



i1CxW10A-C01-EVK-S1

i1CxW10A-C01-EVK-S1

Evaluation Kit Manual for i1C2W and i1C4W Non-Isolated DC-DC Series

Contents

1. Introduction	2
2. Ordering Information	2
3. General Features	4
4. Turn-on / Turn-off module by switch	5
5. Change Output Voltage	5
6. Capture output ripple/noise waveform	5
7. Mechanical Outline – i1CxW10A-C01-EVK-S1*	6
8. Schematic	7
9. PCB Layout	8
10. Parts List: i1CxW10A-C01-EVK-S1	11

1. Introduction

This evaluation kit has been designed to provide a simple way to characterize the product's performance and its features. It is intended to aid customers in determining the product's suitability for their specific application. The evaluation board includes all necessary external components to demonstrate the product's full functionality. It also includes other elements like test points, terminals, and switches to ensure a smooth user experience. Note that not all external components are required if certain product features are not needed. Detailed information on the external components, schematics, and PCB layout is provided in this documentation for reference. Final design and qualification should be verified by the customer in their actual use case application.

2. Ordering Information

TDK-Lambda offers a wide variety of non-isolated DC-DC power modules in the i1C series. Not every product is currently available in an evaluation kit. The table below includes descriptions and ratings which should help in selecting the most applicable evaluation kit.

Evaluation Kit Part Number	Non-Isolated DC-DC Module <i>(Included and Mounted on the Evaluation Board)</i>					
	DC-DC Module Part Number	Type	I/P Range	O/P Range	O/P Current (max)	O/P Power (Max)
i1C2W10A-C01-EVK-S1	i1C2W010A120V-001-R or i1C2W010A120V-005-R	Buck-Boost	9 – 36 V	9.6 – 28 V	10 A	200 W
i1C4W10A-C01-EVK-S1	i1C4W010A120V-001-R or i1C4W010A120V-005-R	Buck-Boost	18 – 75 V	9.6 – 28 V	10 A	200 W



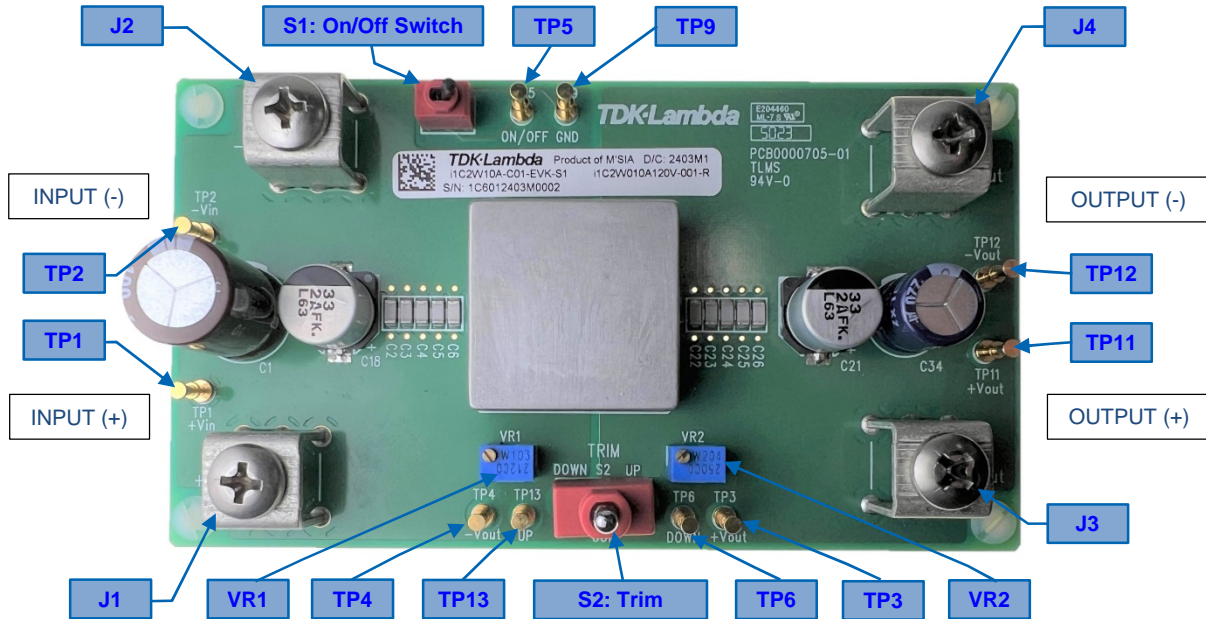
IMPORTANT INFORMATION

- Observe proper safety and laboratory procedures when testing electronic products. This list serves as a general guide only and not a substitute for common sense and best practices.
- Before applying power, double-check and ensure all connections to the evaluation board interface are correct (e.g., Input source polarity connections, etc...).
- This evaluation board is not populated with an input fuse. Depending upon application, a fuse may be required by safety agencies to achieve system compliance. An external fuse is recommended if the EV Kit is being powered by a high current capacity source such as a battery.
- Although highly efficient, these high-power density modules can dissipate significant amounts of power, especially at heavy load. Care should be taken to ensure adequate cooling is provided and the modules are operated within the thermal specifications outlined in the product data sheets.
- This evaluation kit is designed for general laboratory use. It is not intended for installation in end-customer product or equipment.
- Please check the pertinent product (DC-DC Module) datasheets and specifications for complete information.

