

EVOLUTION THAT IS TRANSFORMING

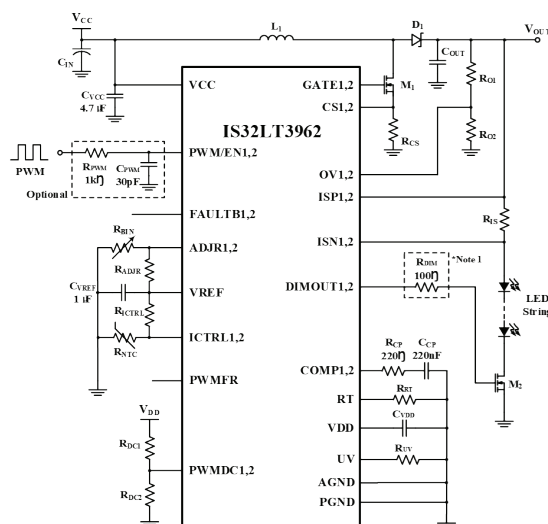
WHAT IS THE IS32LT3962?

KEY FEATURES

managed by the built-in spread spectrum feature that lowers the EMI load floor. Feedback fault protection with reporting and VCC undervoltage lockout (not reported) are included as desired by many customers. The output overvoltage protection is programmable and has output short circuit protection and RT pin short protection. The IS32LT3962 has VDD pin short protection and undervoltage lockout (not reported). All of what you would expect from Lumissil.

KEY ADVANTAGES

LAYOUT OF THE DRIVER



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APPLICATION BENEFITS

The IS32LT3962's dual channel design enables engineers to power two independent LED strings from a single device. Each channel features its own current regulation loop that allows for independent brightness control, Multi color or multi zone lighting. This driver reduces redundant safety critical lighting paths and consolidates two drivers into one IC. This makes the IS32LT3962 ideal for applications such as automotive high beam / low beam, DRL / turn signals, and position lamps, industrial machine lighting, architectural accent lighting and even emergency and safety lighting.

HIGH EFFICIENCY FOR COOLER, LONGER-LASTING SYSTEMS

When using a synchronous buck topology, the IS32LT3962 achieves high conversion efficiency across a wide load range. This reduces heat generation, which is a critical factor in sealed or compact lighting enclosures. Below is a block diagram showing the driver being used for two functions. There is also an image of the demo board Lumissil created. This is a reference design that can be shared to aid in your development. The Lumissil team is always available to help.

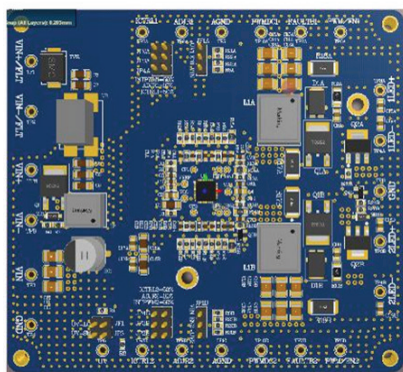
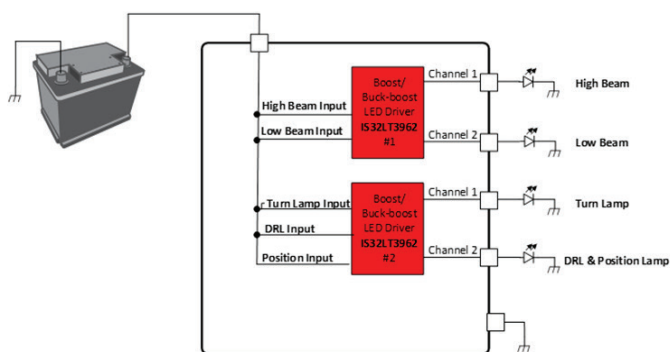


Figure 2: IS32LT3962 Boost+Buck-boost Demo



- IS32LT3962 is configured as constant current LED driver mode.
- 1pcs IS32LT3962 can replace 2pcs IS32LT3958 that saves PCB space and cost

MODERN LIGHTING EFFECTS

The IS32LT3962 supports PWM dimming for the demands of modern lighting systems. Managing fast, flicker free control, the analog dimming allows for smooth transitions in a wide dynamic range. Some examples are smooth fades, rapid strobe patterns, sensor driven adaptive brightness, and multi channel synchronized effects.

PROTECTION FOR HARSH ENVIRONMENTS

Lumissil designed the IS32LT3962 for the harsh environments that our customers face. LED open/short detection, over temperature protection, cycle by cycle current limiting and under voltage lockout were all built into this drivers DNA. These protections ensure long term reliability in automotive and industrial environments where voltage spikes, thermal stress, and load faults are common.

REAL WORLD APPLICATIONS

Automotive

- DRLs
- Turn indicators
- Tail lamps
- Adaptive headlights
- Multi function light bars

Industrial

- Machine vision lighting
- Inspection lamps
- Warehouse illumination
- Emergency signage

Architectural

- Accent lighting
- Wall washers
- Color tunable fixtures

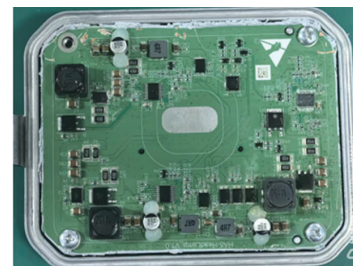


Figure 3: Example of an LDM (Light Drive Module) using the Lumissil Dual-Channel DC-DC

SPREAD SPECTRUM TECHNOLOGY

Lumissil is always looking for the challenges our customers face. Spread spectrum technology is designed into many of our drivers. It is designed to disperse the energy concentrated at the switching frequency, thereby reducing EMI noise at the switching frequency and harmonics.

