

# ***LDO Parallel Design Evaluation Module***

This user's guide describes the characteristics, operation, and use of the *LDO Parallel Design* evaluation module (EVM) and includes setup instructions, board layouts, schematics, and the bill of materials (BOM).

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## **1 Introduction**

TI's *LDO Parallel Design* evaluation module (EVM) helps designers evaluate the operation and performance of the LDO parallel application with the TPS7B6750-Q1 and TPS7B4253-Q1 in parallel. For more information on the TPS7B6750-Q1 and TPS7B4253-Q1 devices, see the data sheets ([SLVSCB2](#) and [SLVSCP3](#), respectively).

The EVM contains three linear regulators (see [Table 1](#)).

**Table 1. Device and Package Configurations**

Designator	Devices	Package
U1	TPS7B6750QPWPRQ1	20-pin HTSSOP
U2, U3	TPS7B4253QPWPRQ1	20-pin HTSSOP

For more details about this *LDO Parallel Design*, see the TI reference design [TIDA-00863](#).

## 2 Connector Descriptions, Setup, and Operation

This section describes the jumpers and connectors on the EVM as well and how to properly connect, set up, and use the *LDO Parallel Design* EVM.

### 2.1 Input and Output (I/O) Connector Descriptions

**J1/VBAT connector** – This connector connects the regulator IN pin to the input power supply through a diode.

**J2/VOUT connector** – This connector provides the output of the regulator to allow the user to attach a load to the EVM.

### 2.2 Bench Setup

The input voltage range for both the TPS7B6750-Q1 and TPS7B4253-Q1 is 4 V to 40 V. The EVM can support up to a 900-mA load current. Use the following steps to setup the test bench for the EVM:

1. Set the power supply for input (VBAT) to 12 V and set the current limit to 1 A.
2. Connect the power supply positive lead to the  $V_{IN}$  (J1 VBAT) and the negative lead to GND (J1 GND).
3. Apply the load between OUT (J2 VOUT) and GND (J2 GND).

### 2.3 Operation

The *LDO Parallel Design* EVM powers up after the  $V_{IN}$  voltage exceeds the UVLO rising threshold of both the TPS7B6750-Q1 and TPS7B4253-Q1.

### 3 Board Layout

The PCB offers footprints for the *LDO Parallel Design EVM* as shown in [Figure 1](#), [Figure 2](#), and [Figure 3](#).

