AN-1495 LM3552 White LED Flash Driver Evaluation Board

1 Introduction

To operate the LM3552 White LED Flash Driver Evaluation Board, connect a supply voltage (2.7V to 5.5V) between board connectors VIN and GND.

2 Board Operation: Basic Connections

To operate the LM3552 White LED Flash Driver Evaluation Board, connect a supply voltage (2.7V to 5.5V) between board connectors VIN and GND.

Default Jumper Connections:

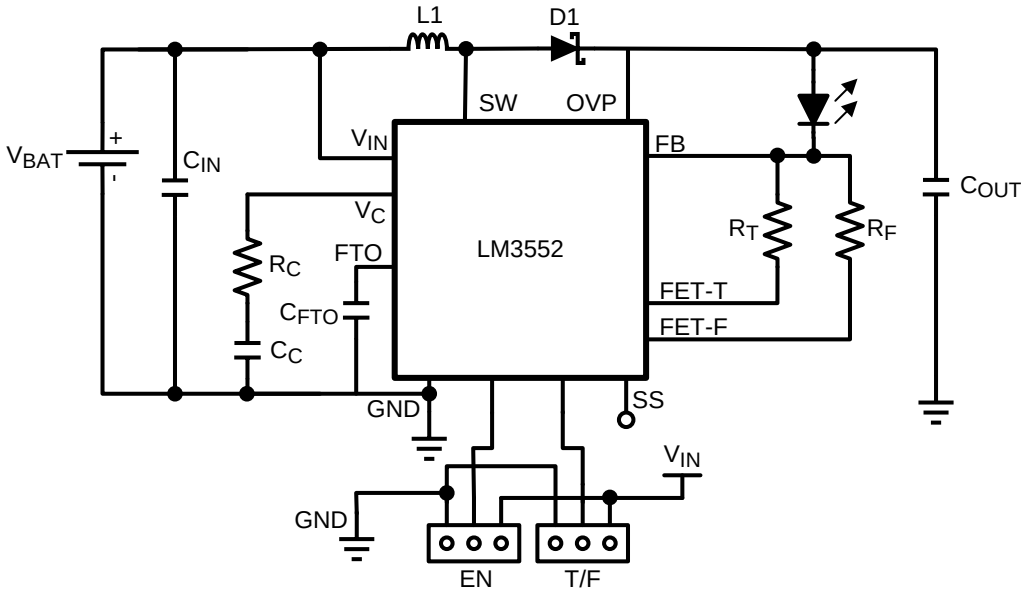
- EN: Connects the “OFF” post to the middle post of the EN header strip. This connects GND to the EN pin of the LM3552, disabling the part.
- T/F: Connects the “T” post to the middle post of the T/F header strip. This connects GND to the T/F pin of the LM3552, placing the part into the 200mA torch mode when the part is enabled

When these connections are all made correctly, the Flash LED will be OFF. Setting the EN jumper to the ON position will enable the part and turn on the flash LED. In torch mode, the LED current will be set to approximately 200mA. Placing the T/F jumper across the '+' pin and the T/F pin enables flash mode. The total current delivered to the LED is approximately 700mA. If this jumper is left in flash mode, the internal time-out circuit will disable the switcher after approximately 1 second.

The EN pin has an internal pull-down resistor placing the part in shutdown by default. The T/F pin does not have a pull-up or pull-down resistor. If left unconnected, it is unknown as to whether the LM3552 is in torch or flash mode.

For more information regarding the operation of the LM3551/2, please refer to *LM3551 /LM3552 1A White LED Driver with Flash Timeout Protection* (SNVS371).

