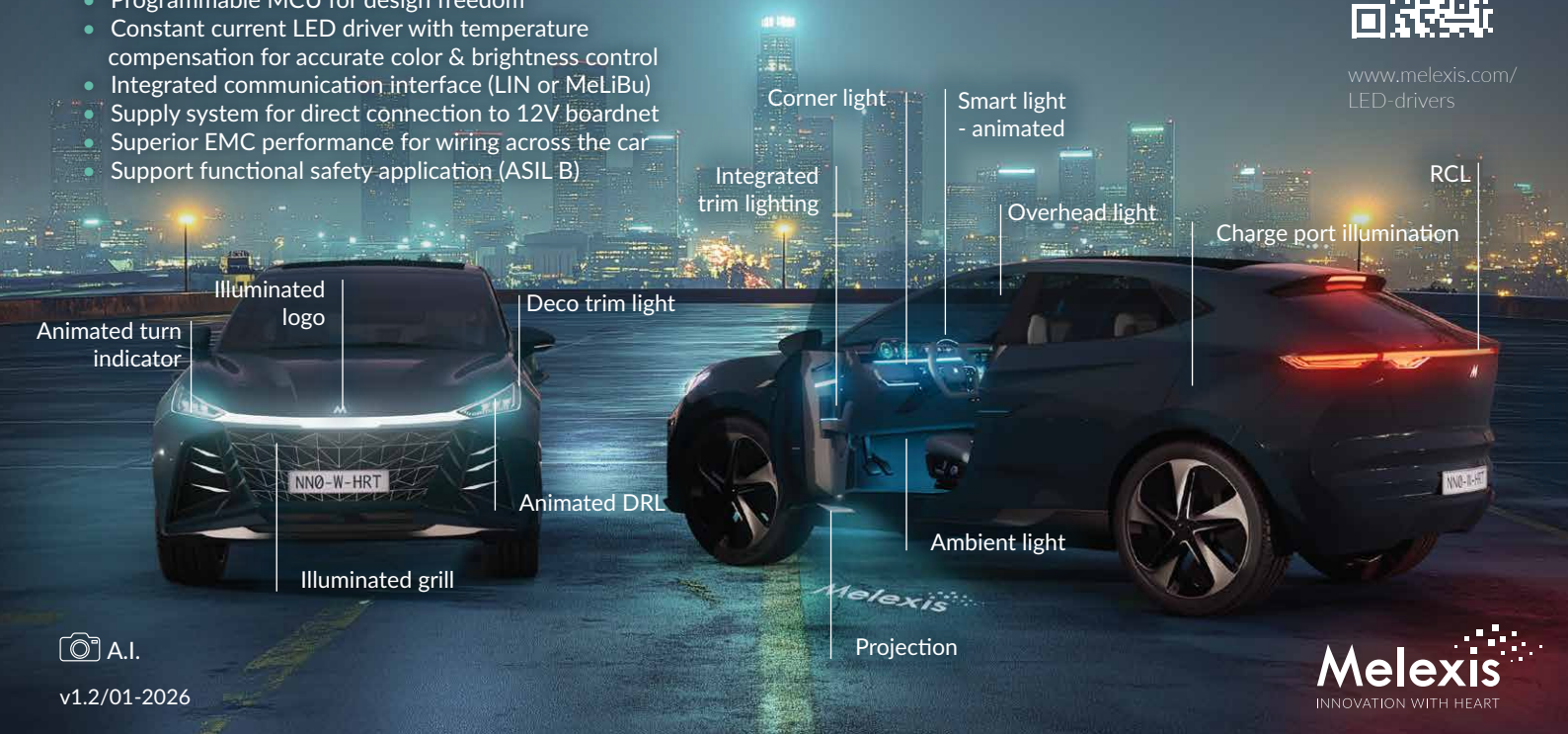
MeLiBu® by Melexis

LIN LOCAL INTERCONNECT NETWORK

Optimized ICs

- Programmable MCU for design freedom
- Constant current LED driver with temperature compensation for accurate color & brightness control
- Integrated communication interface (LIN or MeLiBu)
- Supply system for direct connection to 12V boardnet
- Superior EMC performance for wiring across the car
- Support functional safety application (ASIL B)

