

Signal Interface Controller for Analog (0–10V), PWM, and Resistor Dimming

1 Description

The iW337 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 iW337 converts either of these three signals into a 1%-100% PWM duty cycle that can then be used to provide a dimming signal to a primary-side LED driver such as the iW3631, removing the need for transformers or other driver circuitry.

The output PWM frequency can be programmed from 100Hz to 50kHz through a single capacitor to ground. The input to the iW337 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
- 1% to 100% PWM output
 - » 1% PWM duty cycle tolerance
 - » Selectable frequency range via external capacitor
- Low power shutdown mode
- 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

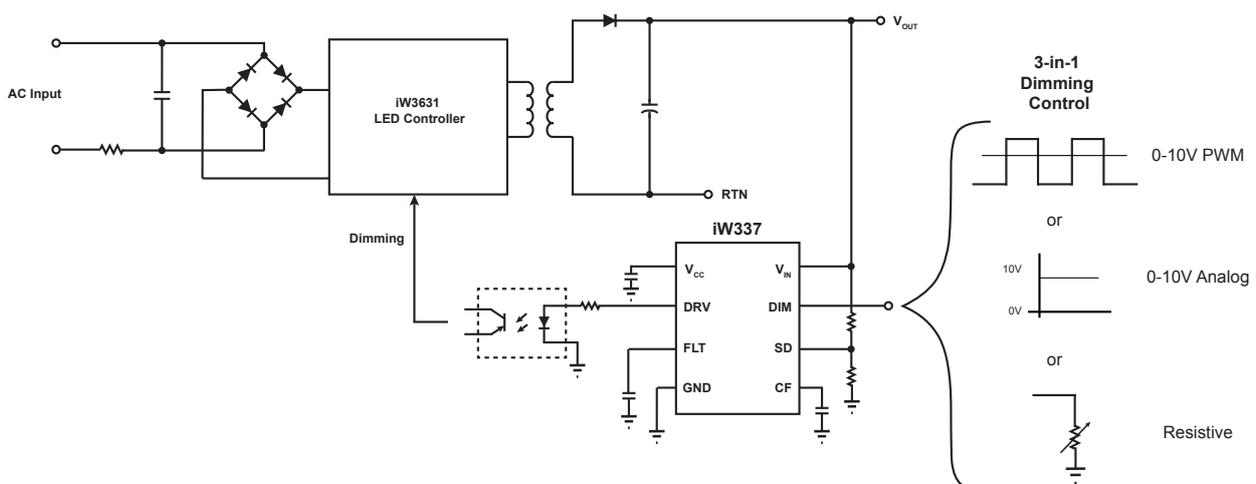


Figure 3.1 : iW337 Typical Application Circuit

Signal Interface Controller for Analog (0–10V), PWM, and Resistor Dimming

4 Pinout Description

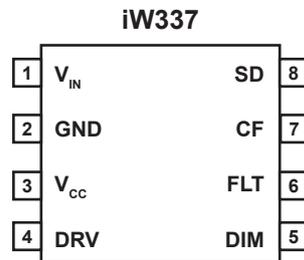


Figure 4.1 : 8-Lead SOIC Package

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.

