

SSL Interface Controller for Analog (0-10V), PWM, and Resistor Dimming with Optocoupler Delay Elimination

1 Description

The iW339 is a PWM signal generator that works with three different types of dimming inputs, 0-10V PWM dimming, 0-10V linear dimming or simple dimming using a single resistor to ground from the DIM pin. The iW339 converts either of these three signals into a 0%-100% PWM duty cycle that can then be used to provide a dimming signal to a primary-side LED driver such as the iW3636, removing the need for transformers or other driver circuitry. The output of the iW339-01 is optimized in such a way as to remove the impact of the non-linear delay typical of optocouplers. The output of the iW339-00 provides a standard PWM output.

The output PWM frequency can be programmed from 100Hz to 50kHz through a single capacitor to ground. The input to the iW339 integrates the necessary current source to interface with both active and passive 0-10V dimmers without additional circuitry, while the output can drive an optocoupler to provide isolated dimming control from the secondary to the primary.

2 Features

- 15V to 60V operating voltage
- 3-in-1 dimmer interface
 - » 0-10V linear dimming
 - » 0-10V PWM dimming
 - » Single resistor dimming
- SOIC-8 package
- Low power shutdown mode
- 0% to 100% PWM output
 - » 1% PWM duty cycle tolerance
 - » Selectable frequency range via external capacitor
 - » Unique duty cycle drive to account for non-linear optocoupler delay
- Integrated current source for driving 0-10V dimmer
- Integrated optocoupler driver for isolated applications

3 Applications

- 0-10V LED dimming application
- 3-in-1 LED driver interface chip (0-10V linear, 0-10V PWM and R dimming) dimming LED driver application

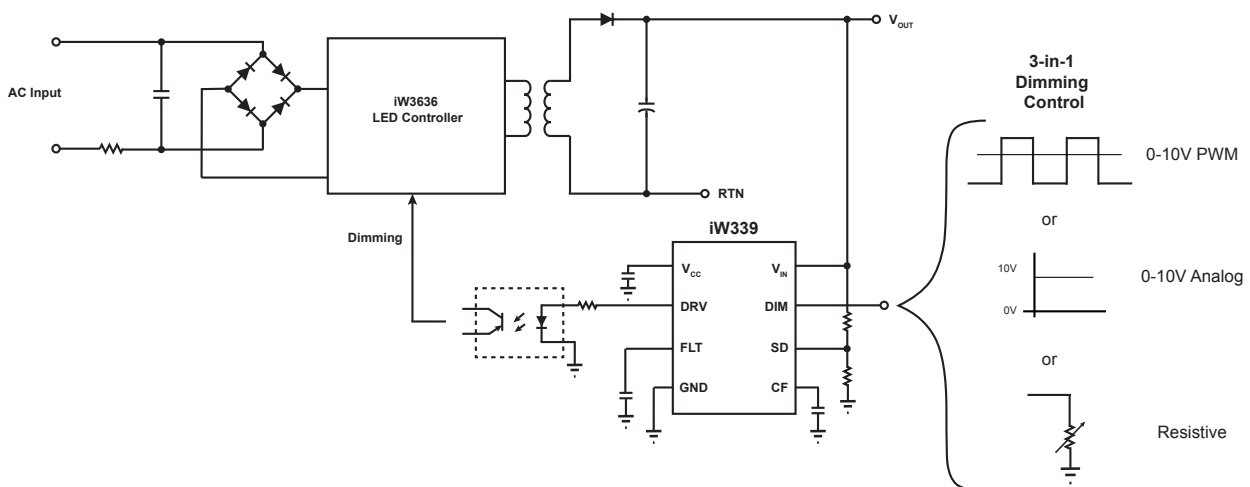


Figure 3.1 : iW339 Typical Application Circuit

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4 Pinout Description

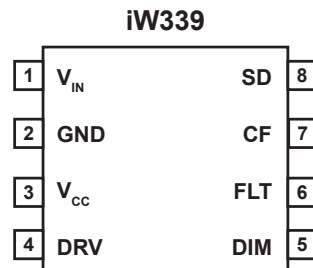


Figure 4.1 : 8-Lead SOIC Package

Pin Number	Pin Name	Type	Pin Description
1	V _{IN}	Analog Input	Power supply up to 60V.
2	GND	Ground	Ground.
3	V _{CC}	Power	Power supply for control logic.
4	DRV	Output	PWM driver.
5	DIM	Analog Input	Dimming interface connection.
6	FLT	Analog Input	Dimming signal filter capacitor connection.
7	CF	Analog Input	Sets the PWM output frequency: 100Hz to 50kHz.
8	SD	Analog Input	Shuts down the IC if voltage is over 2V.

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5 Absolute Maximum Ratings

Absolute maximum ratings are the parameter values or ranges which can cause permanent damage if exceeded.

