
SSL Interface Controller for Analog (0-10V/0-5V), PWM, and Resistor Dimming with Optocoupler Delay Elimination

1 Description

The iW330 is a PWM signal generator that works with three different types of dimming inputs, 0-5V and 0-10V PWM dimming, 0-5V and 0-10V linear dimming or simple dimming using a single resistor to ground from the DIM pin. The iW330 converts either of these three signals into a 5%-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 iW330 offers an optional turn-off function where the output will turn-off completely at a minimum dimming voltage.

The output PWM frequency can be programmed from 100Hz to 5kHz through a single capacitor to ground. The input to the iW330 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 or 0-5V linear dimming
 - » 0-10V or 0-5V PWM dimming
 - » Single resistor dimming
- SOIC-8 package
- Low power shutdown mode
- Optional turn-off threshold (-30/-32 options)
- 5% to 100% PWM output
 - » 1% PWM duty cycle tolerance
 - » Selectable frequency range via external capacitor
- Integrated current source for driving 0-10V or 0-5V dimmers
- Integrated optocoupler driver for isolated applications

3 Applications

- 0-10V LED dimming application
- 3-in-1 LED driver interface chip (0-5V/0-10V linear, 0-5V/0-10V PWM and R dimming) dimming LED driver application

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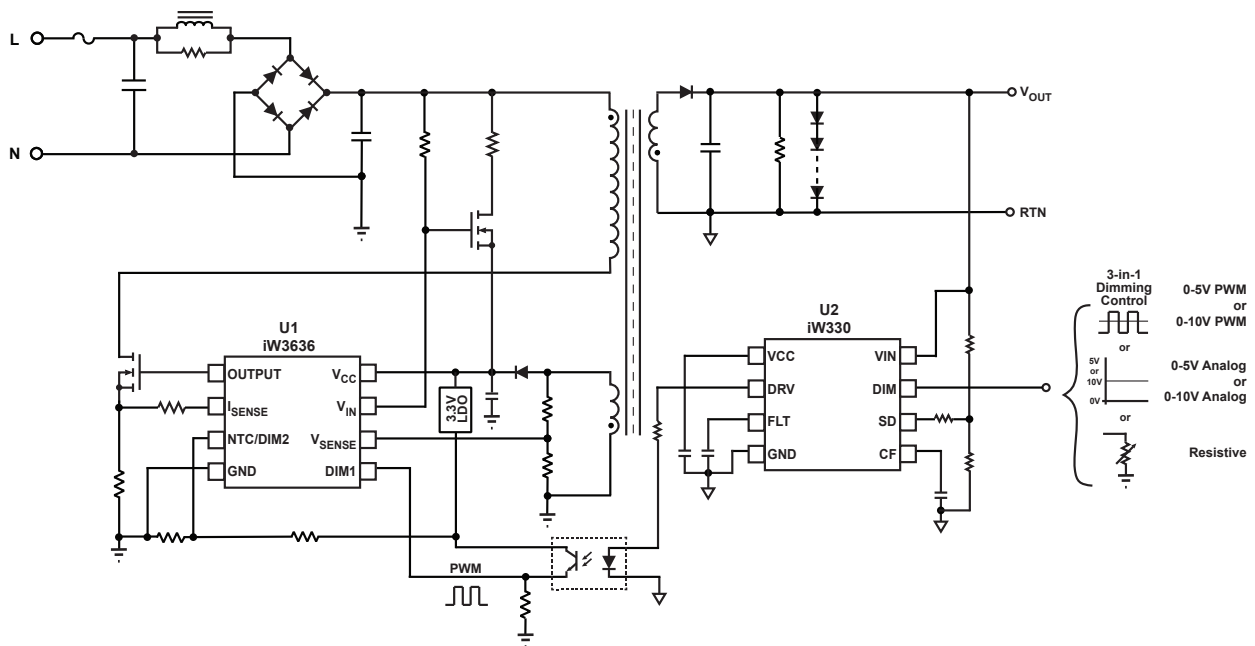


