TPS3839K33EVM-112 Evaluation Module

This User's Guide describes the operational use of the TPS3839K33EVM-112 Evaluation Module (EVM) as a reference design for engineering demonstration and evaluation of the TPS3839K33, ultra-low power 3-pin supervisory circuit. Included in this user's guide are setup instructions, a schematic diagram, PCB layout drawings, and a bill of materials for the evaluation module.

1 Introduction

The Texas Instruments TPS3839K33EVM-112 EVM helps design engineers to evaluate the operation and performance of the TPS3839yxx family of supervisors for possible use in their own circuit application. This particular EVM configuration contains the TPS3839K33 supervisor with an internal push-pull RESET output, in a 1 x 1mm DQN µSON package. The TPS3839yxx is an ultra- low quiescent current, supervisory circuit with a fixed threshold voltage. The threshold voltage is indicated by the last two digits of the part number, with 33 indicating the fixed 3.3 V version and other values indicating various fixed thresholds. This document describes the configuration and set up of the TPS3839K33EVM-112 EVM board.

2 Setup

This section describes the connectors on the EVM as well as how to properly connect, setup, and use the TPS3839K33EVM-112.

2.1 Input and Output Connector Descriptions

2.1.1 J1 – VDD

This connector is the power supply connection and the signal that is being monitored by the TPS3839K33. $\overline{RST}$ should transition low when the power supply voltage drops below its threshold.

2.1.2 J2 – GND

Return connector for the input power supply.

2.1.3 J3 – $\overline{RST}$

This connector is the $\overline{RST}$ output. Connect this output to a multimeter, oscilloscope, or external circuit to verify that $\overline{RST}$ goes low when VDD goes below its threshold.

2.2 Equipment Setup and Test

- Set the power supply voltage to 0 V. Connect the positive voltage lead from the power supply to J1 (VDD). Connect the ground lead from the power supply to J2 (GND).
- Connect a voltmeter across J3 ($\overline{RST}$) and J2 (GND).
- Vary the power supply voltage as necessary for test purposes.

3 Operation

The TPS3839K33EVM-112 is a fixed 3.3 V single-rail monitor. The device triggers a reset when its own supply rail VDD falls beneath a set threshold of 2.93 V. An internal push-pull $\overline{RST}$ circuit eliminates the need of a pull-up resistor.

