

EVM User's Guide: TPS552872EVM-029

TPS552872EVM-029 Evaluation Module



Description

The TPS552872 integrates four MOSFET switches providing a compact device for a variety of applications and is optimized for converting battery voltage or adapter voltage into power supply rails. The TPS552872 has adjustable external loop compensation, programmable switching frequency, optional spread spectrum and rich protection features. All these features bring flexibility and design optimization for overall performance, as well as BOM optimization and solution cost.

Get Started

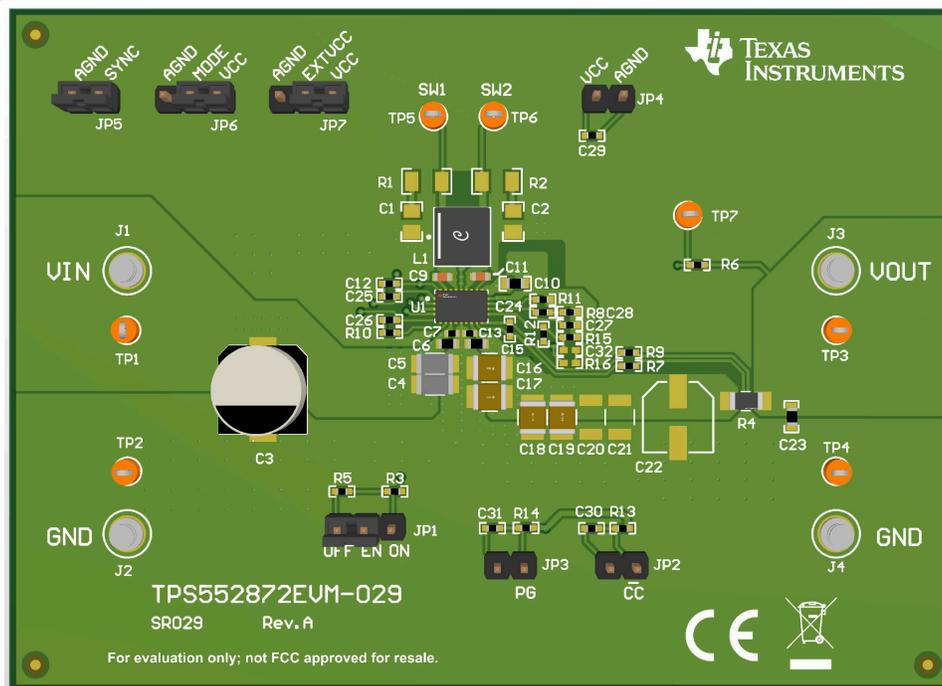
1. Order the EVM at [ti.com](https://www.ti.com).
2. Read the user's guide carefully.
3. Prepare the bench setup per instructions. Take precautions to prevent damage by ESD when handling the EVM.
4. Power up the EVM by following the recommended steps.
5. Run tests and measurements. Take cautions of high voltage and hot temperature produced by the EVM during test.

Features

- Wide input and output voltage range
- Rich protection features
- Small solution-size
- User flexibilities in optimizing loop compensation
- Programmable PFM and FPWM mode at light load
- Adjustable output current limit
- Optional programmable spread spectrum
- Adjustable output voltage compensation for voltage droop over the cable

Applications

- [Docking station](#)
- [Monitor](#)
- [Power bank](#)
- [Industry PC](#)
- [Traction inverters: IGBT, MOSFET and SiC gate drivers](#)



1 Evaluation Module Overview

1.1 Introduction

The TPS552872EVM-029 is designed to demonstrate the features and functionality of the TPS552872 device, which is a high-performance, high-efficiency synchronous buck-boost converter. The TPS552872 also verifies safe operating with optional output current limit and hiccup-mode protection in sustained overload conditions. All these bring flexibility and design optimization for BOM optimization and overall performance, as well as cost.

This user's guide describes the characteristics and operation of the evaluation module TPS552872EVM-029. This document provides instructions on how to use the evaluation module. Throughout this document, the terms of evaluation board, evaluation module, and EVM are synonymous with the TPS552872EVM-029. This document also includes a schematic, reference printed circuit board (PCB) layout, and a complete bill of materials (BOM).

