



## MIC4414/15 - Ultra-Small (1.2mm x 1.2mm) Four-Pin Low-Side MOSFET Drivers

### 1.5A, 4.5V to 18V Low-Side MOSFET Drivers

#### Optimal Efficiency at Every Level

- 3.5Ω output resistance at 18V and 9Ω output resistance at 5V
- 77μA control input low and 445μA control input high
- 12ns rise and fall times into 1,000pF load
- Input/Output protection of -20V absolute max. input
- Integrated power supply noise rejection
- Non-inverting (MIC4414) or Inverting (MIC4415)
- TTL and CMOS compatible input signal threshold
- Ultra-small 4-pin 1.2mm x 1.2mm Thin QFN package
- -40°C to +125°C junction temperature range

#### Ideal for use in:

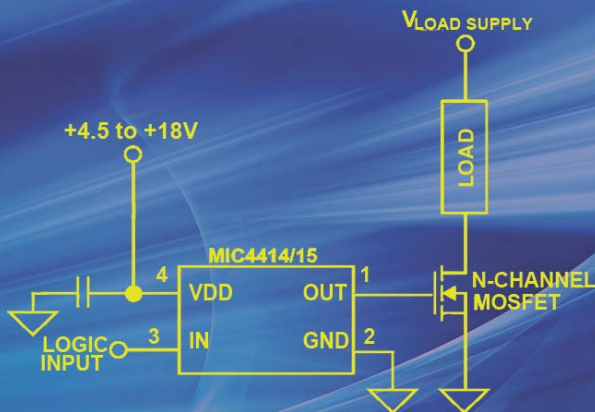
- Switch mode power supplies
- Solenoid/Relay drivers
- Motor driver

For more information, contact your local Micrel sales representative, or visit Micrel at:  
[www.micrel.com/index.php/en/products/power-management-ics/](http://www.micrel.com/index.php/en/products/power-management-ics/)

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## MIC4414/4415

### Low-Side MOSFET Driver Devices In Ultra-Small Package



- Tiny 4-Pin 1.2mm x. 1.2mm Thin QFN
- 4.5 to 18V Operating Supply Voltage Range
- Operates at Low Steady-State Supply Current

#### Applications



#### Switch Mode Power Supply



#### Solenoid Drivers



#### Motor Control

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# MIC4414/15 — Ultra-Small (1.2mm x 1.2mm), Four-Pin Low-Side MOSFET Driver

## MIC4414/15 — Specially Designed for Faster Frequency of Operation

The MIC4414 and MIC4415 are low-side MOSFET drivers designed to switch an N-Channel enhancement type MOSFET in low-side switch applications. The MIC4414 is a non-inverting driver and the MIC4415 is an inverting driver. These drivers feature short delays and high peak current that produce precise edges and rapid rise and fall times.

The MIC4414/15 are powered by a 4.5V to 18V supply and can sink and source peak currents up to 1.5A, switching a 1,000pF capacitor in 12ns. The on-state gate drive output voltage is roughly equal to the supply voltage, requiring no internal regulators or clamps. High supply voltages, those around 10V, are appropriate for use with standard N-Channel MOSFETs. Low supply voltages, around 5V, are appropriate for use with many logic-level N-Channel MOSFETs. The MIC4414 and MIC4415 are available in ultra-small 4-pin 1.2mm x 1.2mm Thin OFN packages are are rated for the -40°C to +125°C junction temperature range.

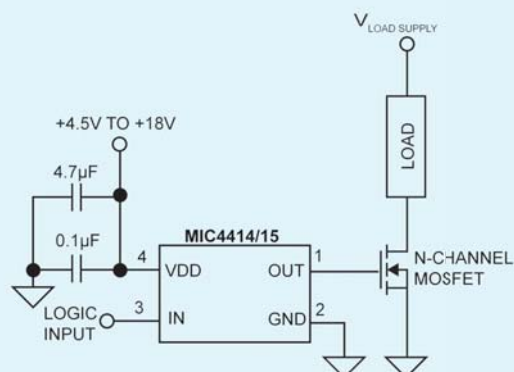
### Key Features

- Ultra-small 4-pin 1.2mm x 1.2mm x 0.55mm Thin QFN Package
- 12ns Rise and Fall Times into 1,000pF Load
- Driver input protection to -20V absolute max
- +4.5V to +18V Operating Supply Voltage Range

### Benefits

- Extremely compact, low profile solution with no compromise to thermal performance
- Faster MOSFET switching times
- Prevents damage to the input stage
- Can address 5V, 12V, and 15V power buses

### Typical Application



### Ordering Information

| Part       | Lead Finish | Junction Temp. Range | Package                      |
|------------|-------------|----------------------|------------------------------|
| MIC4414YFT | Pb-Free     | -40°C to +125°C      | 4-pin 1.2mm x 1.2mm Thin QFN |
| MIC4415YFT | Pb-Free     | -40°C to +125°C      | 4-pin 1.2mm x 1.2mm Thin QFN |

### Contact Micrel, Inc.

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