3 Schematic



4 Bill of Materials

Component Symbol	Value	Package	Dimensions (mm)	Temperature Characteristic	Manufacturer	Part #
LM3552	--	NHL0014B WSON14	4.0 × 4.0 × 0.8	--	Texas Instruments	LM3552
LED	Flash LED	--	2.04 × 1.64 × 0.7	--	Lumileds	LXCL-PWF1
L1	4.7µH	--	4.5 × 4.7 × 1.4	--	TDK	VLF5014AT-4R7M1R1
C_{IN}	10µF, 10V	0805	2.0 × 1.25 × 1.45	X5R	TDK	C2012X5R1A106K
C_{OUT}	10µF, 16V	1206	3.2 × 1.6 × 1.9	X7R	TDK	C3216X7R1C106M
C_C	4.7nF	0805	2.0 × 1.25 × 1.45	C0G	TDK	C2012C0G1H472J
C_{FTO}	1uF, 10V	0603	1.6 × 0.8 × 0.9	X5R	TDK	C1608X5R1A105
C_{SS}	0.1µF	0603	1.6 × 0.8 × 0.9	X7R	TDK	C1608X7R1E104
D1	1A, 20V	SOD-123	3.6 × 1.65 × 0.95	--	ON Semiconductor	MBR120VLSFT1
R_C	10kΩ	0805	2.0 × 1.25 × 0.45	--	Vishay Dale	CRCW08051002F
R_T	5.6Ω, 1/2W	2010	5.0 × 2.5 × 0.6	--	Panasonic	ERJ-12ZYJ5R6U
R_F	2.2Ω, 1/2W	2010	5.0 × 2.5 × 0.6	--	Panasonic	ERJ-12ZYJ2R2U

