

IXI858/IXI859 Regulator/Gate Driver

INTERFACE IC PROVIDING ANALOG FUNCTIONS FOR MICROCONTROLLER IMPLEMENTATION OF DIGITAL POWER SUPPLY FUNCTIONS / POWER FACTOR CORRECTION

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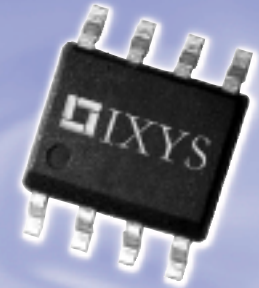
Description

The IXI858 and IXI859 Gate Driver/Regulator ICs are part of IXYS growing family of Interface products. These ICs are designed to provide the needed analog functions required by microcontrollers to implement offline digital power supply control, such as in Power Factor Correction (PFC).

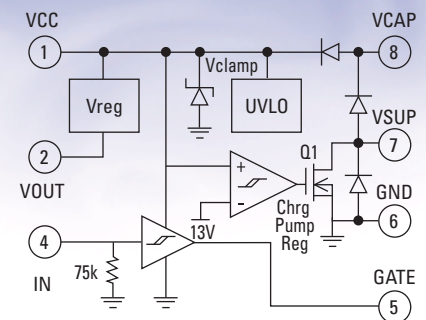
The IXI858/859 combine a gate drive, low voltage linear regulator and a charge pump function for drive voltage generation as needed in these applications. These features make the IXI858/859 invaluable for implementing microcontroller based PFC systems. The IXI858/859 can be used in combination with a Depletion-Mode Power MOSFET such as the IXTY02N50D, which can be used to create a constant current source to provide offline standby power at lower cost with lower high line power consumption.

The IXI858 is designed to support 5.0V digital systems with an on board 5.0V linear regulator, while the IXI859 features a 3.3V linear regulator for lower voltage systems. In addition, both versions feature logic level input signal compatibility, 60mA source and 120mA sink gate drive output and a charge pump section meant to generate a 13V gate drive voltage.

The growing trend of digital power management, with the use of standard microcontroller in motor control, power supply, and PFC circuits require the interface, voltage gain and drive of the IXI858/859 for digital power management. The IXI858 and 859 were optimized for cost efficiency to support high volume applications such as dimmable ballast, non-dimmable ballast and High Intensity Discharge (HID) lighting systems. The IXI858/859 are offered in a small 8-Lead SOIC surface mount package, with rated operation of -25°C to +125°C.



Functional Block Diagram



Features

- Logic Level Gate Drive Compatible
- 60mA Source / 120mA Sink Minimum Gate Drive
- 5.0V or 3.3V Voltage Regulator
- Charge Pump Regulator Stabilizes V_{CC} Power Supply at 13V
- UVLO Protection

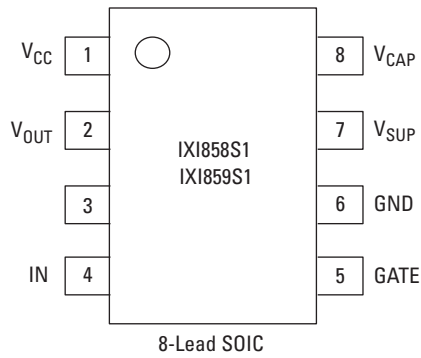
Applications

- Fluorescent Ballast
- DALI Dimmable Fluorescent Ballast
- HID
- BLDC Drives
- AC Drives

SUMMARY TABLE

Part Number	Description	Package	Package Quantity
IXI858S1	5.0V Version	8-Pin SOIC	100 (Tube)
IXI858S1T/R	5.0V Version	8-Pin SOIC	2500 (Tape & Reel)
IXI859S1	3.3V Version	8-Pin SOIC	100 (Tube)
IXI859S1T/R	3.3V Version	8-Pin SOIC	2500 (Tape & Reel)

Component Pin Layout

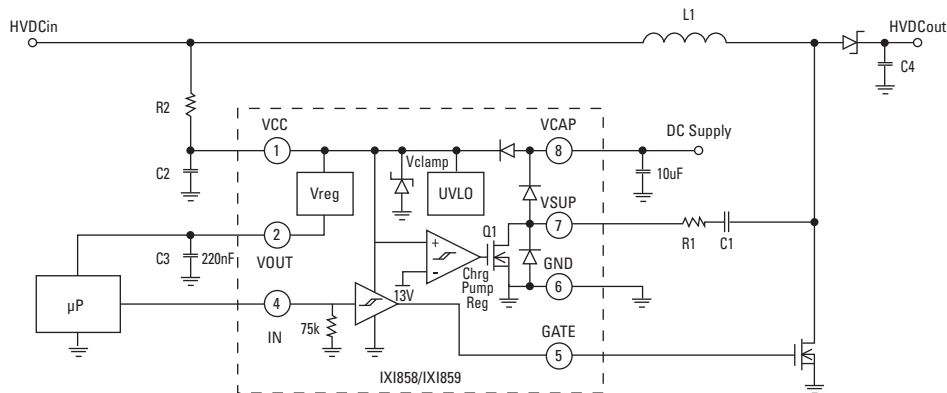


Pin Description

SOIC Pin	Name	Description
1	VCC	Power input from a high voltage source through a current limiting resistor and filter cap. 13V output when charge pump is activate.
2	VOUT	Linear regulated output at 3.3V for the IX1859 or 5V for the IX1858 and is typically used in providing power to a micro-controller.
3	N/C	Pin 3 is not used
4	IN	Used as a input signal to drive the output at pin 5, controlling power MOSFET in a typical power factor correction application.
5	GATE	Output for driving external power MOSFET
6	GND	Ground return
7	VSUP	Charge pump switch input. Receives swiching energy from RC and enables/disables charge pump output. Requires low ESR capacitor.
8	VCAP	Charge pump output to supply external power.
9	VCLAMP	Fixes or clamps the maximum VCC to 17 V.
10	UVLO	Bounds charge pump operation to a specific range for both circuit start-up and under-voltage lock out. Also disables regulated pin 2 (VOUT) output.

Application Circuits

Application Circuit Boost/Power Factor Correction



Alternative R2, C2 Operation Using Constant Current Source