www.melexis.com/LED-drivers

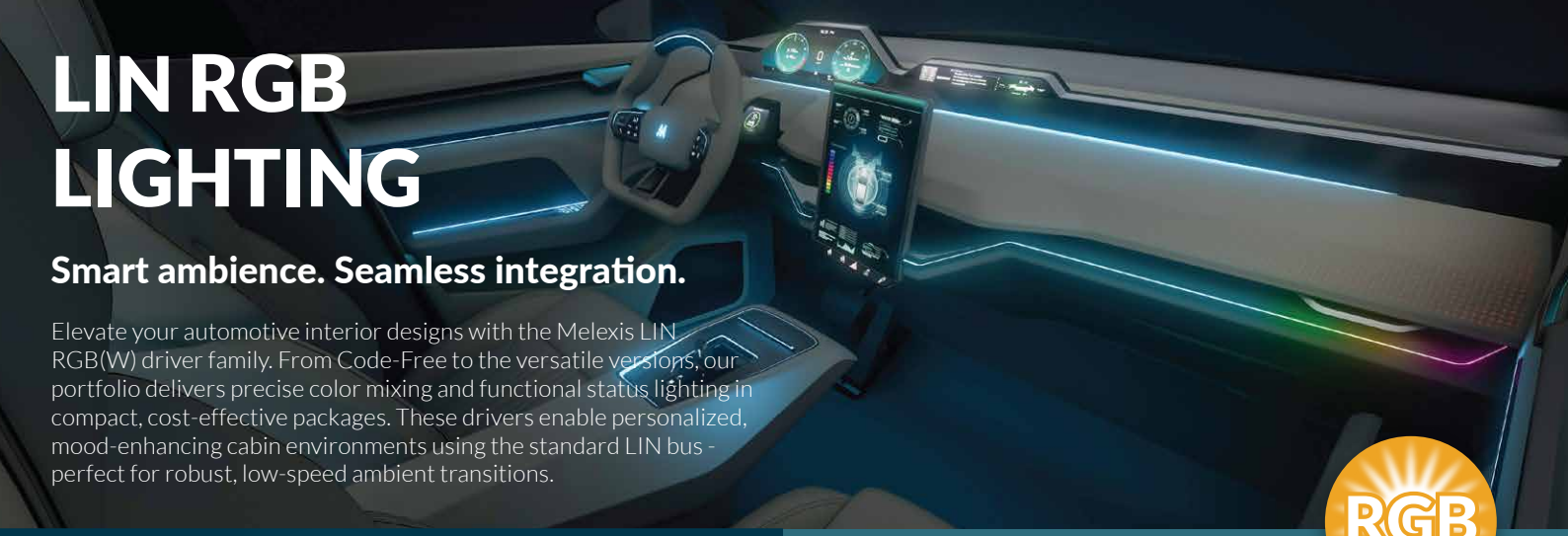


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v1.2/01-2026

Melexis
INNOVATION WITH HEART

LIN RGB LIGHTING



Smart ambience. Seamless integration.

Elevate your automotive interior designs with the Melexis LIN RGB(W) driver family. From Code-Free to the versatile versions, our portfolio delivers precise color mixing and functional status lighting in compact, cost-effective packages. These drivers enable personalized, mood-enhancing cabin environments using the standard LIN bus - perfect for robust, low-speed ambient transitions.