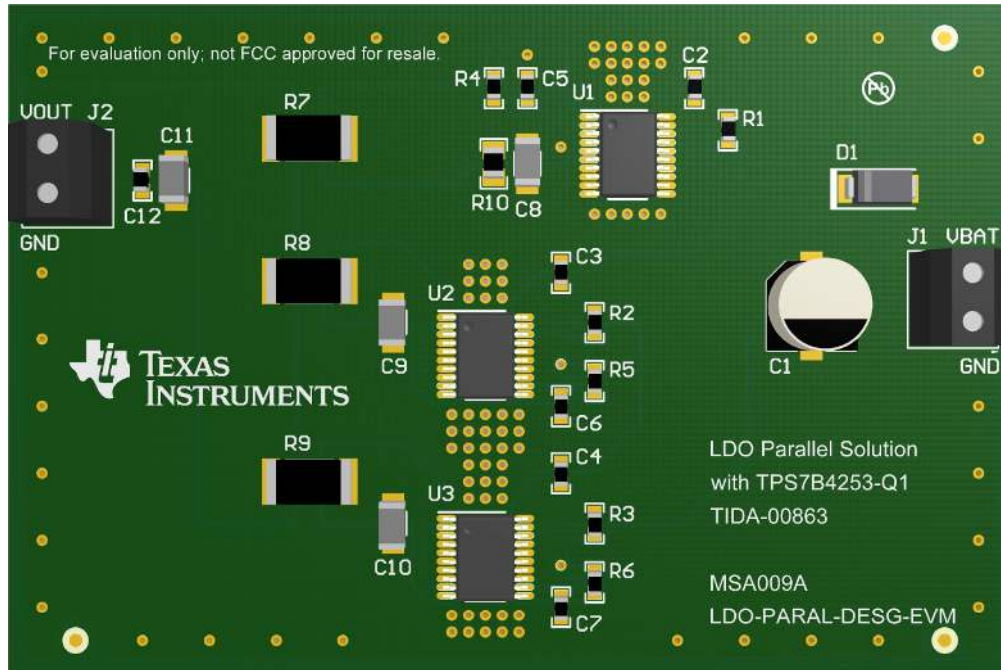


Figure 1. LDO Parallel Design EVM Component Placement (Assembly Top View)

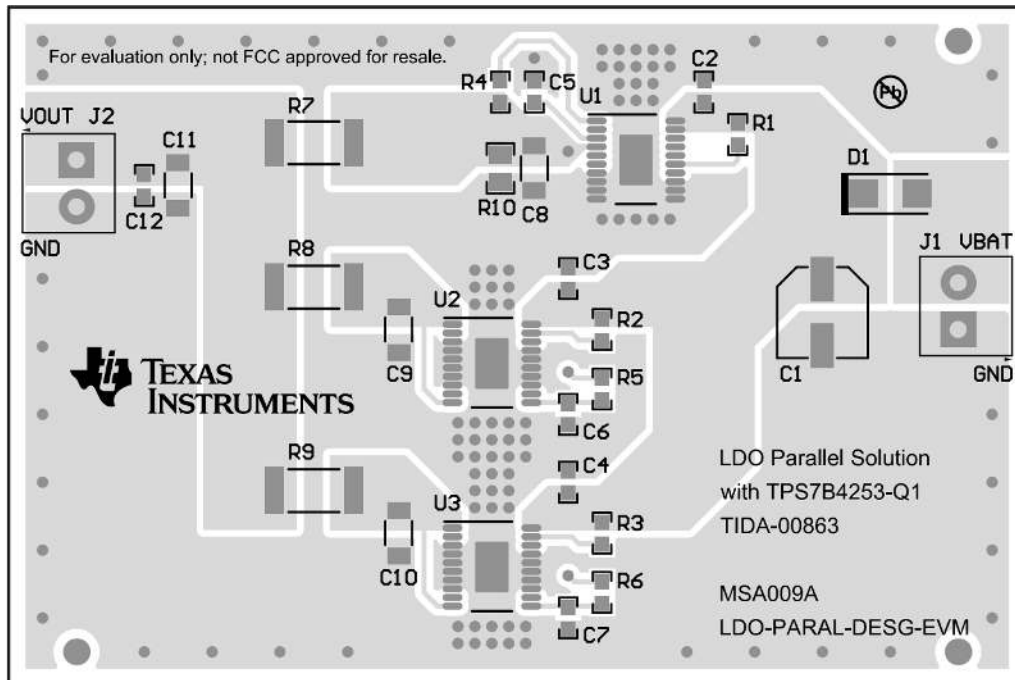
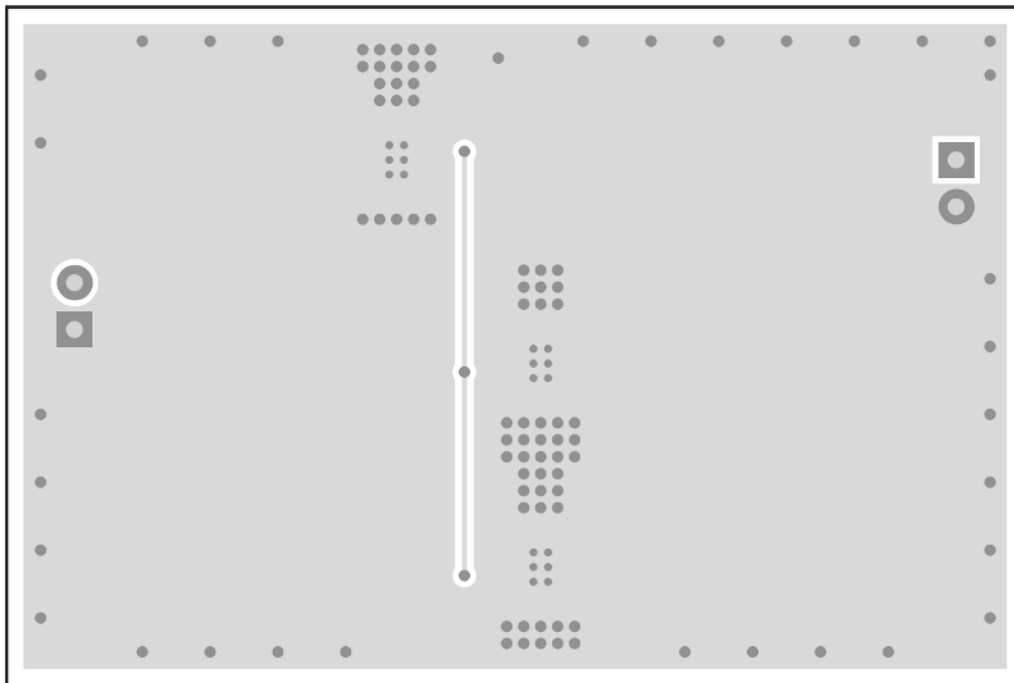


