Evaluation Board for Charge Pump Regulator for Color TFT Panel

EVAL-ADM8832

FEATURES

Provides 3 output voltages (5.1 V,15.3 V, −10.2 V) from one 3 V input supply
Power efficiency optimized for use with TFT in mobile phones
On-board socket for evaluation of multiple ICs
Shutdown line
Options to use external LDO

PACKAGE CONTENTS

ADM8832 evaluation board
ADP8832 evaluation board data sheet
ADM8832 data sheet

GENERAL DESCRIPTION

The ADM8832 evaluation board allows the ADM8832 TFT color panel charge pump regulator to be quickly and easily evaluated.

The evaluation board allows all of the input and output functions to be exercised without the need for external components.

Full details about the part are available in the ADM8832 data sheet, which should be consulted when using the EVAL-ADM8832.

FUNCTIONAL BLOCK DIAGRAM

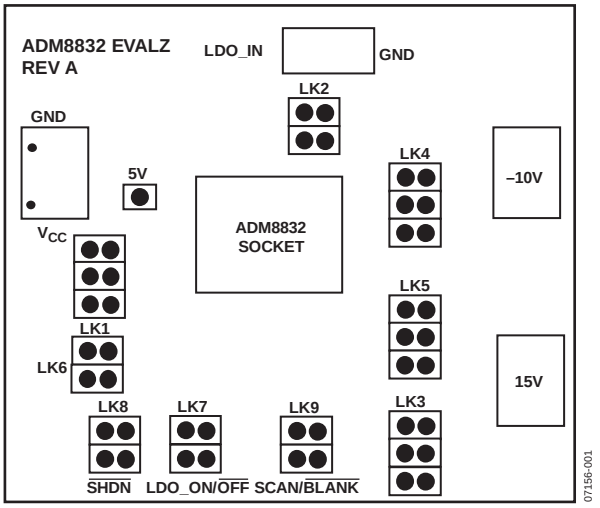

Figure 1.

Rev. 0

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REVISION HISTORY

6/08—Revision 0: Initial Version

EVALUATION BOARD HARDWARE

The ADM8832 evaluation board contains the following main components, which can be identified from the block diagram and the schematic shown in Figure 1 and Figure 2, respectively:

- 20-lead LFCSP socket to hold the ADM8832 IC
- 9 jumper points to facilitate the connection of external LDOs, clock sources, and external loads
- 1 SMB connector for reliable logic signal connection
- 9 test points for signal connection and measurement
- A large patchwork area to facilitate the addition of extra components to the ADM8832 evaluation board

EVALUATION BOARD CONNECTORS AND JUMPERS

The function of the various connectors and jumpers on the evaluation board is explained in Table 1, Table 2, and Table 3.

Table 1. Evaluation Board Power Connectors

Connector	Function
J1	Supply to ADM8832 (3 V nominal)
J2	External Source (can be regulated by on-board LDO)

Table 2. SMB Connection

Jumper	Pin	Function	Logic Level (High = 3 V, Low = 0 V)
SK1	CLKIN	External clock used during blanking mode	External

Table 3. Jumpers (Links)

Jumper	Description	Default Status
LK1	Connects to optional external 5 V loads (R1, R2, and R3).	
LK1A	Connects +5VOUT (Pin 4) to 620 Ω resistor (R1) to GND. (This generates a maximum scanning mode load current of 8 mA.)	Removed
LK1B	Connects +5VOUT (Pin 4) to 1 kΩ resistor (R2) to GND. (This generates a load current of 5 mA.)	Removed
LK1C	Connects +5VOUT (Pin 4) to 24.9 kΩ resistor (R3) to GND. (This generates a maximum blanking mode load current of 200 µA.)	Removed
LK2A	Connects VOUT (Pin2) to LDO_IN (Pin 3).	Inserted
LK2B	Connects external source (J2) to LDO_IN (Pin 3).	Removed
LK3A	Connects CLKIN (Pin 9) to VCC.	Removed
LK3B	Connects CLKIN (Pin 9) to GND.	Removed
LK3C	Connects CLKIN (Pin 9) to SK1.	Inserted
LK4A	Connects −10VOUT (Pin 17) to 100 kΩ resistor (R6) to GND. (This generates a max load current of 100 µA.)	Inserted
LK4B	Connects −10VOUT (Pin 17) to 1 MΩ resistor (R7) to GND. (This generates a min load current of 10 µA.)	Inserted
LK4C	Connects −10VOUT (Pin 17) to patchwork area.	Inserted
LK5A	Connects +15VOUT (Pin 10) to 150 kΩ resistor (R4) to GND. (This generates a maximum load current of 100 µA.)	Inserted
LK5B	Connects +15VOUT (Pin 10) to 1.5 MΩ resistor (R5) to GND. (This generates a minimum load current of 10 µA.)	Inserted
LK5C	Connects +15VOUT (Pin 10) to patchwork area.	Inserted
LK6A	Connects ADM8832 regulated +5VOUT (Pin 4) to +5VIN (Pin 5). (Input to the +15 V and −10 V charge pump stage.)	Inserted
LK6B	Connects externally regulated 5 V output to +5VIN (Pin 5). (Input to the +15 V and −10 V charge pump stage.)	Removed
LK7A	Connects V_{CC} to LDO_ON/$\overline{OFF}$ (Pin 6).	Inserted
LK7B	Connects LDO_ON/$\overline{OFF}$ (Pin 6) to GND.	Removed
LK8A	Connects V_{CC} to $\overline{SHDN}$ (Pin 7).	Inserted
LK8B	Connects $\overline{SHDN}$ (Pin 7) to GND.	Removed
LK9A	Connects V_{CC} to SCAN/$\overline{BLANK}$ (Pin 8).	Inserted
LK9B	Connects SCAN/$\overline{BLANK}$ (Pin 8) to GND.	Removed

