

ASL2415SHN

Two channel LED Buck Driver

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ASL2415SHNY

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The ASL2415SHN is a two channel buck mode LED driver IC delivering constant average DC current to LEDs independent of the input voltage. The ASL2415SHN supports up to two output channels. It means that with one driver IC, 1 LED or 2 LED strings can be driven independently of each other. It provides a cost effective design solution, specifically targeting automotive exterior and interior lighting applications.

The ASL2415SHN has a hysteretic buck DC-to-DC topology. With input voltages from 10 V to 80 V, it allows maximum flexibility on output voltages for each channel, enabling applications with up to 20 LEDs. It also provides an output current of up to and above 1.5 A per channel. Furthermore, the two output channels can be connected together to provide an even higher current. It drives an external high-side N channel MOSFET from an internally regulated adjustable supply. The ASL2415 buck driver gives a flexible system design which can be used to drive two LED strings with the same architecture.

The ASL2415SHN provides an SPI interface for extensive control and diagnostic communication with an external microcontroller.

The ASL2415SHN offers an adjustable DC-to-DC converter frequency for optimizing external components as well minimizing LED current ripple.

The ASL2415SHN provides an output voltage of up to 70 V and a measurement capability that can be used to identify LED open or short circuit conditions. The microcontroller can read this voltage and use it to detect open or short circuit condition.

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The device is housed in a very small HVQFN32 pin package with an exposed thermal pad and is designed to meet the stringent requirements of automotive applications. It is fully AEC-Q100 grade 1 qualified. It operates over the -40 °C to +125 °C ambient automotive temperature range.

Features and benefits

- The ASL2415SHN is an automotive grade product that is AEC-Q100 grade 1 qualified
- Operating ambient temperature range of -40 °C to +125 °C
- Wide operating input voltage range from +10 V to +80 V
- Able to drive up to 20 LEDs, wide operating LED voltage range regulated from 2.5 V to 70 V
- Output current of up to and above 1.5 A with high LED current accuracy of ±5 % over the complete operating temperature range
- Output current programmable via SPI interface
- Read back programmed current via SPI
- Two output current ranges, programmable via SPI interface with 5 % accuracy
- Hysteretic converter
- Fast gate drive for high efficiency
- Gate driver with level shifter
- Programmable internal gate driver voltage regulator
- Support logic level and standard level FETs
- Integrated bootstrap diode
- PWM inputs for individual dimming of each channel
- Low Electro Magnetic Emission (EME) and high Electro Magnetic Immunity (EMI)
- Input voltage monitoring and input under voltage protection
- Output voltage monitoring
- Control signal to enable the device
- Junction temperature monitoring via SPI
- Small package outline HVQFN32
- Low quiescent current <5 µA at 25 °C when EN = 0

Applications

- Automotive LED lighting
 - Daytime running lights
 - Position or park light
 - Low beam
 - High beam
 - Turn indicator
 - Fog light
 - Cornering light

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Package

| Type number | Package | Outline version | Reflow-Wave soldering | Packing | Product status | Marking | Orderable part number, (Ordering code (12NC)) |
|-------------|---------------------|--------------------------------|--------------------------------|---------------------------|---|------------------|---|
| ASL2415SHN | HVQFN32 (SOT617-12) | ↓ sot617-12_po | ↓ sot617-12_fr | Reel 13" Q1/T1 in Drypack | Active | Standard Marking | ASL2415SHNY (9353 009 24518) |

Quality, reliability & chemical content

| Type number | Orderable part number | Chemical content | RoHS / RHF | Leadfree conversion date | MSL | MSL LF |
|-------------|-----------------------|------------------|------------|--------------------------|-----|--------|
| ASL2415SHN | ASL2415SHNY | ASL2415SHN | | Always Pb-free | 3 | 3 |

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Documentation for this product

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| File name | Title | Type | Format | Date |
|--------------------------------|--|------|------------------|------------|
| ↓ sot617-12_fr | sot617-12_fr | ★ | Reflow soldering | 2013-12-18 |
| ↓ sot617-12_po | HVQFN32: plastic thermal enhanced very thin quad flat package; no leads; | ★ | Outline drawing | 2013-12-18 |

Ordering & availability

| Type number | Ordering code (12NC) | Orderable part number | Region | Distributor | In stock | Order quantity | Inventory date | Buy online | Samples |
|-------------|----------------------|-----------------------|--------|-------------|----------|----------------|----------------|------------|-------------------------------|
| ASL2415SHN | 9353 009 24518 | ASL2415SHNY | | | | | | | Order samples |

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