1.2 Kit Contents

[Table 1-1](#) details the contents of the EVM kit.

Table 1-1. EVM Kit Contents

ITEM	QUANTITY
TPS552872EVM-029	1

1.3 Specification

[Table 1-2](#) provides a summary of the TPS552872 EVM performance specifications. All specifications are given for an ambient temperature of 25°C.

Table 1-2. Performance Specification Summary

Parameter	Test Condition	Value	Unit
Input Voltage	N/A	3 - 36	V
Output Voltage	N/A	12	V
Maximum output current	$V_{IN} \geq 6\text{ V}$	1.5	A
	$V_{IN} \geq 9\text{ V}$	2	
	$V_{IN} \geq 12\text{ V}$	2.5	
Default switching frequency	N/A	2.0	MHz

1.4 Device Information

The TPS552872 is a synchronous buck-boost converter which integrates four MOSFET switches, providing a compact device for a variety of applications. The device employs an average current mode control scheme. The switching frequency is programmable from 200 kHz to 2.2 MHz by an external resistor and can be synchronized to an external clock. The spread spectrum function is optional to minimize peak EMI. The output over-voltage protection, average inductor current limit, cycle-by-cycle peak current limit, and output short circuit protection are provided. Refer to TI product data sheet for more detailed information of the TPS552872 and TPS552872-Q1 fully integrated buck-boost converter.

The TPS552872EVM uses a small inductor and small capacitors with 2.0MHz switching frequency. The factory default settings of the EVM allow the operation with an input voltage range from 3 V to 36 V. Fine-tuning of the output voltage can be realized by adjusting the external resistor values at the FB pin. In addition, the users can modify the EVM to adjust the switching frequency by changing resistor value at the FSW pin. To meet the current ripple requirement, the inductor also needs to change according to the switching frequency, as well as the external compensation parameter to obtain enough phase margin and gain margin.

2 Hardware

This section describes how to properly connect, set up, and use the TPS552872EVM-029.

2.1 Modification

The printed-circuit board (PCB) for this EVM is designed to accommodate some modifications by the user. The external component can be changed according to the real application.

2.2 Connector and Test Point Descriptions

This EVM includes I/O connectors and test points as shown in [Table 2-1](#). The power supply must be connected to input connectors, J1 and J2. The load must be connected to output connectors, J3 and J4.

Table 2-1. Connectors and Test Points

Reference Designator	Description
J1	Input voltage positive connection
J2	Input voltage return connection
J3	Output voltage connection
J4	Output voltage return connection

2.3 Jumper Configuration

2.3.1 JP1 (ENABLE)

The JP1 jumper enables the device. By default, this jumper is set to the ON position. Put this jumper in the OFF position to disable the output.

2.3.2 JP5 (SYNC)

The JP5 jumper is for the frequency dithering selection. Placing a jumper across JP5 disables the frequency dithering function. Left JP5 opens when using frequency dithering function.

2.3.3 JP6 (MODE)

MODE pin input jumper. Place a jumper across MODE and VCC to set in forced PWM mode, place a jumper across MODE and GND to set in auto PFM mode.

2.3.4 JP7 (EXTVCC)

EXTVCC pin input jumper. Place a jumper across EXTVCC and VCC to select internal LDO. To minimize the power dissipation of the internal LDO when both input voltage and output voltage are high, an external 5-V power source can be applied at the VCC pin (JP4) to supply the TPS552872 and place a jumper across EXTVCC and GND .

2.4 Test Procedure

Use the following steps for the test procedure:

1. Set the power supply current limit to 10 A. Set the power supply to something around 12 V. Turn off the power supply. Connect the positive output of the power supply to J1 and the negative output to J2.
2. Connect the load to J3 for the positive connection and J4 for the negative connection.
3. Turn on the power supply.
4. Slowly increase the load while monitoring the output voltage between J3 and J4. The load must remain in regulation when the load current is lower than 2.5 A.
5. Slowly sweep the input voltage from 9 V to 20 V. The output voltage must remain in regulation when the load current is lower than the maximum load current specified in [Table 1-2](#).
6. Turn off the load, turn off the power supply. Then turn on the load to discharge the output capacitors.