SETTING UP THE ADM8832 EVALUATION BOARD

Scanning Mode

To set up the ADM8832 evaluation board in scanning mode, use the following steps:

1. Connect the scanning mode load resistors.
2. +5VOUT—Connect R1 (insert LK1A, remove LK1C/LK1D)
3. +15VOUT—Connect R4 (insert LK5A)
4. −10VOUT—Connect R6 (insert LK4A)
   Note that all other load resistors should be disconnected by removing their links (see Table 3).
5. Connect VOUT to the ADM8832 LDO (insert LK2A, remove LK2B).
6. Use 3.3 V logic levels for logic inputs.
7. Connect the following jumpers:
   $\overline{\text{SHDN}}$—Insert LK8A, remove LK8B
   LDO_ON/$\overline{\text{OFF}}$—Insert LK7A, remove LK7B
   SCAN/$\overline{\text{BLANK}}$—Insert LK9A, remove LK9B
8. CLKIN—Connect the SMB cable to SK1.
   Note that an external clock is not required to be applied to CLKIN (Pin 9) in this mode.
9. Apply a 3 V supply to J1.

Blanking Mode

To set up the ADM8832 evaluation board in blanking mode, use the following steps:

1. Connect the blanking mode load resistors.
2. +5VOUT—Connect R3 (insert LK1C, remove LK3A/LK3B)
3. +15VOUT—Connect R5 (insert LK5B)
4. −10VOUT—Connect R7 (insert LK4B)
   Note that all other load resistors should be disconnected by removing their links (see Table 3).
5. Connect VOUT to the ADM8832 LDO (insert LK2A, remove LK2B).
6. Use 3.3 V logic levels for logic inputs.
7. Connect the following jumpers:
   $\overline{\text{SHDN}}$—Insert LK8A, remove LK8B
   LDO_ON/$\overline{\text{OFF}}$—Insert LK7A, remove LK7B
   SCAN/$\overline{\text{BLANK}}$—Insert LK9B, remove LK9A (The signal must be low for blanking mode.)
8. CLKIN—Connect the SMB cable to SK1.
   Note that an external clock must be applied to CLKIN (Pin 9) in this mode. The frequency of this clock is nominally 1 kHz (refer to the ADM8832 data sheet for more details).
9. Apply a 3 V supply to J1.