Figure 3.1 : iW330 Typical Application Circuit

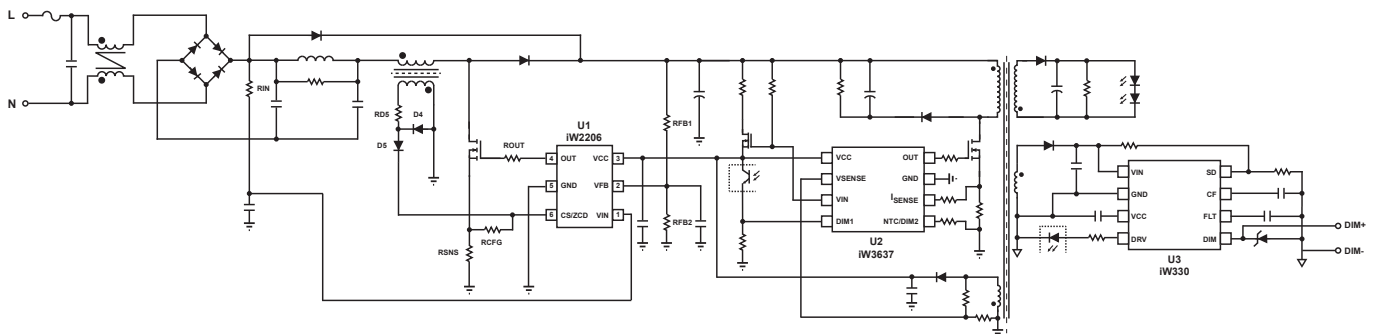


Figure 3.2 : iW330 Isolated, Two-Stage Driver with iW2206 Boost and iW3637 Flyback Converter Solution

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4 Pinout Description

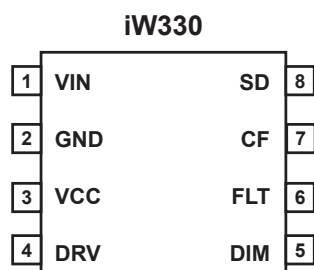


Figure 4.1 : 8-Lead SOIC Package

Pin Number	Pin Name	Type	Pin Description
1	VIN	Power Supply	Power supply up to 60V.
2	GND	Ground	Ground connection.
3	VCC	Power Supply	Internal 5V LDO output, connect a 1μF capacitor to GND.
4	DRV	Output	Drive external optocoupler to pass down dimming PWM duty information.
5	DIM	Analog Input	iW330-x0: 0-10V/PWM/RDIM 3-in-1 dimming information input, there is a constant current source of 100μA internal for driving 0-10V dimmer and RDIM resistor. iW330-x2: 0-5V/PWM/RDIM 3-in-1 dimming information input, there is a constant current source of 100μA internal for driving 0-10V dimmer and RDIM resistor.
6	FLT	Analog Input	Dimming voltage integral compensation input pin. When UVLO and OVP, the pin is pulled down to GND.
7	CF	Analog Input	Set the PWM output frequency: 100Hz – 5kHz.
8	SD	Analog Input	External V _{IN} voltage sensing pin to set V _{IN} OVP threshold voltage.

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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
VIN to GND	V_{VIN}	-0.3 to 65	V
DIM to GND		-0.3 to 65	V
DRV, FLT, CF, SD to GND		-0.3 to 5.5	V
ESD rating per JEDEC JS-001-2017		±2,000	V
Storage temperature range		-65 to +150	°C
Maximum junction temperature		150	°C