Parameter	Symbol	Value	Units
V _{IN} to GND	V _{CC}	-0.3 to 65	V
DIM to GND		-0.3 to 65	V
DRV, FLT, CF, SD to GND		-0.3 to 5	V
ESD rating (HBM)		±2	kV
Storage temperature range		-65 to +150	°C
Maximum junction temperature		150	°C

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6 Physical Dimensions

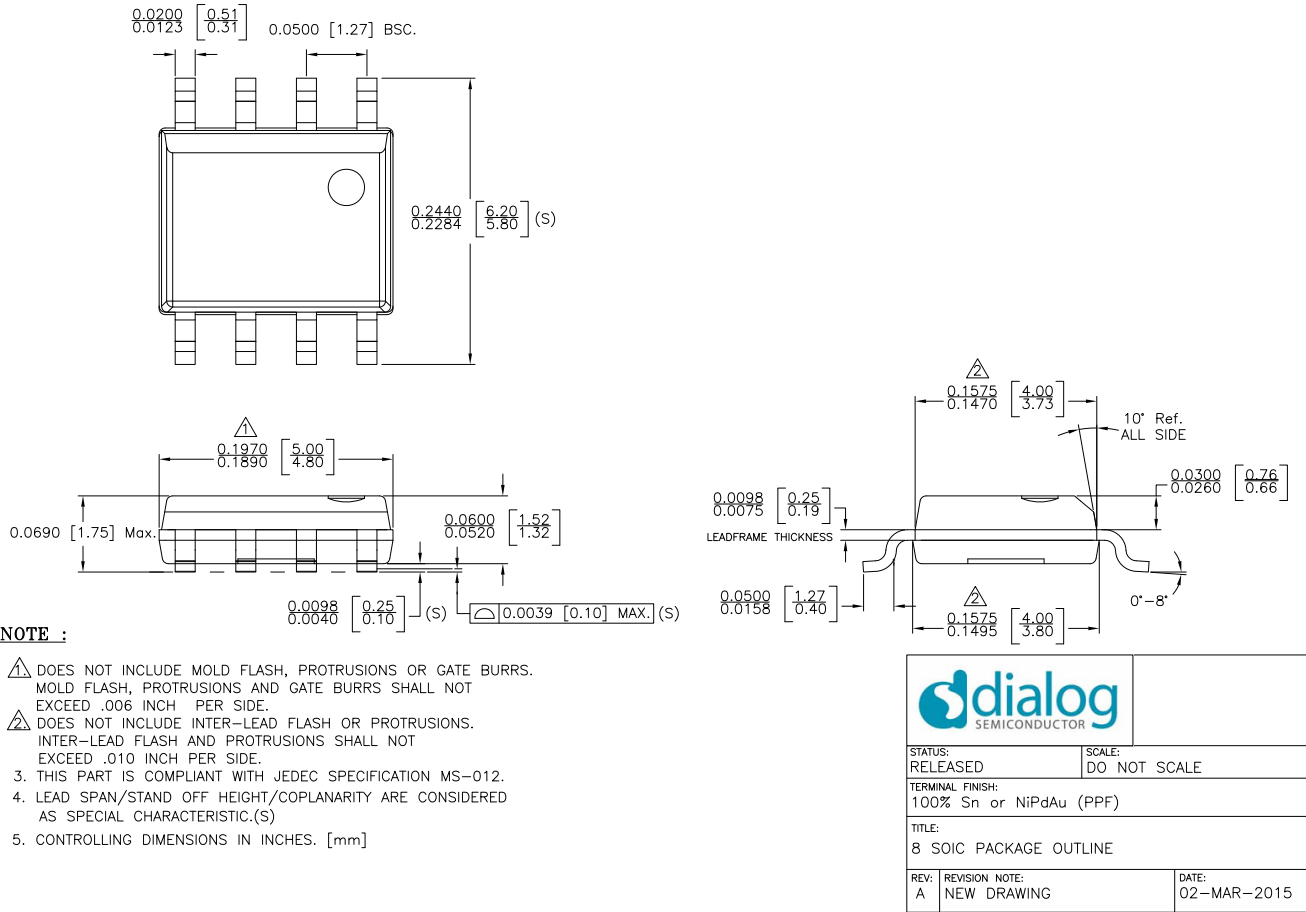


Figure 6.1 : Physical Dimensions of 8-Pin SOIC Package

7 Ordering Information

Part Number	Options	Package	Description
iW339-00	Standard PWM Output	SOIC-8	Tape & Reel ¹
iW339-01	Calibration Capable PWM Output	SOIC-8	Tape & Reel ¹

Note 1. Tape and reel packing quantity is 2,500/reel. Minimum packing quantity is 2,500.

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