EVALUATION BOARD SCHEMATIC

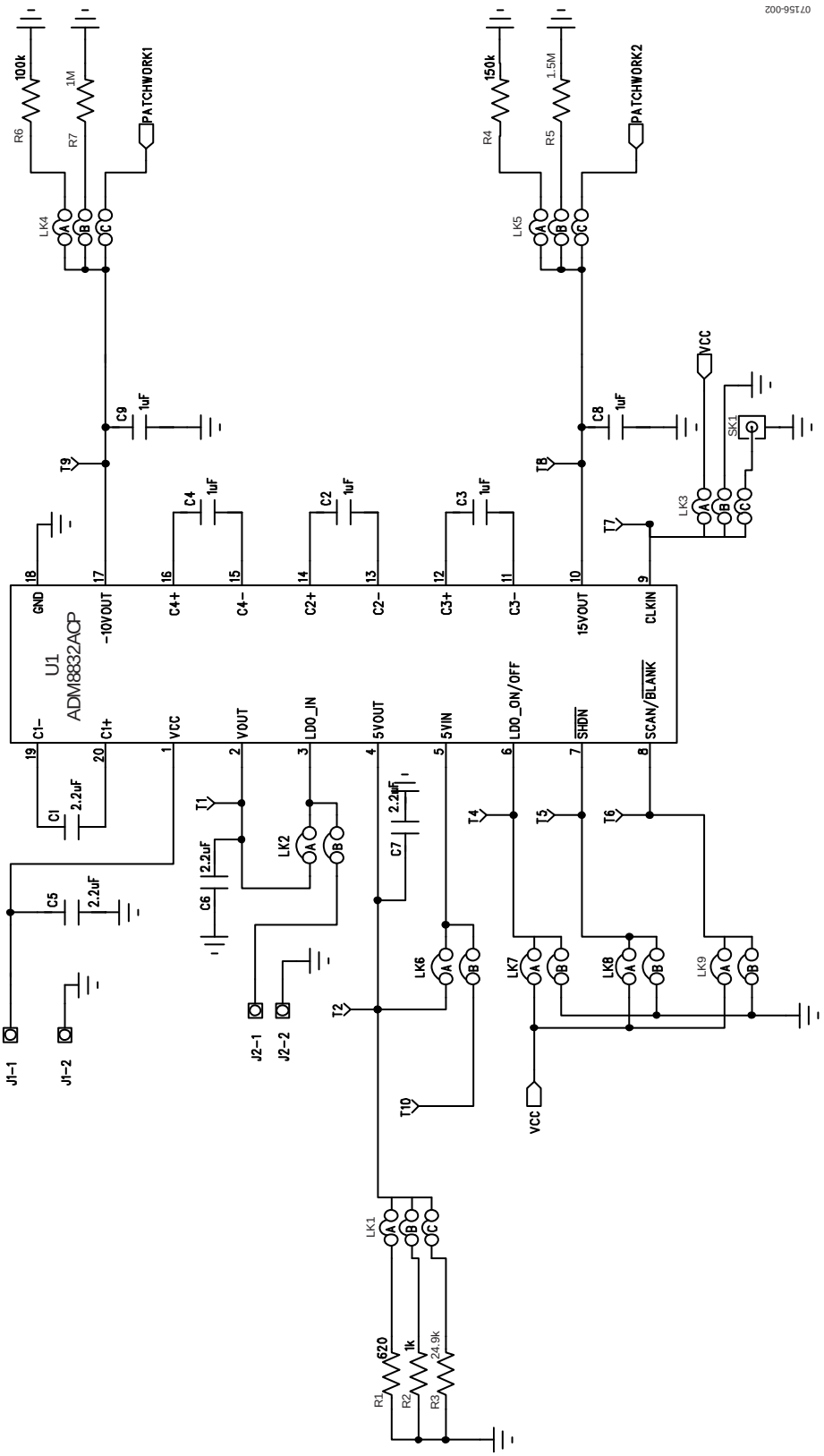

Figure 2. ADM8832 Evaluation Board Schematic

ORDERING INFORMATION

BILL OF MATERIALS

Table 4.

Qty	Reference Designator	Description	Manufacturer	Part Number
1	U1	20-lead LFCSP socket (ADM8832 inside)	Loranger	03714-201-6217
2	J1, J2	Power connector, 5 mm pitch	Weidmuller	1716120000
1	SK1	SMB connector	Emerson	SMB 131-3701-266
2	T1 to T2,	Test point	Vero	20-313137
7	T4 to T10	Test point	Vero	20-313137
6	C2 to C4, C8 to C9	Capacitor, 1 µF, 50 V, 1206, X7R	TDK	C3216X7R1H105M
5	C1, C5 to C7	Capacitor, 2.2 µF, 25 V, 1206, X7R	TDK	C3216X5R1E225K
1	R1	Resistor, 620 Ω, 0805 1%	Yageo	RC0805FR-07620RL
1	R2	Resistor, 1 kΩ, 0805 1%	Yageo	RC0805FR-071KL
1	R3	Resistor, 24.9 kΩ, 0805 1%	Yageo	RC0805FR-0725KL
1	R4	Resistor, 150 kΩ, 0805 1%	Yageo	RC0805FR-07150L
1	R5	Resistor, 1.5 MΩ, 0805 1%	Yageo	RC0805FR-071M5L
1	R6	Resistor, 100 kΩ,0805 1%	Yageo	RC0805FR-07100KL
1	R7	Resistor, 1 M Ω, 0805 1%	Yageo	RC0805FR-071ML

ORDERING GUIDE

Model	Description
ADM8832-EVALZ[1]	Evaluation Board

[1] Z = RoHS Compliant Part.

ESD CAUTION

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

NOTES

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