4 Board Layout

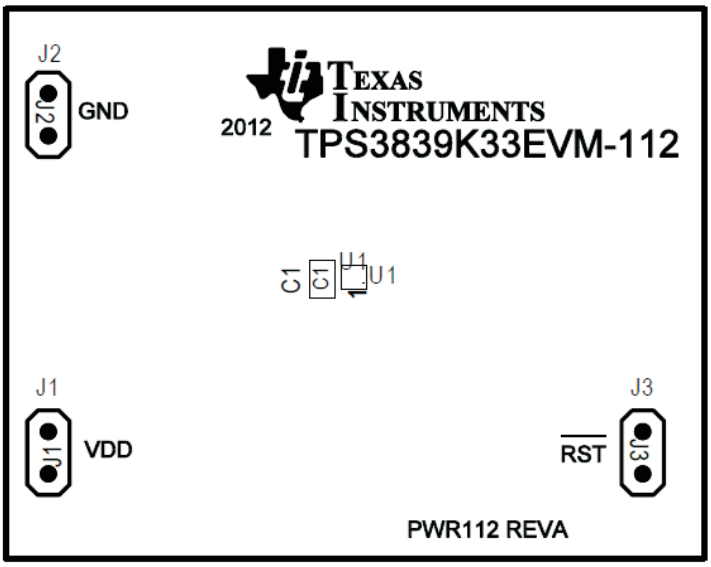

Figure 1. Assembly Layer

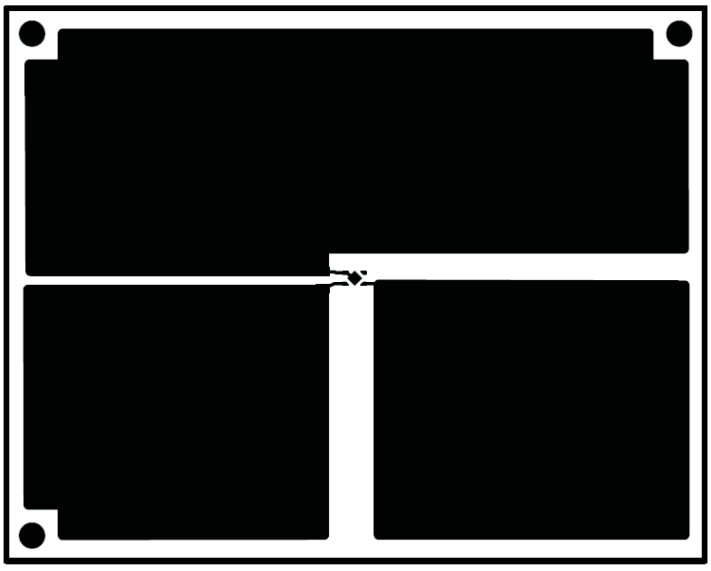

Figure 2. Top Layer Routing

Figure 3. Bottom Layer Routing

5 Schematic

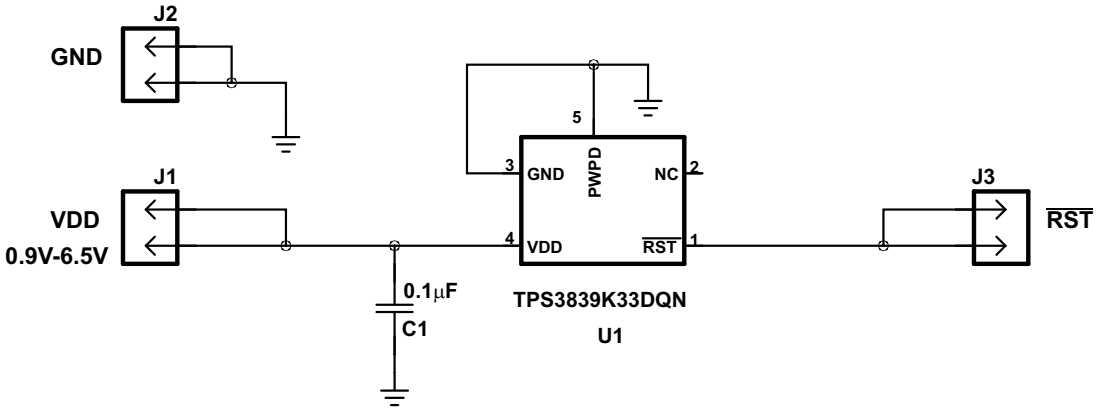

Figure 4. TPS3839K33EVM-112 Schematic

6 Bill of Materials

Table 1. TPS3839K33EVM-112 Bill of Material

COUNT	RefDes	Value	Description	Size	Part Number	MFR
1	C1	0.1uF	Capacitor, Ceramic Chip, 10V, X5R, ±10%	402	STD	STD
3	J1-3	PEC02SAAN	Header, Male 2-pin, 100mil spacing,	0.100 inch x 2	PEC02SAAN	Sullins
1	U1	TPS3839K33DQN	IC, Supply Voltage Supervisory Circuit, 3.3V	SON	TPS3839K33DQN	TI
1	-	PCB	PCB, 1.30 In x 1.645 In x 0.062 In	1.30 In x 1.645 In x 0.062 In	PWR112	Any
Notes:	1. These assemblies are ESD sensitive, ESD precautions shall be observed.					
	2. These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.					
	3. These assemblies must comply with workmanship standards IPC-A-610 Class 2.					
	4. Ref designators marked with an asterisk ('**') cannot be substituted. All other components can be substituted with equivalent MFG's components.					

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