5 LM3552 White LED Flash Driver Evaluation Board Layout

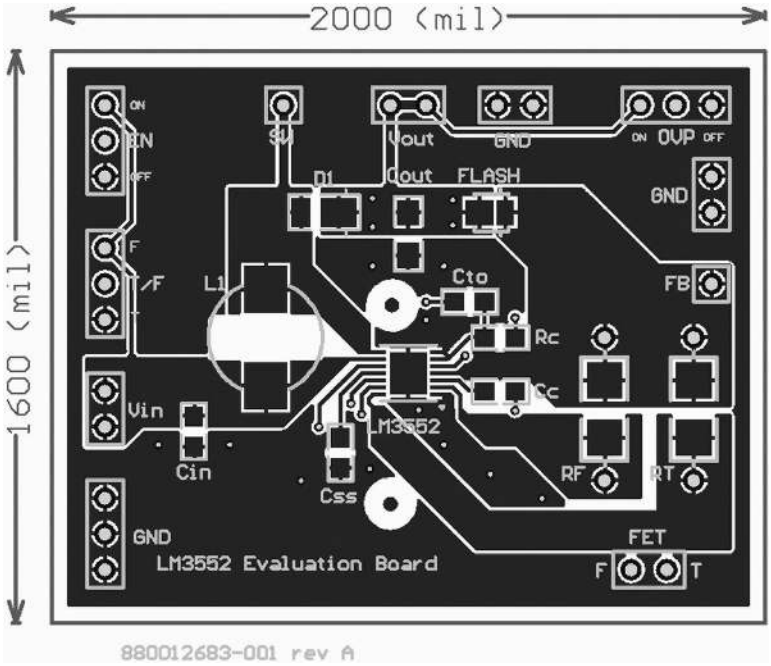


Figure 1. Top Layer

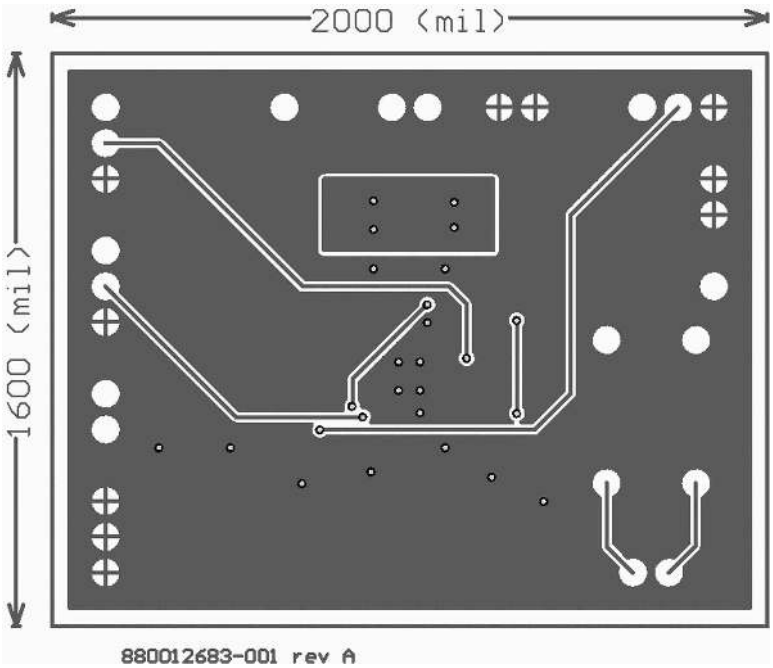


Figure 2. Bottom Layer (unmirrored)

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, enhancements, improvements and other changes to its semiconductor products and services per JESD46, latest issue, and to discontinue any product or service per JESD48, latest issue. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All semiconductor products (also referred to herein as “components”) are sold subject to TI’s terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its components to the specifications applicable at the time of sale, in accordance with the warranty in TI’s terms and conditions of sale of semiconductor products. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by applicable law, testing of all parameters of each component is not necessarily performed.

TI assumes no liability for applications assistance or the design of Buyers’ products. Buyers are responsible for their products and applications using TI components. To minimize the risks associated with Buyers’ products and applications, Buyers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, machine, or process in which TI components or services are used. Information published by TI regarding third-party products or services does not constitute a license to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of significant portions of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI components or services with statements different from or beyond the parameters stated by TI for that component or service voids all express and any implied warranties for the associated TI component or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

Buyer acknowledges and agrees that it is solely responsible for compliance with all legal, regulatory and safety-related requirements concerning its products, and any use of TI components in its applications, notwithstanding any applications-related information or support that may be provided by TI. Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards which anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm and take appropriate remedial actions. Buyer will fully indemnify TI and its representatives against any damages arising out of the use of any TI components in safety-critical applications.

In some cases, TI components may be promoted specifically to facilitate safety-related applications. With such components, TI’s goal is to help enable customers to design and create their own end-product solutions that meet applicable functional safety standards and requirements. Nonetheless, such components are subject to these terms.

No TI components are authorized for use in FDA Class III (or similar life-critical medical equipment) unless authorized officers of the parties have executed a special agreement specifically governing such use.

Only those TI components which TI has specifically designated as military grade or “enhanced plastic” are designed and intended for use in military/aerospace applications or environments. Buyer acknowledges and agrees that any military or aerospace use of TI components which have ***not*** been so designated is solely at the Buyer's risk, and that Buyer is solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI has specifically designated certain components as meeting ISO/TS16949 requirements, mainly for automotive use. In any case of use of non-designated products, TI will not be responsible for any failure to meet ISO/TS16949.

Products		**Applications**	
Audio	www.ti.com/audio	Automotive and Transportation	www.ti.com/automotive
Amplifiers	amplifier.ti.com	Communications and Telecom	www.ti.com/communications
Data Converters	dataconverter.ti.com	Computers and Peripherals	www.ti.com/computers
DLP® Products	www.dlp.com	Consumer Electronics	www.ti.com/consumer-apps
DSP	dsp.ti.com	Energy and Lighting	www.ti.com/energy
Clocks and Timers	www.ti.com/clocks	Industrial	www.ti.com/industrial
Interface	interface.ti.com	Medical	www.ti.com/medical
Logic	logic.ti.com	Security	www.ti.com/security
Power Mgmt	power.ti.com	Space, Avionics and Defense	www.ti.com/space-avionics-defense
Microcontrollers	microcontroller.ti.com	Video and Imaging	www.ti.com/video
RFID	www.ti-rfid.com		
OMAP Applications Processors	www.ti.com/omap	**TI E2E Community**	e2e.ti.com
Wireless Connectivity	www.ti.com/wirelessconnectivity		

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265