Figure 2. LDO Parallel Design EVM Top Layer Routing



**Figure 3. LDO Parallel Design EVM Bottom Layer Routing**

## 4 Schematic and Bill of Materials

### 4.1 Schematic

Figure 4 illustrates the EVM schematic.

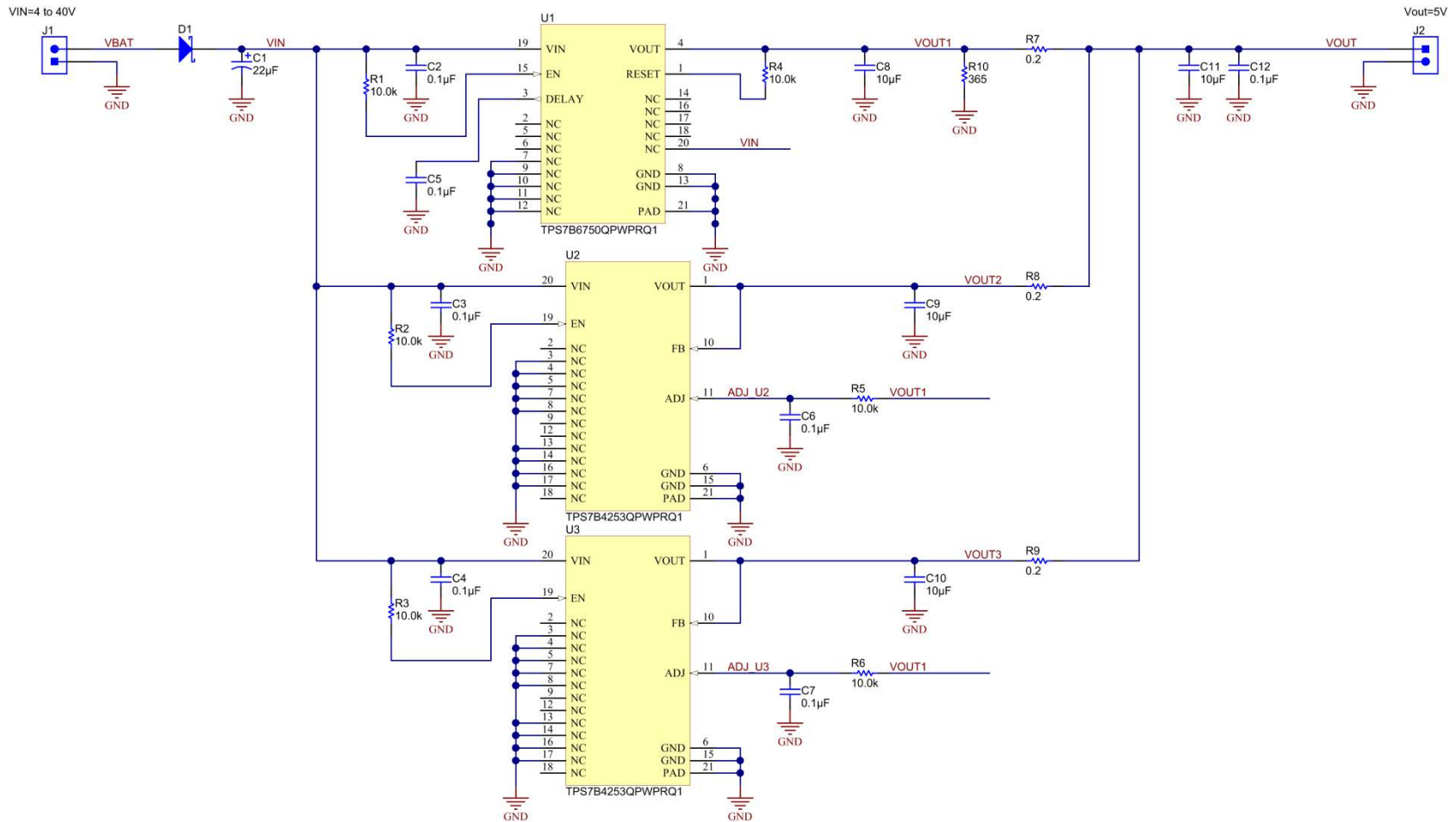


Figure 4. LDO Parallel Design EVM Schematic

## 4.2 Bill of Materials

Table 2 lists the EVM BOM.

**Table 2. LDO Parallel Design EVM Bill of Materials**

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
!PCB1	1		Printed Circuit Board		MSA009	Any
C1	1	22uF	CAP, AL, 22 $\mu$ F, 50 V, +/- 20%, 0.88 ohm, SMD	SMT Radial D	EEE-FK1H220P	Panasonic
C2, C3, C4, C5, C6, C7, C12	7	0.1uF	CAP, CERM, 0.1 $\mu$ F, 50 V, +/- 10%, X7R, 0603	0603	GCM188R71H104KA57D	Murata
C8, C9, C10, C11	4	10uF	CAP, CERM, 10 $\mu$ F, 16 V, +/- 10%, X7R, AEC-Q200 Grade 1, 1206_190	1206_190	GCM31CR71C106KA64L	Murata
D1	1	60V	Diode, Schottky, 60 V, 2 A, SMA	SMA	B260A-13-F	Diodes Inc.
J1, J2	2		Terminal Block, 6A, 3.5mm Pitch, 2-Pos, TH	7.0x8.2x6.5mm	ED555/2DS	On-Shore Technology
R1, R2, R3, R4, R5, R6	6	10.0k	RES, 10.0 k, 1%, 0.1 W, 0603	0603	CRCW060310K0FKEA	Vishay-Dale
R7, R8, R9	3	0.2	RES, 0.2, 1%, 1 W, 2512	2512	WSL2512R2000FEA	Vishay-Dale
R10	1	365	RES, 365, 1%, 0.125 W, 0805	0805	CRCW0805365RFKEA	Vishay-Dale
U1	1		450-mA High-Voltage Ultra-Low IQ Low-Dropout Regulator, PWP0020D	PWP0020D	TPS7B6750QPWPRQ1	Texas Instruments
U2, U3	2		300mA Low Dropout Voltage Tracking LDO, PWP0020D	PWP0020D	TPS7B4253QPWPRQ1	Texas Instruments
FID1, FID2, FID3	0		Fiducial mark. There is nothing to buy or mount.	Fiducial	N/A	N/A

## 5 References

*LDO Parallel Solution Reference Design with TPS7B4253-Q1* [TIDA-00863](#).

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- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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3.2.1 For EVMs issued with an Industry Canada Certificate of Conformance to RSS-210

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