3 Hardware Design Files

This section provides the TPS552872EVM-029 schematic, board layout and bill of materials (BOM).

3.1 Schematic

Figure 3-1 shows the EVM schematic.

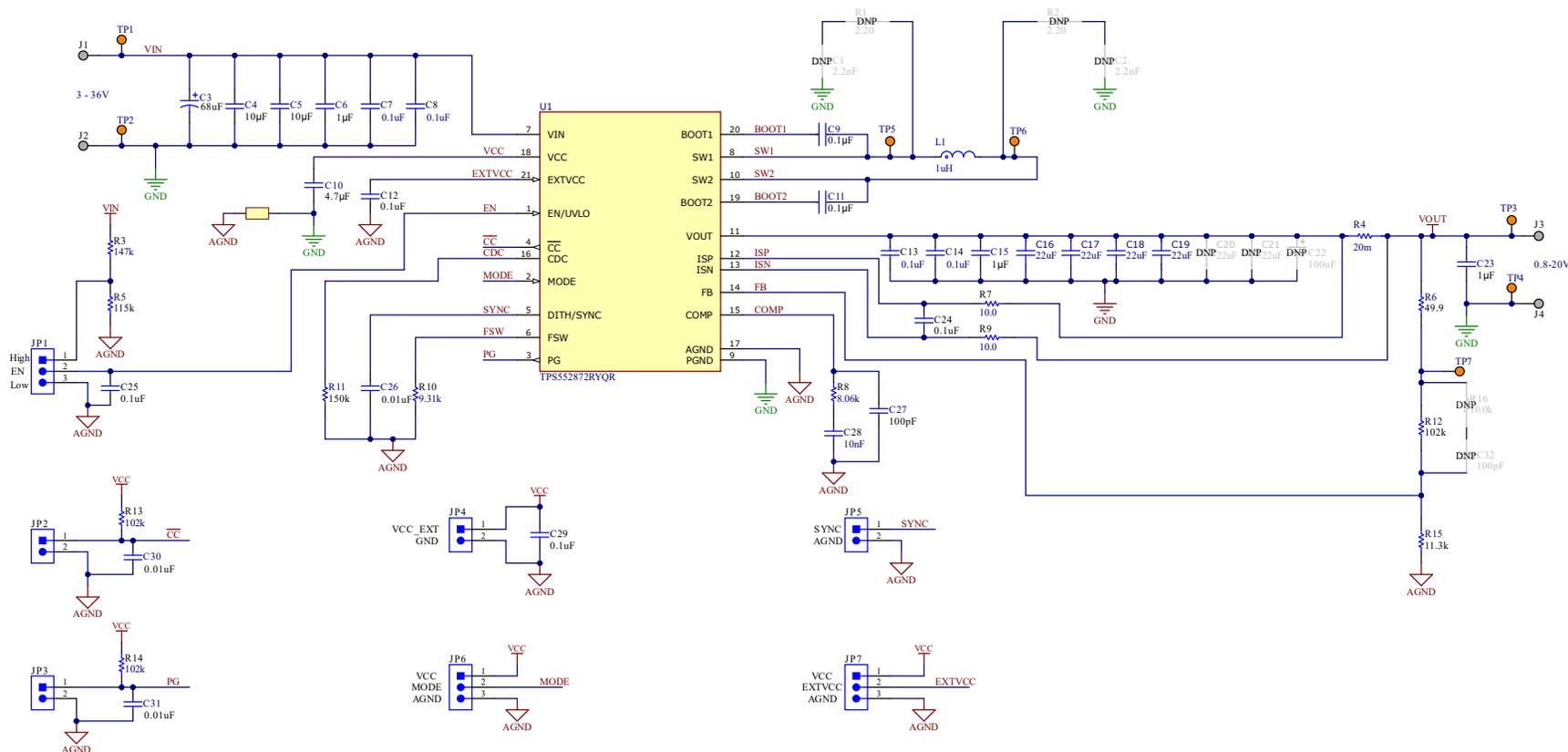


Figure 3-1. TPS552872EVM-029 Schematic

3.2 PCB Layouts

Figure 3-2 through Figure 3-5 illustrate the EVM board layouts.