RGB

Key features

- Extended LED control, color mixing and full diagnosis
- Red/Green and Blue LED temperature compensation
- Color mixing accuracy of < 1% delta UV
- Storage of LED calibration data directly within LED driver
- Programmable calibrated current sources for LED control
- LIN transceiver with support for auto-addressing
- ASIL B compliant
- Compact QFN or SOIC8 package with exposed pad
- Code free (configurable) or Microcontroller

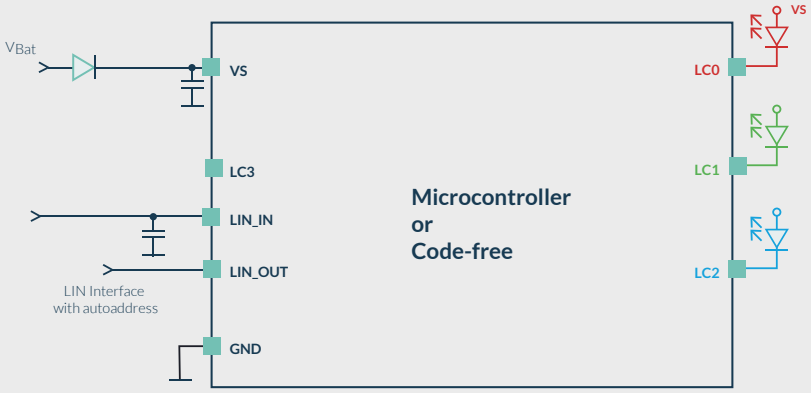
ASIL

<Code Free>

Highlights

	Control	#Channel	Extra
MLX81115	MCU	6	Dual RGB
MLX81118	MCU	24	Independant LED supply
MLX81119	MCU	18	Integrated DC/DC
MLX81120	MCU	4	LIN-to-LIN gateway
MLX81123 **MLX81124**	MCU	4	Miniaturization
MLX80124	Code-free <Code Free>	4	Configurable





lin

Single-chip RGB LED controller

Applications



Interior Illumination & Trim

- Steering wheel illumination
- Surface lighting
- Matrix lighting
- Decorative and integrated trim
- Center stack and console lighting
- Floor and footwell illumination
- Reading lights
- Overhead and roof lighting

Exterior Signaling & Lighting

- Grille & logo illumination
- Rear Combination Lamp (RCL)
- Charge port illumination

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LED-drivers

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V2 / 05-2026

UART over CAN RGB LIGHTING

Highly dynamic lighting animations

Melexis offers a range of smart, multi-channel RGB LED drivers featuring high-speed communication. These fully integrated solutions enable vibrant, high-speed light animations for automotive applications.



RGB

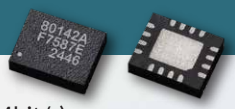
Key features

- Extended LED control algorithm, color mixing and full diagnosis
- Red/Green and Blue LED temperature compensation
- Color mixing accuracy of < 1% delta UV
- Storage of LED calibration data directly within LED driver
- Programmable calibrated current sources for LED control
- Direct and multiplex LED drive
- LEDs fully diagnosable
- High-speed differential bus system
- ASIL B compliant
- Compact QFN packages
- Code free variant

ASIL <Code Free>

Highlights

	Control	#Channel (#multiplexed)	Extra
MLX81116	MCU	12 (36)	Code-free variant
MLX81117	MCU	16	Ind. LED supply
MLX81132	MCU	24 (48)	Lowest cost per pixel
MLX81143	MCU	21 (42)	Ind. LED supply
MLX80142	State machine	6	Pinout supporting single layer



MeLiBu® by Melexis = **UART protocol** over CAN-FD PHY

CAN FD
- High speed (up to 4 Mbit/s)
- EMC/ESD robustness
- Automotive proven PHY
- Enables light animation

LIN LOCAL INTERCONNECT NETWORK
- Simple protocol
- RGB lighting optimized
- Easy to integrate
- Enables low BOM

Real-time update of 3500 RGB LEDs without delay

Ambient & Animated Lighting

melexis.com/MeLiBu

Exterior Signaling & Lighting

- Turn indicator and projection
- Daytime Running Light (DRL)
- Grille & logo illumination
- Rear Combination Lamp (RCL)
- Charge port illumination

Interior Illumination & Trim

- Steering wheel illumination
- Surface lighting
- Matrix lighting
- Decorative and integrated trim
- Center stack and console lighting
- Floor and footwell illumination
- Reading lights
- Overhead and roof lighting



V3 / 11-2026

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