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6 Physical Dimensions

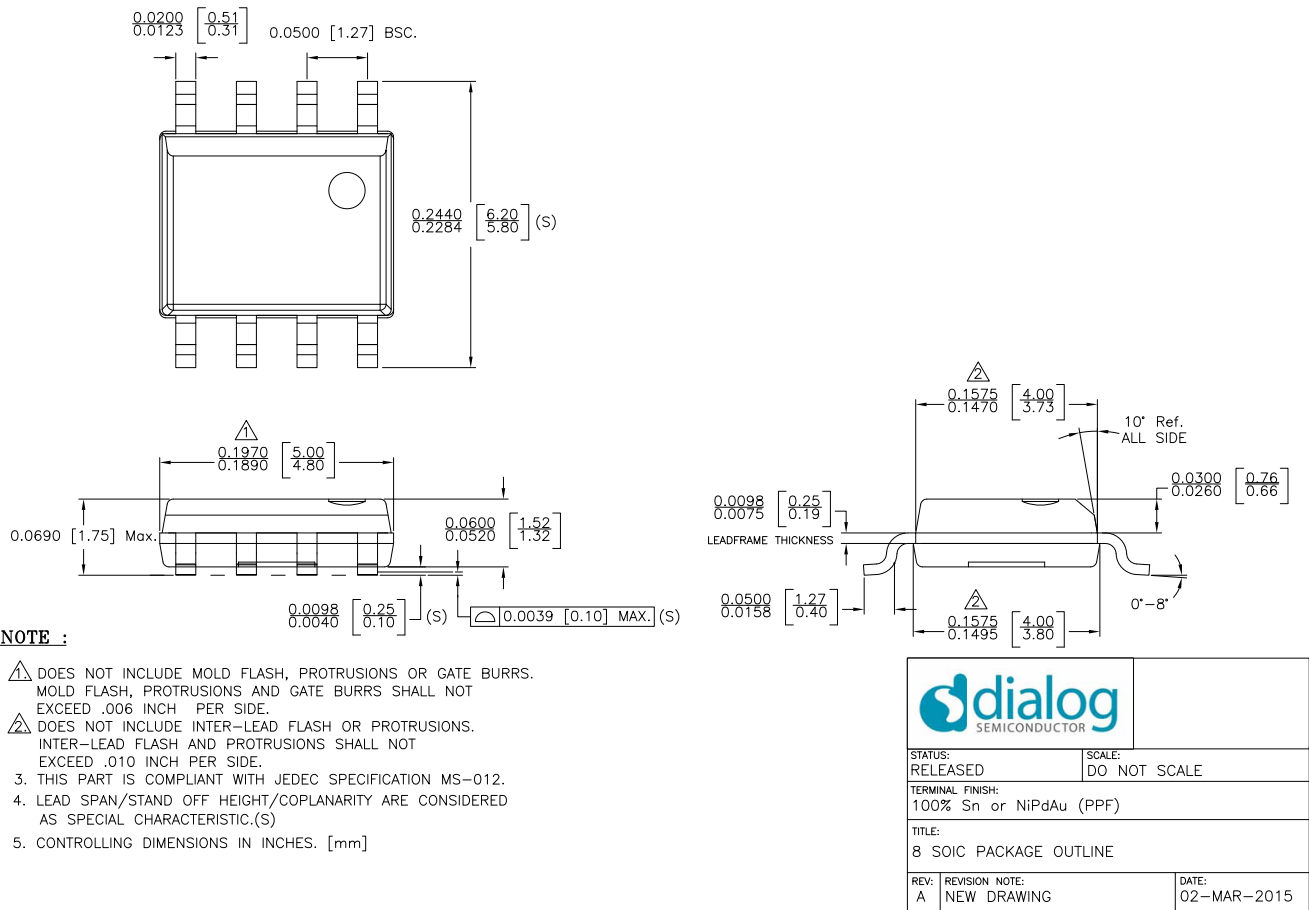


Figure 6.1 : Physical Dimensions of 8-Pin SOIC Package

7 Ordering Information

Part Number	Options	Package	Description
iW330-00	0-10V PWM Driver; Turn-off Function Disabled	SOIC-8	Tape & Reel ¹
iW330-02	0-5V PWM Driver; Turn-off Function Disabled	SOIC-8	Tape & Reel ¹
iW330-30	0-10V PWM Driver; Turn-off Function Enabled	SOIC-8	Tape & Reel ¹
iW330-32	0-5V PWM Driver; Turn-off Function Enabled	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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