3.5V to 60V Input Boost / SEPIC / Flyback DC-DC Converter

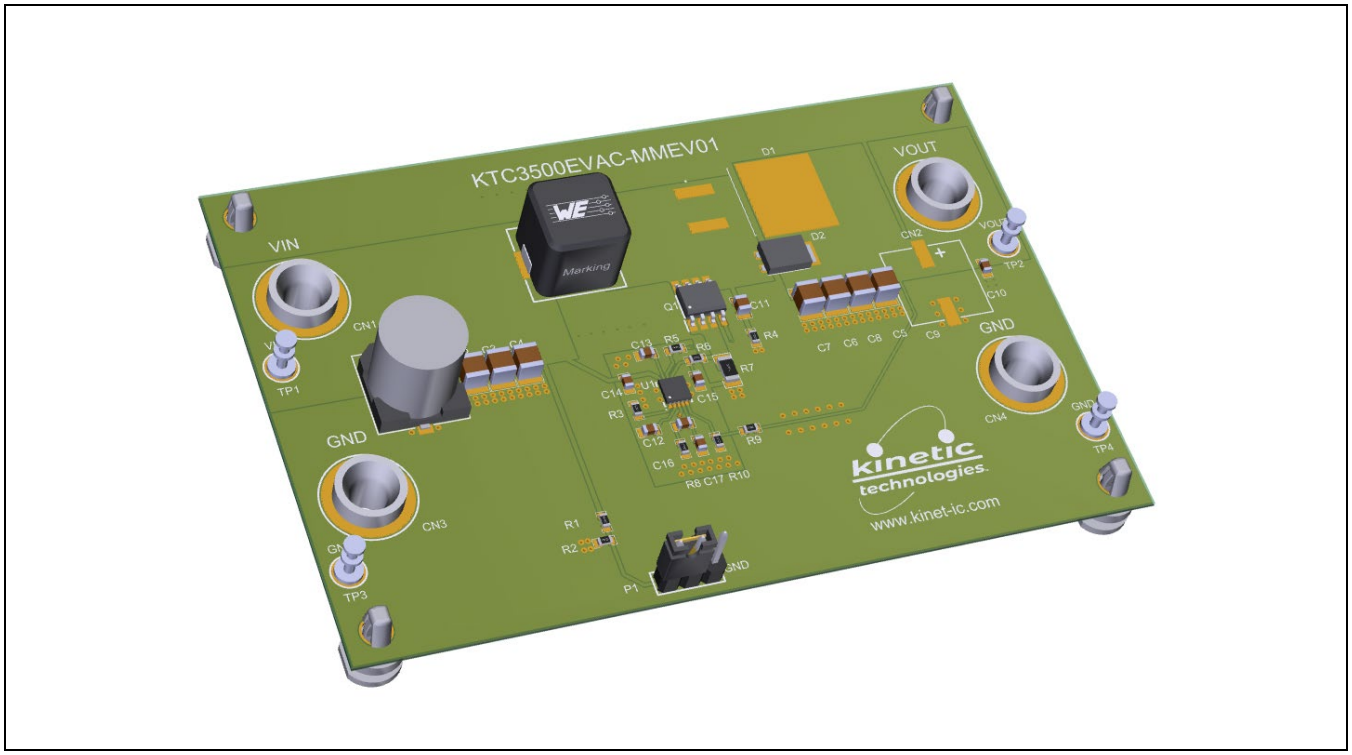
Brief Description

This procedure covers the KTC3500 EVAL Kit back-end final test and assembly before the EVAL Kit is placed into box stock. The fully assembled PCB is tested on the bench to check limited, basic functionality. Then all the EVAL Kit physical contents are assembled and packed into the EVAL Kit box.