3. General Features

- Screw Terminals for secured input and output connections
- Toggle switch for Remote ON/OFF
- Test points / Scope probe hook-ups for ease of measurement
- Trim Potentiometer for adjusting the output voltage setting
- Component PCB pad provisions for additional input and output capacitance*

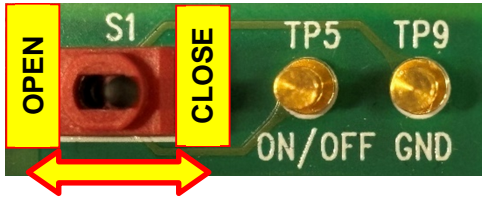
* Note the output capacitor value may need to be adjusted to meet the final application's transient response or ripple requirements. Refer to the product data sheet for a range of acceptable values.



Test Point	Description	Test Point	Description
TP1	Vin (+)	TP6	Trim Down – to set Vout below nominal
TP2	Vin (-) / GND	TP9	GND
TP3	Vout (+)	TP11	Vout (+) (For Output Ripple Measurement)
TP4	Vout (-)	TP12	Vout (-) / GND (For Output Ripple Measurement)
TP5	ON / OFF	TP13	Trim Up – to set Vout above nominal

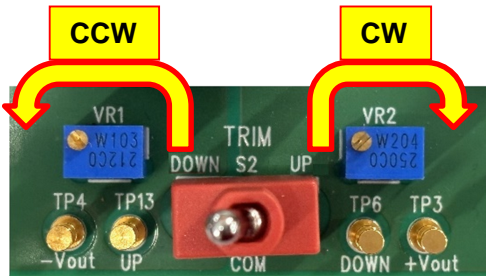
Screw Terminal	Description	Screw Terminal	Description
J1	Vin (+)	J3	Vout (+)
J2	Vin (-) / GND	J4	Vout (-) / GND

4. Turn-on / Turn-off module by switch



Change the position of the toggle switch “S1” to “CLOSE” to turn-on the power supply unit.

5. Change Output Voltage

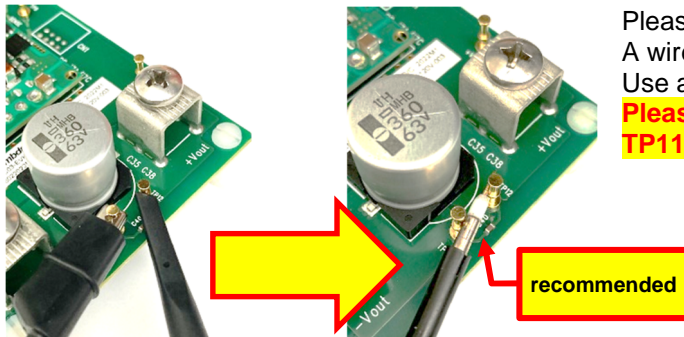


Keep toggle switch “S2” at center position to obtain nominal output voltage.

Change position of toggle switch “S2” to “UP” position to enable VR1 trim pot and obtain an output voltage above the nominal output.
Turn clockwise (CW) to increase the output voltage.
Turn counterclockwise (CCW) to decrease the output voltage.

Change the position of the toggle switch “S2” to “DOWN” to enable VR2 trim pot and obtain an output voltage below nominal.
Turn clockwise (CW) to decrease output voltage.
Turn counterclockwise (CCW) to increase output voltage.

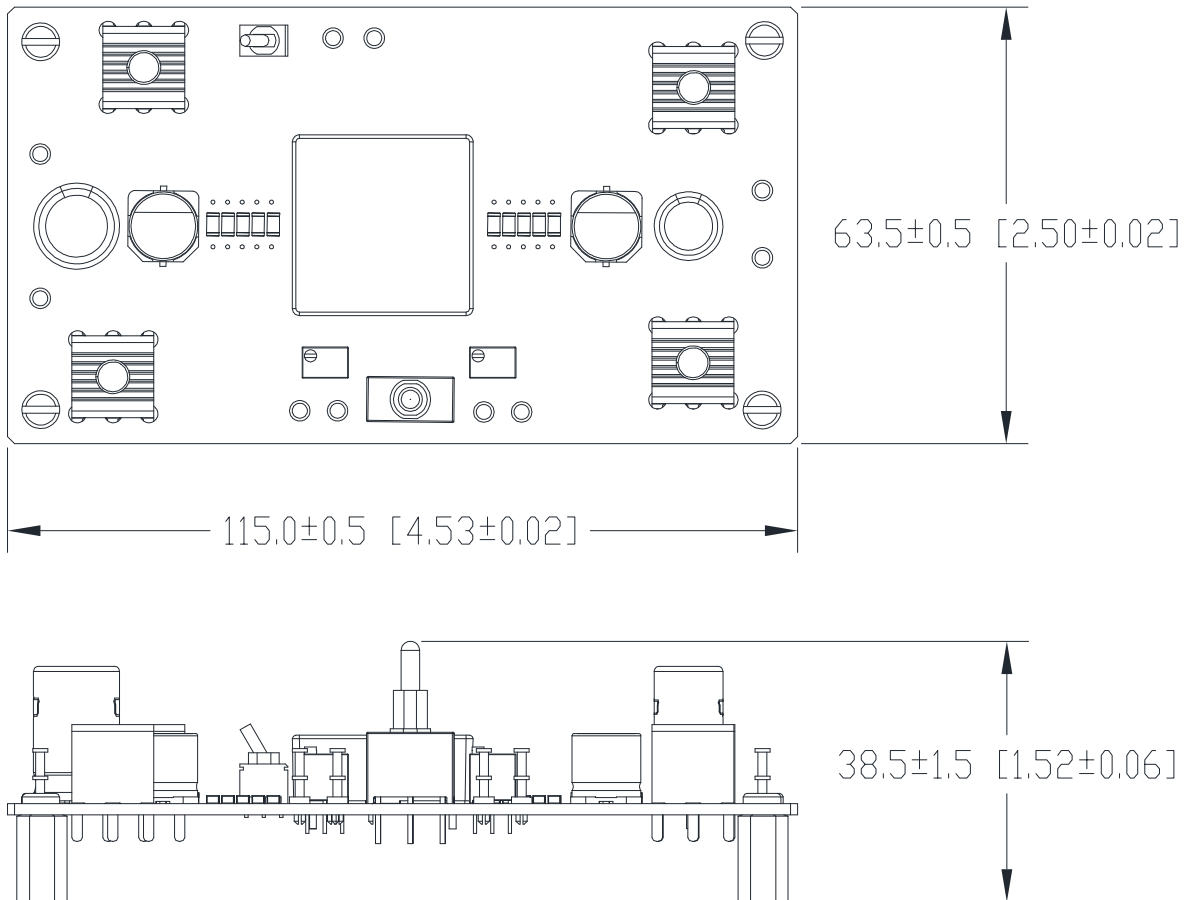
6. Capture output ripple/noise waveform



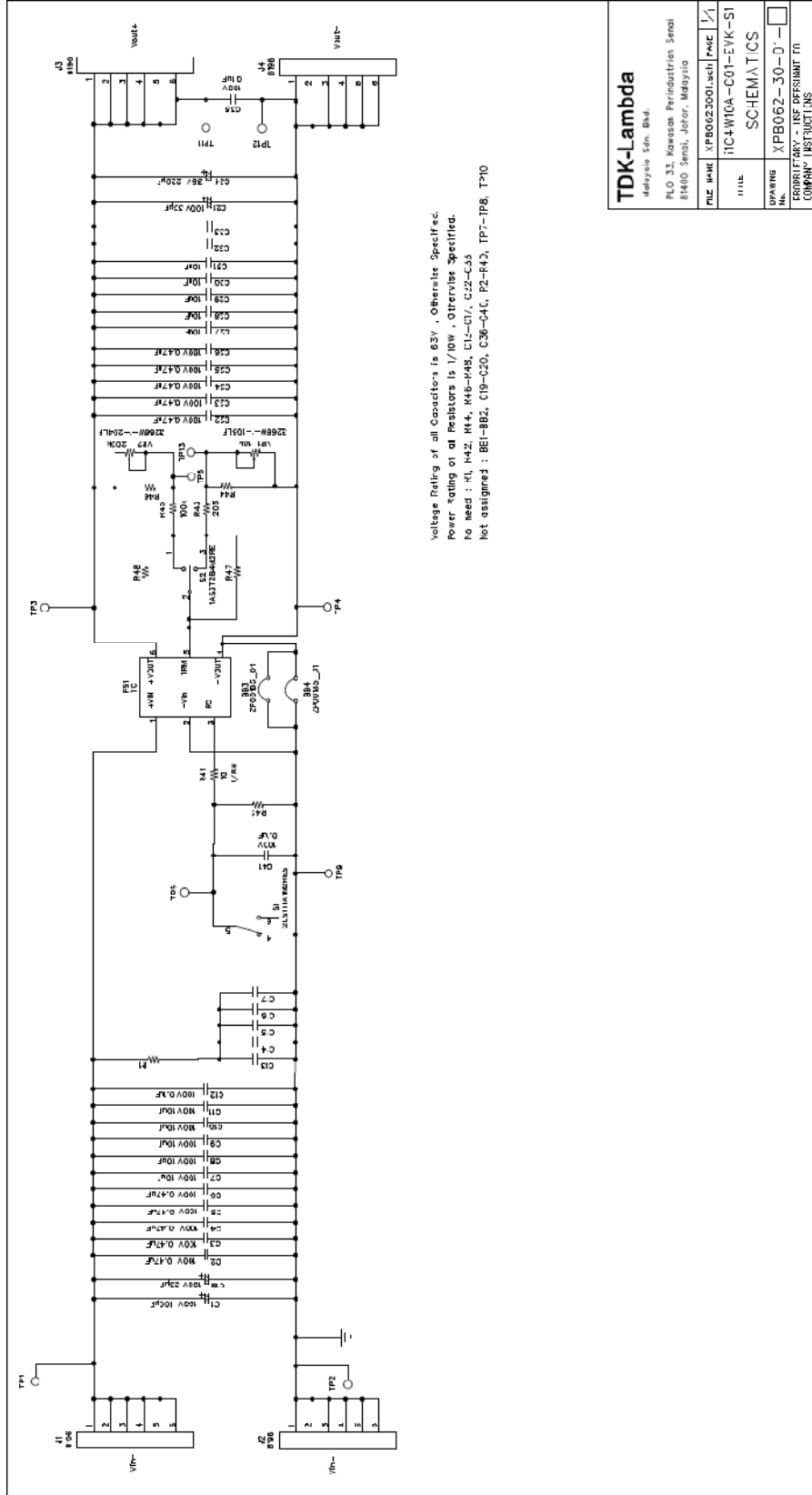
Please use TP11 and TP12 to measure output ripple/spike.
A wired GND clip may pick up higher spike noise.
Use a bare probe to minimize spike noise.

**Please ensure proper polarity when connecting.
TP11 is Vout (+) / TP12 is GND.**

7. Mechanical Outline – i1CxW10A-C01-EVK-S1



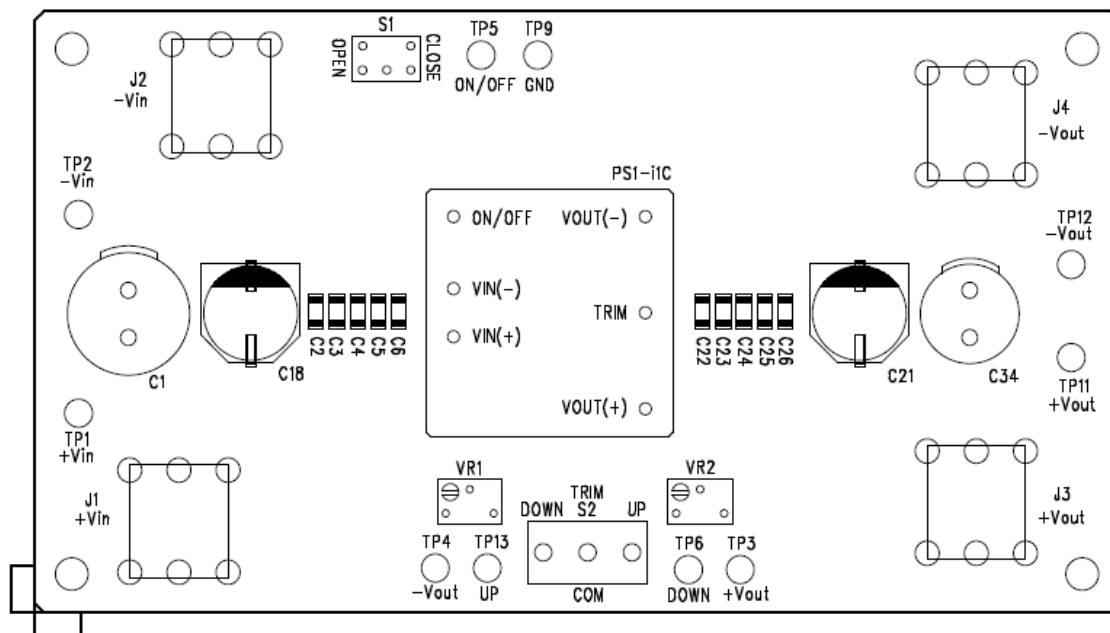
8. Schematic



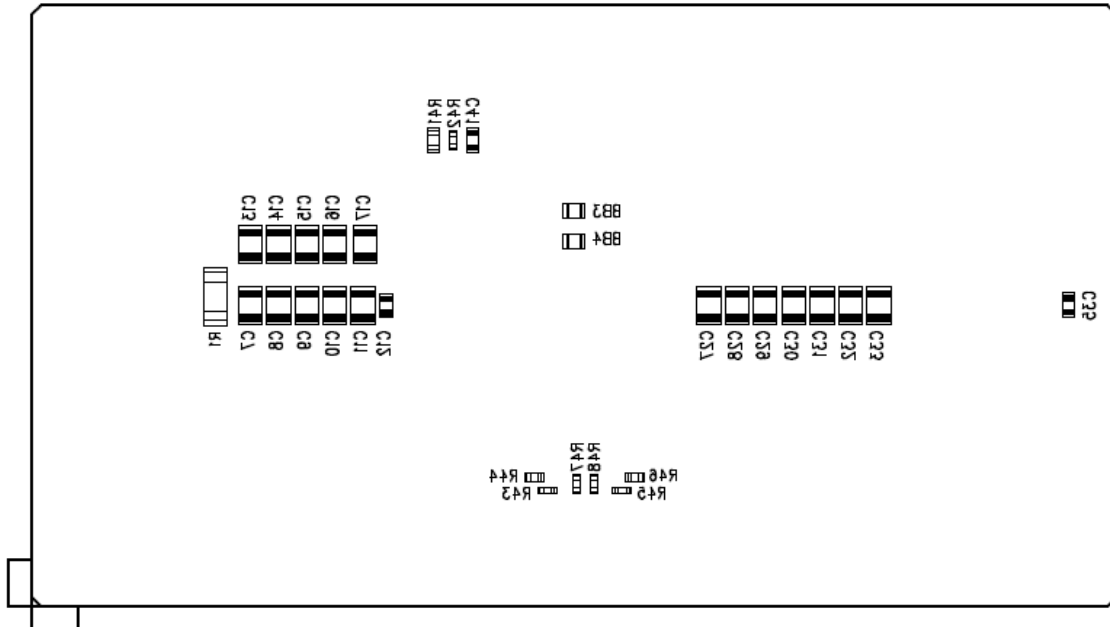
General Schematic: Check the accompanying parts list that pertains to the actual Evaluation Kit part number to see which circuit codes/components are used.

9. PCB Layout

Top Layer

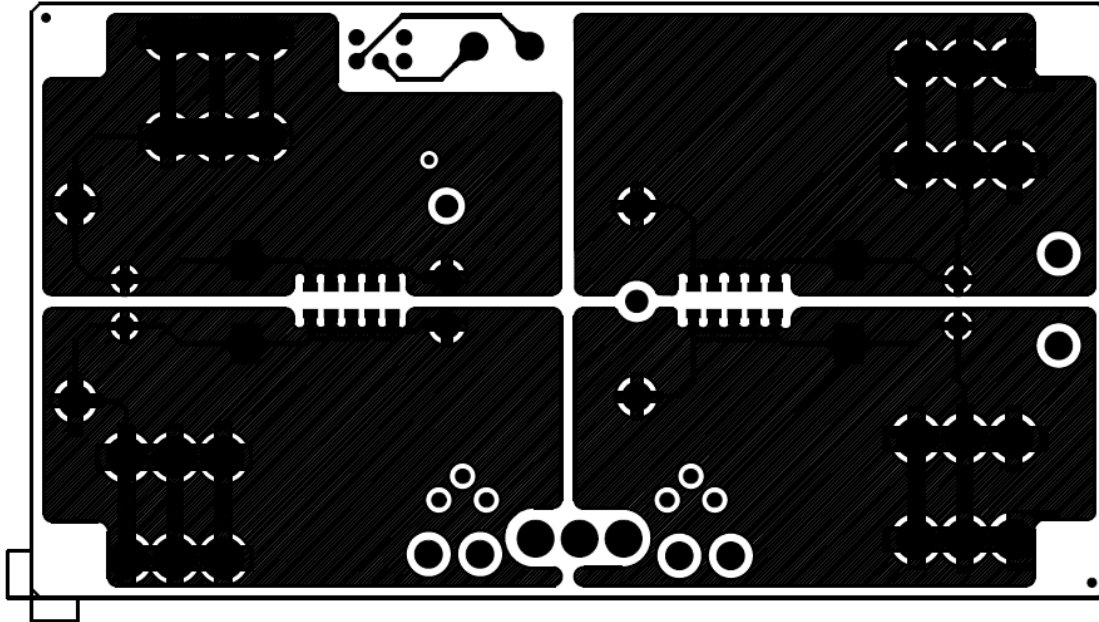


Bottom Layer

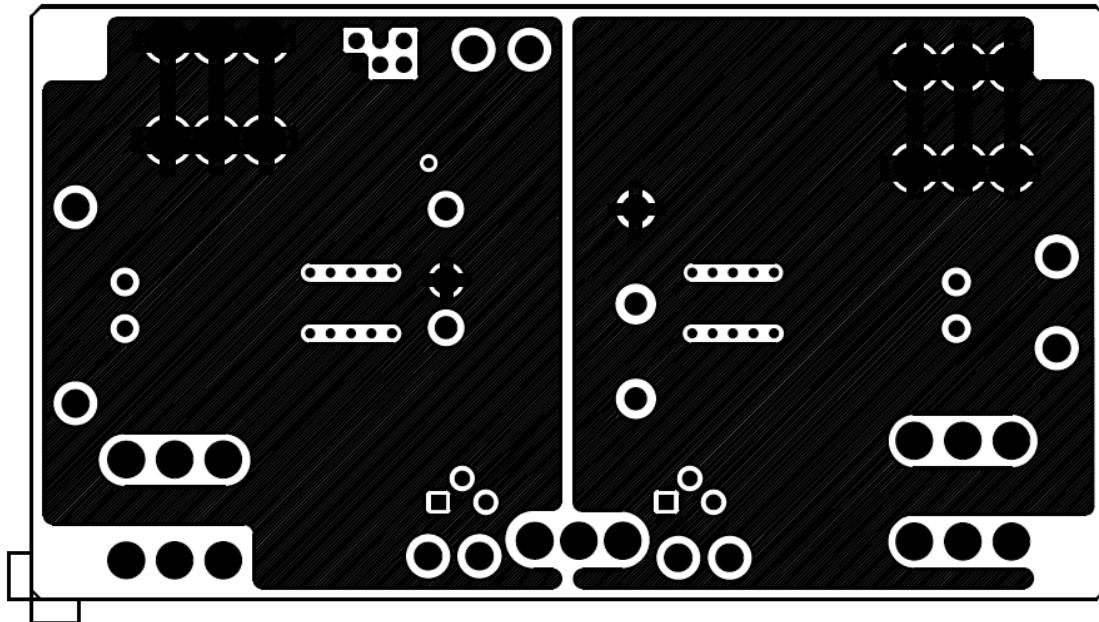


PCB Layout (continued)

Top Etch

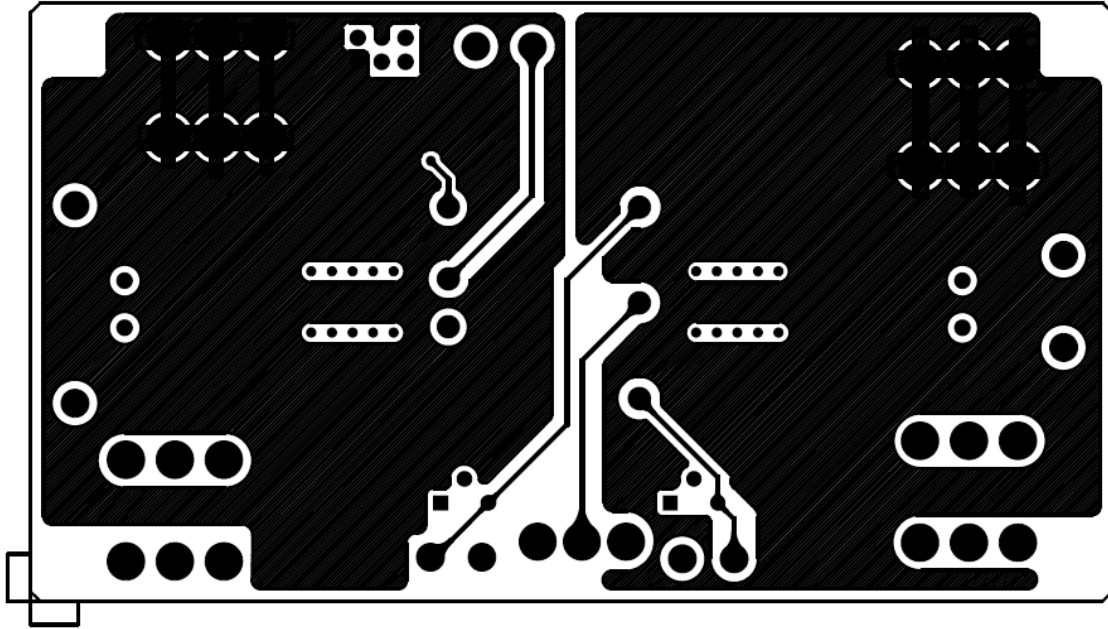


Etch 2

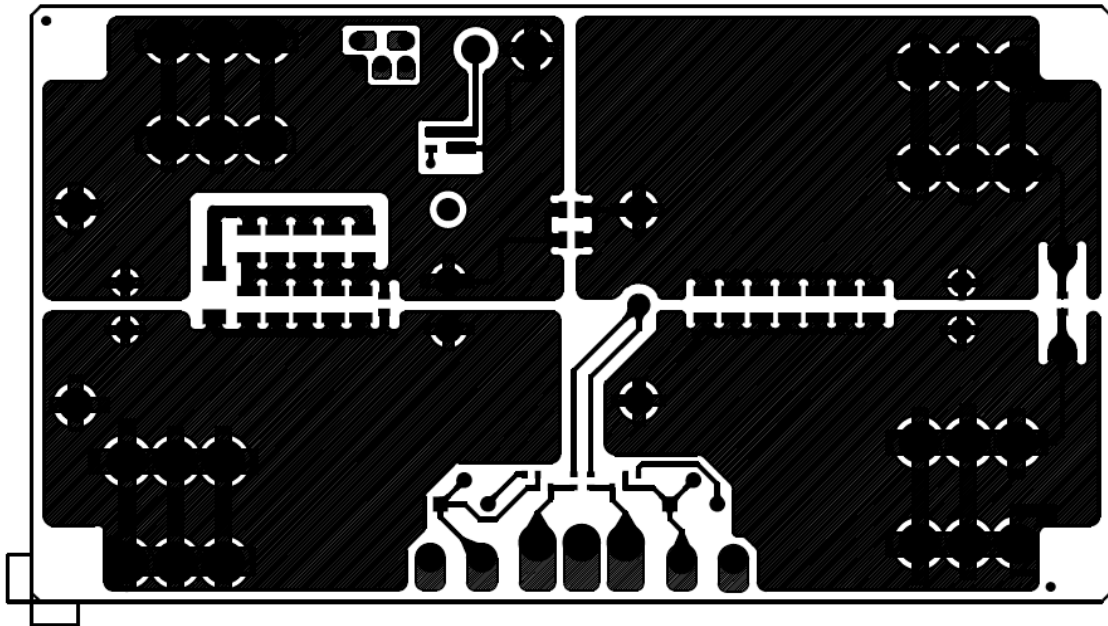


PCB Layout (continued)

Etch 3



Bottom Etch



10. Parts List: i1CxW10A-C01-EVK-S1

Evaluation Kit Part No.		i1C2W10A-C01-EVK-S1		i1C4W10A-C01-EVK-S1	
Part number	Part type	Manufacturer	Manufacturer Part No.	Manufacturer	Manufacturer Part No.
C1	Cap., Elect	NI-CHEMI	ELXV101ELL101MK20S	NI-CHEMI	ELXV101ELL101MK20S
C2	MLCC	TDK	C3216X7R2A474KT	TDK	C3216C0G2J471KT
C3	MLCC	TDK	C3216X7R2A474KT	TDK	C3216C0G2J471KT
C4	MLCC	TDK	C3216X7R2A474KT	TDK	C3216C0G2J471KT
C5	MLCC	TDK	C3216X7R2A474KT	TDK	C3216C0G2J471KT
C6	MLCC	TDK	C3216X7R2A474KT	TDK	C3216C0G2J471KT
C7	MLCC	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L	TDK	C3225X7R2A106KT
C8	MLCC	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L	TDK	C3225X7R2A106KT
C9	MLCC	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L	TDK	C3225X7R2A106KT
C10	MLCC	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L	TDK	C3225X7R2A106KT
C11	MLCC	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L	TDK	C3225X7R2A106KT
C12	MLCC	TDK	C2012X7R2A104KT	TDK	C3225X7R2A106KT
C13	MLCC	OMIT		OMIT	
C14	MLCC	OMIT		OMIT	
C15	MLCC	OMIT		OMIT	
C16	MLCC	OMIT		OMIT	
C17	MLCC	OMIT		OMIT	
C18	Cap., Elect	PANASONIC	EEEFK2A330P	PANASONIC	EEEFK2A330P
(C19-C20)		NOT ASSIGNED		NOT ASSIGNED	
C21	Cap., Elect	PANASONIC	EEEFK2A330P	PANASONIC	EEEFK2A330P
C22	MLCC	TDK	C3216X7R2A474KT	TDK	C3216C0G2J471KT
C23	MLCC	TDK	C3216X7R2A474KT	TDK	C3216C0G2J471KT
C24	MLCC	TDK	C3216X7R2A474KT	TDK	C3216C0G2J471KT
C25	MLCC	TDK	C3216X7R2A474KT	TDK	C3216C0G2J471KT
C26	MLCC	TDK	C3216X7R2A474KT	TDK	C3216C0G2J471KT
C27	MLCC	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L
C28	MLCC	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L
C29	MLCC	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L
C30	MLCC	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L
C31	MLCC	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L	TDK MURATA	C3225X7R2A106KT GRM32ER71J106MA12L
C32	MLCC	OMIT		OMIT	
C33	MLCC	OMIT		OMIT	
C34	Cap., Elect	NI-CHEMI	ELXZ350EC3471MJ20S	NI-CHEMI	ELXZ350ELL221MJC5S
C35	MLCC	TDK	C2012X7R2A104KT	TDK	C2012X7R2A104KT
(C36-C40)		NOT ASSIGNED		NOT ASSIGNED	
C41	MLCC	TDK	C2012X7R2A104KT	TDK	C2012X7R2A104KT
(BB1-BB2)		NOT ASSIGNED		NOT ASSIGNED	
BB3	Copper jumper	CUSTOM MADE		CUSTOM MADE	
BB4	Copper jumper	CUSTOM MADE		CUSTOM MADE	
VR1	Res., Variable	BOURNS	3266W-1-103LF	BOURNS	3266W-1-103LF
VR2	Res., Variable	BOURNS	3266W-1-204LF	BOURNS	3266W-1-204LF
R1		OMIT		OMIT	
(R2-R40)		NOT ASSIGNED		NOT ASSIGNED	
R41	Res., Chip	KOA	RK73H2ATTD10R0F	KOA	RK73H2ATTD10R0F
R42		OMIT		OMIT	
R43	Res., Chip	KOA	RK73H1JTDD2050F	KOA	RK73H1JTDD2050F
R44		OMIT		OMIT	
R45	Res., Chip	KOA	RK73H1JTDD1003D	KOA	RK73H1JTDD1003D
R46		OMIT		OMIT	
R47		OMIT		OMIT	
R48		OMIT		OMIT	
S1	Switch	LIGHT COUNTRY	2US1T1A1M2RES	LIGHT COUNTRY	2US1T1A1M2RES