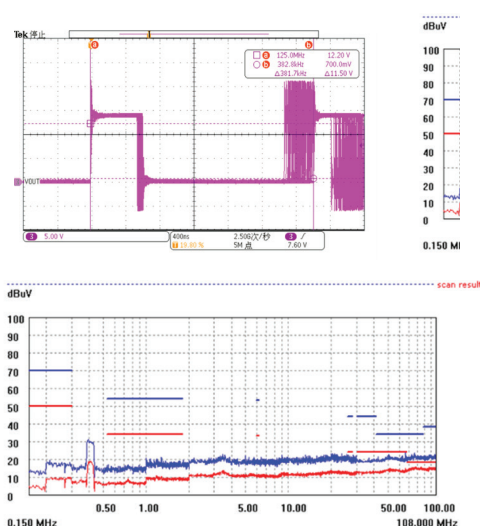


Figure 4: Scope Image showing the effectiveness of the Spread Spectrum Technology.

WHY THE IS32LT3962 STANDS OUT

The IS32LT3962 is more than a dual channel LED driver, it is a platform for building smarter, more efficient, and more reliable lighting systems. Its combination of high efficiency, robust protection, and flexible dimming makes it a strong fit for next generation designs across multiple industries. Below you can see how the IS32LT3962 compares to Infineon and Elmos dual channel drivers. Higher voltage, better temperature ranges, increased frequency, lower shutdown current and better PWM control all stand out and will prove to make your designs more robust.

CONCLUSION

Lumissil's IS32LT3962 delivers the dual channel LED driver solution our customers need today. We are here to support your designs and can help study your schematic thermals before you build your first PCBA to give you confidence in testing and validation. This is support and dedication the Lumissil prides itself on. Thank you for your continued business.

	IS32LT3962	TLD6098	E522.32/34
Channel #	Dual	Dual	Dual
VIN min.	5 V	5V	5V
VIN max.	80 V	58V	55V
UVLO	4.25V	4.5V	-
Programmable VIN UVLO with Hysteresis	Yes	No	No
Input low-voltage output current reduction function.	Yes	No	No
No.of LEDs max.	22	19	22
LED Current Accuracy	±2.8% (-40°C-150°C)	±3.5% (-40°C-125°C)	±4% (-40°C-125°C)
Topology	Buck, Boost, Buck-boost, SEPIC	Buck, Boost, Buck-boost, SEPIC	Buck, Boost, Buck-boost, SEPIC
LED string connection (BUCK-BOOST MODE)	LED string cathode refer to VIN	LED string cathode refer to VIN	LED string cathode refer to VIN
Dimming MOSFET	1pcs dimming PMOS in buck-boost mode/1pcs dimming NMOS in Boost/SEPIC mode	1pcs dimming PMOS in all mode	1pcs dimming PMOS in buck-boost mode/1pcs dimming NMOS in Boost/SEPIC mode
Frequency	Fixed	Fixed	Fixed
Frequency min.	100 kHz	100 kHz	250kHz
Frequency max.	1000 kHz	500 kHz	600 kHz
Spread spectrum	Yes	Yes	Yes
Softstart	Yes	Yes	Yes
Shutdown current	4uA	Non-shutdown mode	8uA
Quiescent current max.	4mA	8mA	3mA
Operating min.	-40 °C	-40 °C	-40 °C
Operating max.	150 °C	150 °C	125 °C
Automotive AEC-Q100	Yes	Yes	Yes
DC Dimming	Yes (0~100%), 2 DC dimming pins for per channel	Yes (0~100%), 1DC dimming pin for per channel	Yes (0~100%), 1 DC dimming pins for per channel
PWM Dimming	Yes	Yes	Yes
Internal PWM generator	Yes (100Hz~1KHz, 5%~100% duty cycle)	Yes (345Hz, 0%~100% duty cycle)	No
Internal PWM frequency adjustable	Yes	No	No
Temp roll back	External NTC	External NTC	External NTC
Package	WFQFN-32	PG-TSDSO-24	QFN-24
Fault Detection Features			
Fault reporting	Dedicated fault reporting pin	Dedicated fault reporting pin	No fault reporting pin
VCC UVLO	Yes	Yes	Yes
Internal LDO UVLO	Yes	Yes	Yes
Internal LDO shorted	Yes and reporting	Yes	Yes
TSD	Tj>175°C and reporting	Tj>175°C and reporting	Tj>160°C and no reporting
Output Overvoltage (LED Open)	Yes and reporting	Yes and reporting	Yes and no reporting
Cycle by cycle current limit	Yes	Yes	Yes
Output Overcurrent (LED Short)	Yes and reporting	Yes and reporting	Yes and no reporting
Output Undervoltage (LED Short)	Yes and reporting	Yes and reporting	Yes and no reporting
Operating frequency setting pin open/short	Yes and reporting	No	No