Ordering Information

Part Number	Description	IC Package
KTC3500EVAC-MMEV01	KTC3500 EVAL Kit	DFN33-10

Eval Kit Fully Assembled PCB



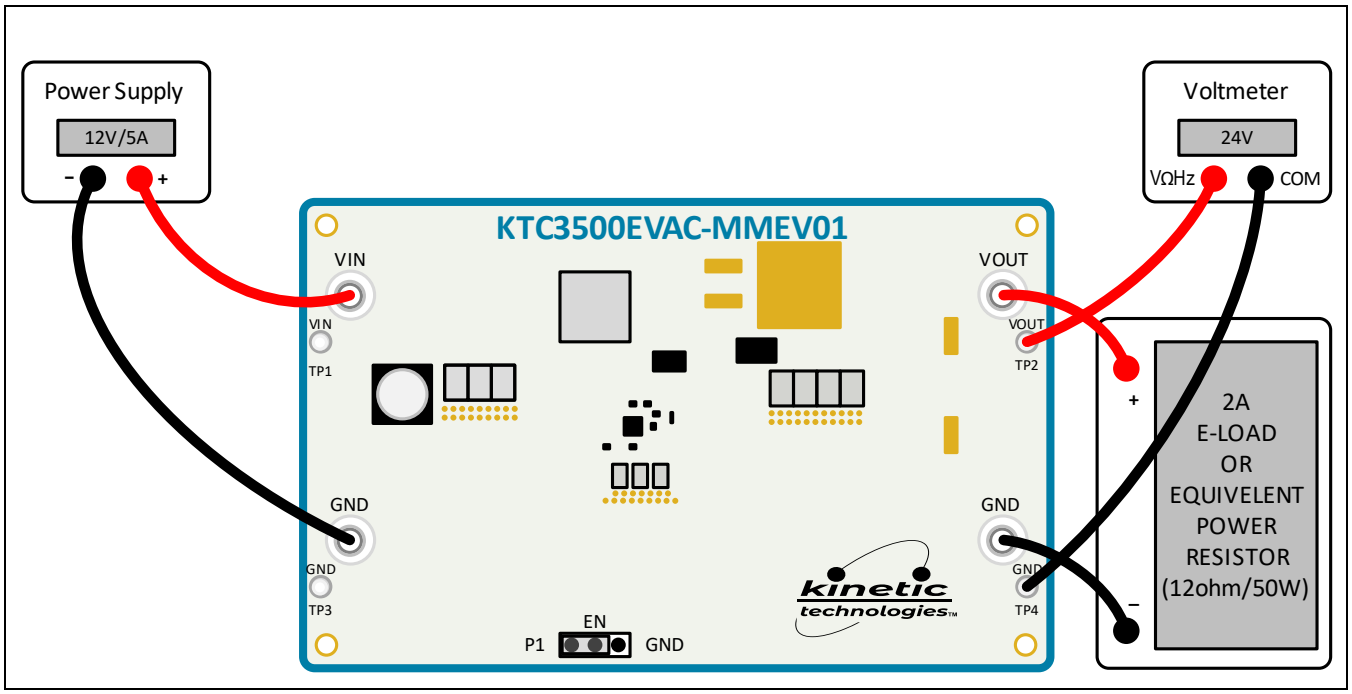
Default Jumper Positions

Designator	Name	Description	Default
P1	EN	Active-High Turn-On Logic Input VIN (H): IC enabled / ON GND (L): IN disabled / OFF	H

Required Test Equipment

1. Bench Power Supply for VIN: 7V to 17V and 10A as needed for the intended application.
2. Digital Multimeter – used to measure input/output voltages.
3. Load – Electronic load (E-Load) or Load resistor (12Ω / 50W resistor)
4. Test Leads:
    a. VIN/GND Input Power – pair (red/black) of either banana-to-banana or banana-to-clip leads
    b. VOUT/GND Output Voltage – pair (red/black) of banana-to-clip leads
    c. IOUT/GND Output Current - pair (red/black) of either banana-to-banana or banana-to-clip leads

Test Setup Diagram



Test Procedure

This is a very limited test to check basic functionality of the EVAL Kit. It is not intended to test all functions and performance.

1. Set Jumper P1 (EN) to VIN to enable the device.
2. Before connecting the EVAL Kit to the Bench Power Supply, turn on the supply and adjust the voltage as close to 0V as possible. Also set the current limit to 5.0A.
3. Using the Test Leads, connect the Required Test Equipment as indicated in the Test Setup Diagram.
4. For validation of the Test Setup, start by ramping the Bench Power Supply voltage very slowly from 0V to 12.0V while monitoring the input current and output voltage on the power supply display. If the current becomes high with no applied load on VOUT, reduce the voltage quickly to prevent damage. Then inspect the setup for any connection errors.
5. With a correctly connected Test Set-up, adjust the Bench Power Supply to 12.0V. For testing additional EVAL Kit PCBs, the Bench Power Supply may be left on at 12.0V and "hot-plugged" when connecting to subsequent PCBs.
6. VOUT valid check: Connect a voltmeter between VOUT and GND. Observe the voltage level at VOUT

Symbol	Description	Conditions	Min	Typ	Max	Units
VOUT	No-Load Output Voltage	P1 Jumper: EN high (P1), VIN=12V, no load	23.7	24	24.3	V

7. Apply a 2A load from VOUT to ground (GND) and validate the VOUT voltage remains at 24V.
8. **PASS:** if an EVAL Kit PCB passes all the above tests, then it meets the PASS criteria.
9. **FAIL:** if an EVAL Kit PCB fails any of the above tests, then it is considered a FAIL. It should be set aside for future failure analysis and re-work.

EVAL Kit Physical Contents

Item #	Description	Quantity
1	KTC3500 EVAL fully assembled PCB	1
2	Anti-static bag	1
3	KTC3500 EVAL Kit Quick-Start Guide, printed 1-page (A4 or US Letter)	1
4	EVAL Kit box	1

EVAL Kit Assembly Procedure

Once the EVAL Kit PCB is tested as a PASS, it is ready for the EVAL Kit Assembly Procedure.

1. Gather the EVAL Kit Physical Contents.
2. Ensure that the EVAL Kit PCB Jumper is in the default off position: P1 (CTRL) ON to GND
3. Place the EVAL Kit PCB into the anti-static bag. Seal the "zip lock" closure of the bag.
4. Fold and assemble the EVAL Kit box.
5. Place the anti-static bag containing the EVAL Kit PCB into the EVAL Kit box.
6. Place two pairs of XT30-to-Banana power cables into the EVAL Kit box.
7. Fold the printed 1-page EVAL Kit Quick-Start Guide in fourths (in half, and then in half again), such that the text is visible on the outside and showing the title. See the Photo of EVAL Kit Box with Contents in this document to see an example of how the Quick-Start Guide should be folded.
8. Place the folded EVAL Kit Quick-Start Guide into the EVAL Kit box, such that the EVAL Kit Quick-Start Guide is on top and showing its title, as per the Photo of EVAL Kit Box with Contents.
9. Close the EVAL Kit Box.
10. Add the completed KTC3500 EVAL Kit to box stock physical inventory and into the inventory database.

Photographs of EVAL Kit Contents and Boxing Procedures

CONTENTS

INSERTED ITEMS

LABELING