S2	Switch	LIGHT COUNTRY	1AS3T2B4M2RE	LIGHT COUNTRY	1AS3T2B4M2RE
J1	Screw Terminal	KEystone	8196	KEystone	8196
J2	Screw Terminal	KEystone	8196	KEystone	8196
J3	Screw Terminal	KEystone	8196	KEystone	8196
J4	Screw Terminal	KEystone	8196	KEystone	8196
TP1	Test Point	MAC8	WT-2-2	MAC8	WT-2-2
TP2	Test Point	MAC8	WT-2-2	MAC8	WT-2-2
TP3	Test Point	MAC8	WT-2-2	MAC8	WT-2-2
TP4	Test Point	MAC8	WT-2-2	MAC8	WT-2-2
TP5	Test Point	MAC8	WT-2-2	MAC8	WT-2-2
TP6	Test Point	MAC8	WT-2-2	MAC8	WT-2-2
(TP7-TP8)		NOT ASSIGNED		NOT ASSIGNED	
TP9	Test Point	MAC8	WT-2-2	MAC8	WT-2-2
TP10		NOT ASSIGNED		NOT ASSIGNED	
TP11	Test Point	MAC8	WT-2-2	MAC8	WT-2-2
TP12	Test Point	MAC8	WT-2-2	MAC8	WT-2-2
TP13	Test Point	MAC8	WT-2-2	MAC8	WT-2-2
KM1 (4x)	Spacer	KEystone	1902C	KEystone	1902C
KM2 (4x)	Screws for Standoffs	KEystone	9427	KEystone	9427



TDK-Lambda France SAS

Tel: +33 1 60 12 71 65
 ttf.fr.powersolutions@tdk.com
 www.emea.lambda.tdk.com/fr



Italy Sales Office

Tel: +39 02 61 29 38 63
 ttf.it.powersolutions@tdk.com
 www.emea.lambda.tdk.com/it



Netherlands

tfn.nl.powersolutions@tdk.com
 www.emea.lambda.tdk.com/nl



TDK-Lambda Germany GmbH

Tel: +49 7841 666 0
 tlq.powersolutions@tdk.com
 www.emea.lambda.tdk.com/de



Austria Sales Office

Tel: +43 2256 655 84
 tlq.at.powersolutions@tdk.com
 www.emea.lambda.tdk.com/at



Switzerland Sales Office

Tel: +41 44 850 53 53
 tlq.ch.powersolutions@tdk.com
 www.emea.lambda.tdk.com/ch



Nordic Sales Office

Tel: +45 8853 8086
 tlq.dk.powersolutions@tdk.com
 www.emea.lambda.tdk.com/dk



TDK-Lambda UK Ltd.

Tel: +44 (0) 12 71 85 66 66
 tlu.powersolutions@tdk.com
 www.emea.lambda.tdk.com/uk



TDK-Lambda Ltd.

Tel: +9 723 902 4333
 tli.powersolutions@tdk.com
 www.emea.lambda.tdk.com/il-en



TDK-Lambda Americas

Tel: +1 800-LAMBDA-4 or 1-800-526-2324
 tla.powersolutions@tdk.com
 www.us.lambda.tdk.com



TDK Electronics do Brasil Ltda

Tel: +55 11 3289-9599
 sales.br@tdk-electronics.tdk.com
 www.tdk-electronics.tdk.com/en



TDK-Lambda Corporation

Tel: +81-3-6778-1113
 www.jp.lambda.tdk.com



TDK-Lambda (China) Electronics Co. Ltd.

Tel: +86 21 6485-0777
 tlc.powersolutions@tdk.com
 www.lambda.tdk.com.cn



TDK-Lambda Singapore Pte Ltd.

Tel: +65 6251 7211
 tfs.marketing@tdk.com
 www.sg.lambda.tdk.com



TDK India Private Limited, Power Supply Division

Tel: +91 80 4039-0660
 mathew.philip@tdk.com
 www.sg.lambda.tdk.com