Signal Interface Controller for Analog (0–10V), PWM, and Resistor Dimming

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

Signal Interface Controller for Analog (0–10V), PWM, and Resistor Dimming

6 Physical Dimensions

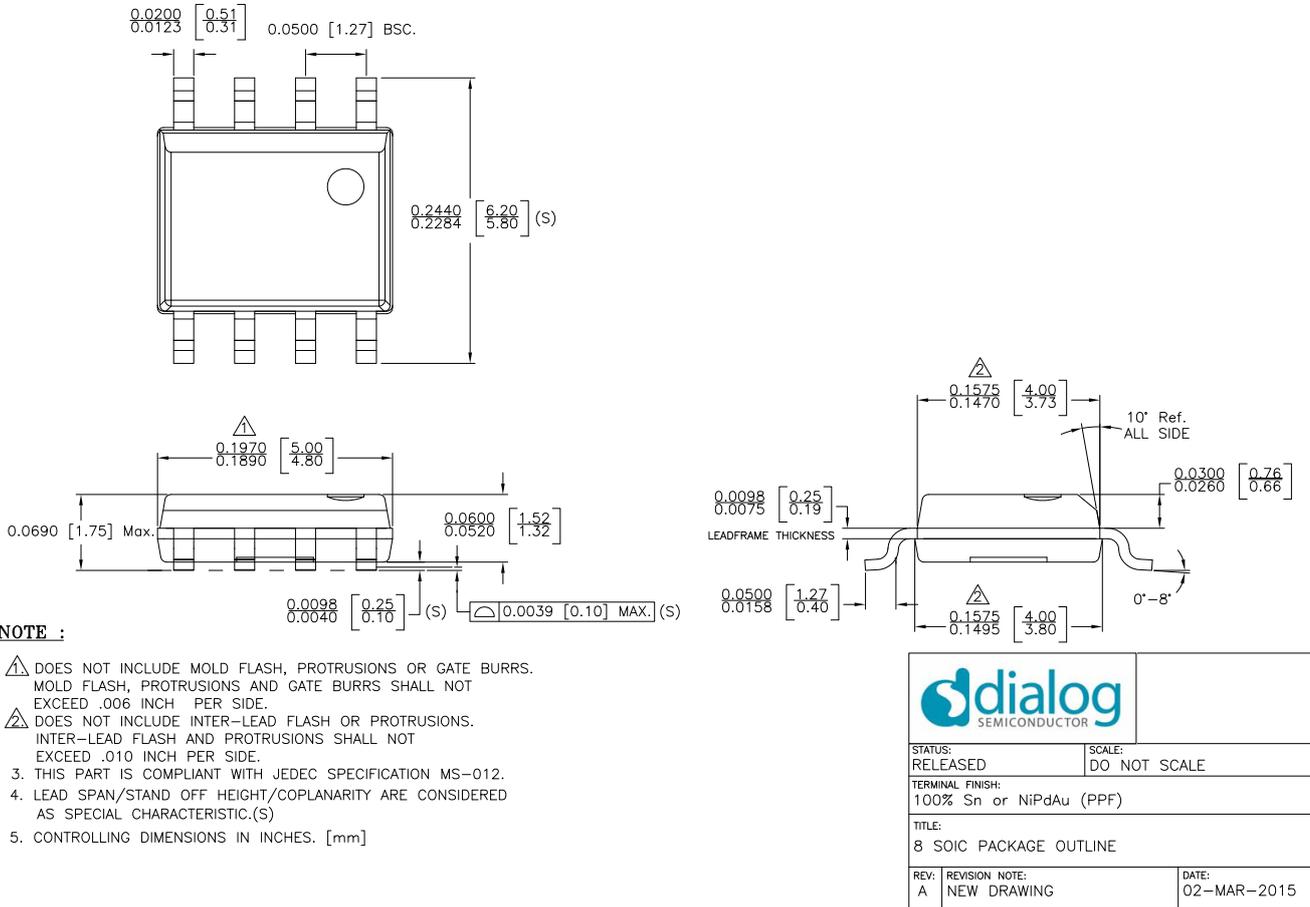


Figure 6.1 : Physical Dimensions of 8-Pin SOIC Package

7 Ordering Information

Part Number	Options	Package	Description
iW337-00	Turn-off option disabled	SOIC-8	Tape & Reel ¹
iW337-30	Turn-off option enabled	SOIC-8	Tape & Reel ¹

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

Signal Interface Controller for Analog (0–10V), PWM, and Resistor Dimming

IMPORTANT NOTICE AND DISCLAIMER

RENESAS ELECTRONICS CORPORATION AND ITS SUBSIDIARIES (“RENESAS”) PROVIDES TECHNICAL SPECIFICATIONS AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for developers skilled in the art designing with Renesas products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. Renesas grants you permission to use these resources only for development of an application that uses Renesas products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Renesas intellectual property or to any third party intellectual property. Renesas disclaims responsibility for, and you will fully indemnify Renesas and its representatives against, any claims, damages, costs, losses, or liabilities arising out of your use of these resources. Renesas’ products are provided only subject to Renesas’ Terms and Conditions of Sale or other applicable terms agreed to in writing. No use of any Renesas resources expands or otherwise alters any applicable warranties or warranty disclaimers for these products.

© 2022 Renesas Electronics Corporation. All rights reserved.

RoHS Compliance

Dialog Semiconductor’s suppliers certify that its products are in compliance with the requirements of Directive 2011/65/EU of the European Parliament on the restriction of the use of certain hazardous substances in electrical and electronic equipment. RoHS certificates from our suppliers are available on request.

(Rev.1.0 Mar 2020)

Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu
Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Contact Information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit:
www.renesas.com/contact/

Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners.