

# Ultra High Voltage, High Current Buck LED Driver

## General Description

VAS1288 is a buck LED driver with external power MOSFET works from decades to hundreds of voltages. By adjusting external sense resistor, VAS1288 can deliver up to several amperes output current and suitable for high power LED array applications.

VAS1288 provide excellent protection functions, such as MOSFET over current protection,  $R_{SETH}/R_{SETL}$  short protection and over heat protection, LED open/short protection.

VAS1288 is available with SOP8 package.

## Application

- Spotlight lighting
- High voltage lighting application

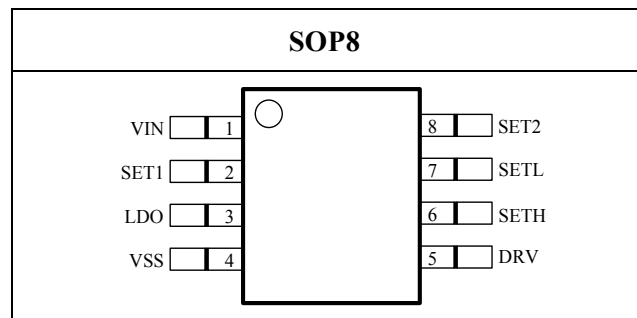
## Ordering Information

Order Number	Package Type	Temp. Range
VAS12880ID08E	SOP8	-40 °C to 85°C

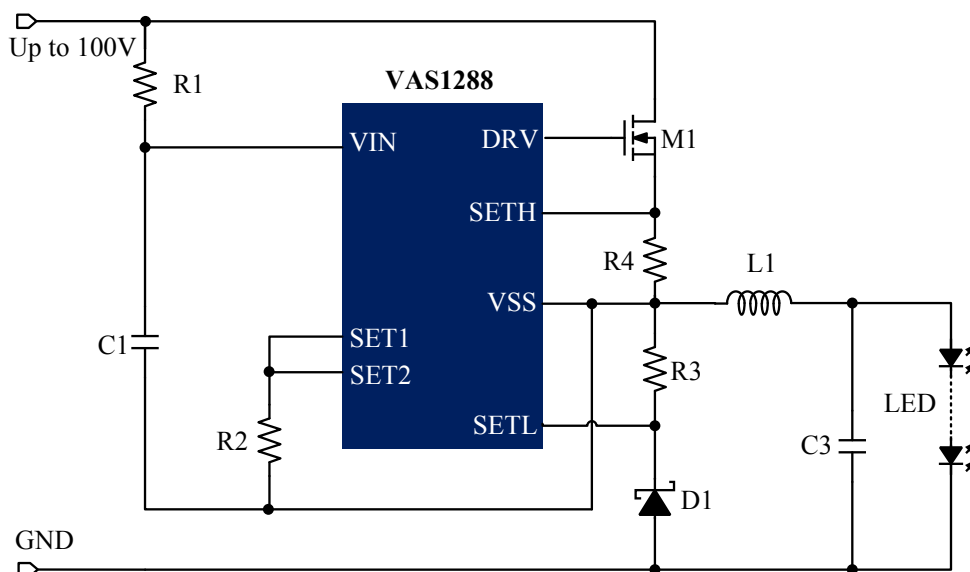
## Features

- Up to 100V applications
- Up to 2A output current
- 10V gate driver
- Multiple protections
  - $R_{SETH}$  short protection
  - $R_{SETL}$  short protection
  - LED short protection
  - LED open protection
  - Over temperature protection
- No compensation capacitors

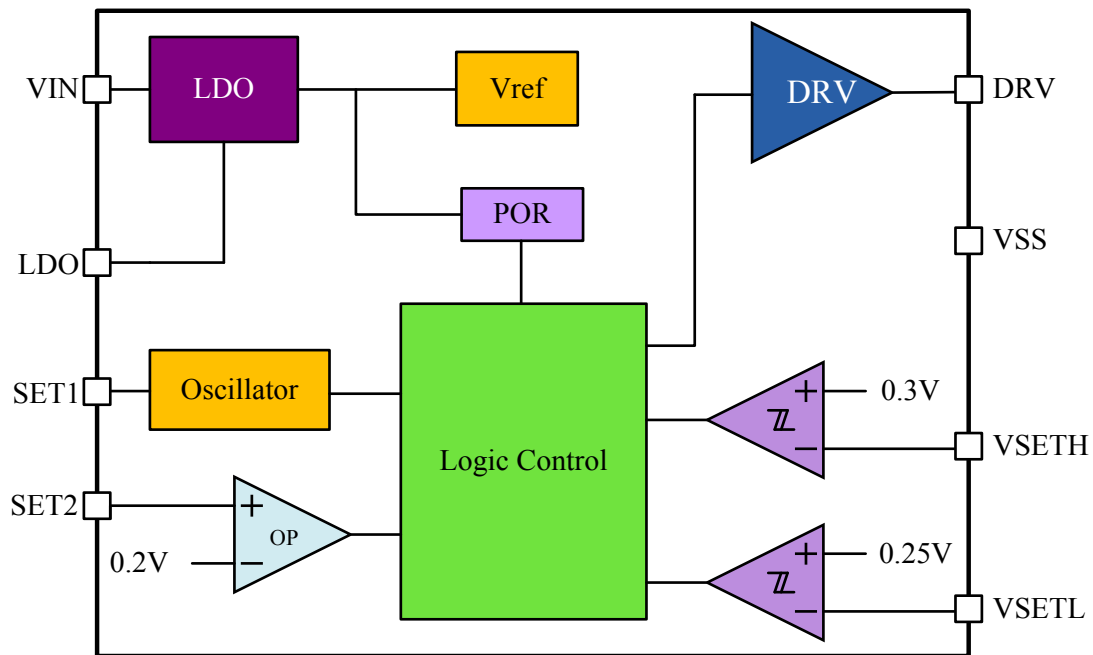
## Pin Configuration



## Typical Application Circuit



## Block Diagram



## PIN Description

PIN NO.	Name	Description
1	VIN	Power supply input.
2	SET1	Delicate current output, connect 33k resistor to VSS
3	LDO	Internal 3.3V output ,connect 0.1u capacitor to VSS
4	VSS	Ground
5	DRV	Gate Drive Output. Connect to the gate of an external N-MOSFET
6	SETH	The 2 PINs are used to set average LED current: $I_{LED} = \frac{1}{2} \left( \frac{V_{SETH}}{R_4} + \frac{V_{SETL}}{R_3} \right)$
7	SETL	
8	SET2	Internal operation amplifier positive input, connect to set1 is recommended



## Absolute Maximum Ratings <sup>(Note1)</sup>

Parameters	Maximum Ratings
VIN to VSS	-0.3V to 44V
SETH, LDO, SET1, SET2, SETH to VSS	-0.3V to 6V
DRV to VSS	-0.3V to 18V
Operating temperature range	-40°C to +85°C
Junction temperature	-40°C to +150°C
Storage temperature range	-65°C to +150°C
ESD (HBM)	±2000V

Note 1: Absolute Maximum Ratings indicate limits beyond which damage to the device may occur. Operating Ratings indicate conditions for which the device is functional, but do not guarantee specific performance limits. Electrical Characteristics state DC and AC electrical specifications under particular test conditions which guarantee specific performance limits. This assumes that the device is within the Operating Ratings. Specifications are not guaranteed for parameters where no limit is given, however, the typical value is a good indication of device performance.

## Electrical Characteristics

Test Condition (note2): VIN=12V, TA=25°C (unless otherwise specified)

Symbol	Parameter	Condition	SPEC			Unit
			Min.	Typ.	Max.	
VINDC	VIN to VSS Voltage Range		5		40	V
VSYS	System Operation Voltage		10		100	V
IQ	Quiescent Current	VIN=12V		400	600	μA
VSETH_TH	Output Peak Current Threshold			250		mV
VSETL_TH	Output Current Feedback Threshold			300		mV
VSET1	VSET1 Voltage	RSET1=33KΩ		200		mV
TSD	OTP Threshold			160		°C
TSD_HYS	OTP Hysteresis			20		°C

Note 2: Production testing of the device is performed at 25°C. Functional operation of the device and parameters specified over other temperature range, are guaranteed by design, characterization and process control.