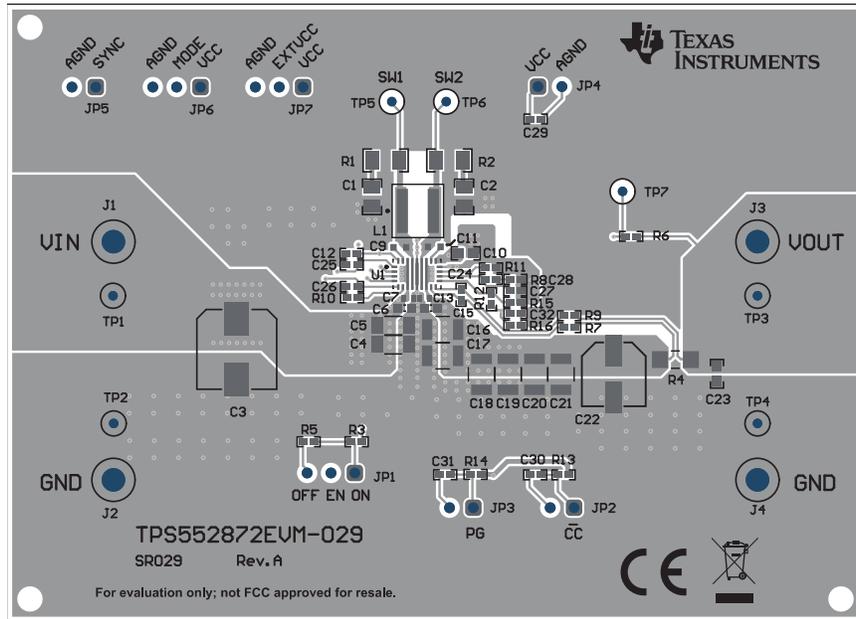


Figure 3-2. TPS552872EVM-029 Top-Side Layout

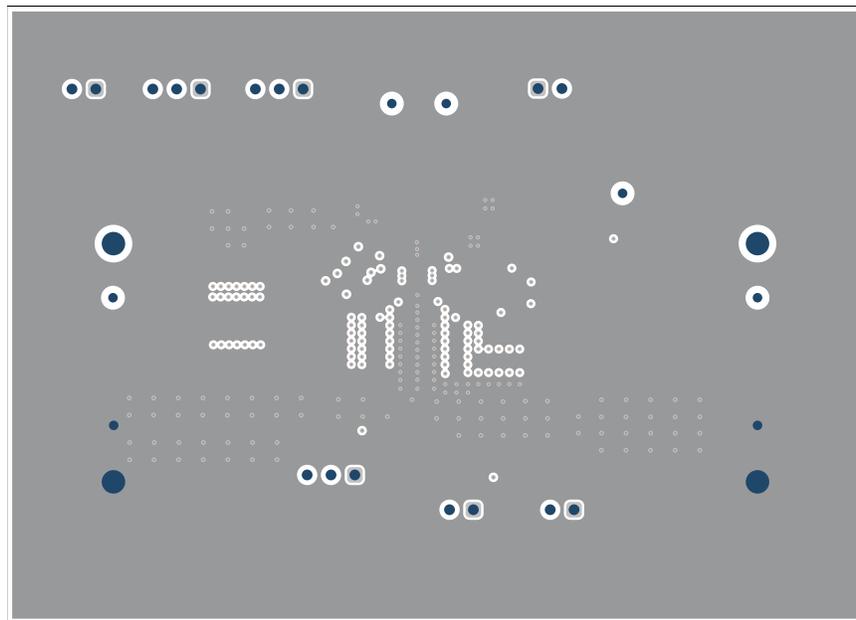


Figure 3-3. TPS552872EVM-029 Inner Layer 1

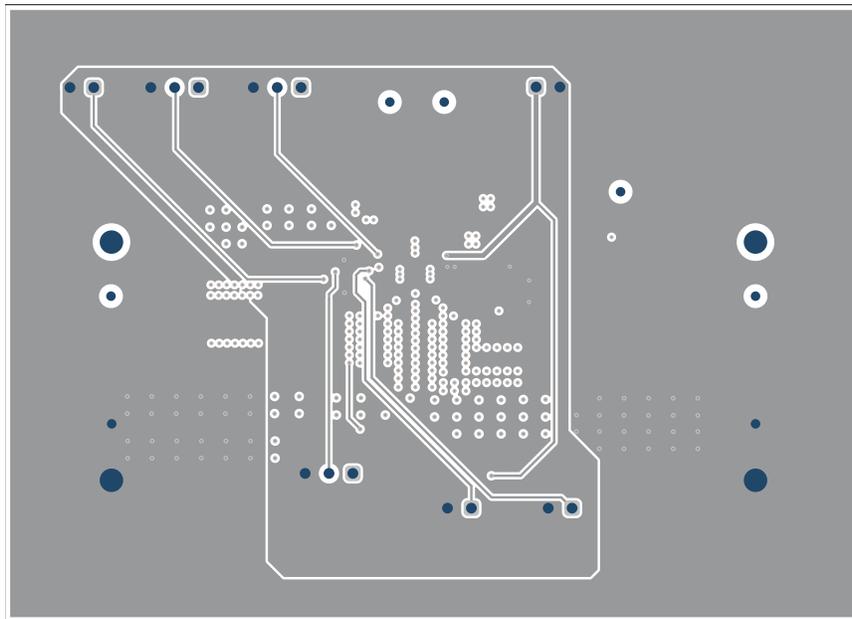


Figure 3-4. TPS552872EVM-029 Inner Layer 2

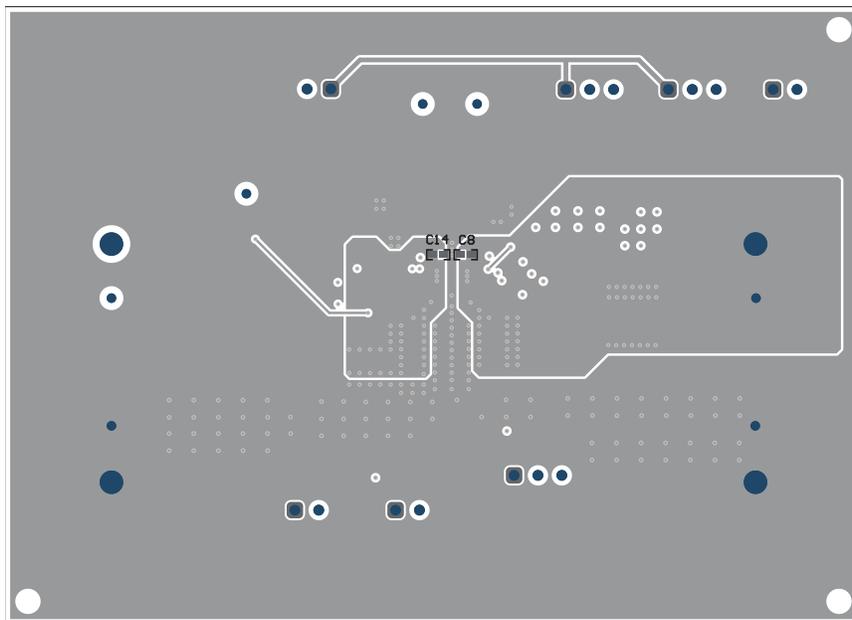


Figure 3-5. TPS552872EVM-029 Bottom-Side Layout

3.3 Bill of Materials

Table 3-1 lists the EVM bill of materials.

Table 3-1. Bill of Materials

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
C3	1	68uF	CAP, Polymer Hybrid, 68 uF, 50 V, +/- 20%, 30 ohm, 8x10 SMD	8x10	EEHZA1H680P	Panasonic
C4, C5	2	10uF	CAP, CERM, 10 µF, 50 V,+/- 10%, X7R, AEC-Q200 Grade 1, 1206	1206	CGA5L1X7R1H106K160AC	TDK
C6, C15, C23	3	1uF	CAP, CERM, 1 µF, 50 V,+/- 20%, X5R, AEC-Q200 Grade 3, 0603	0603	GRT188R61H105ME13D	MuRata
C7, C8, C13, C14	4	0.1uF	CAP, CERM, 0.1 uF, 50 V, +/- 20%, X7R, 0402	0402	GRM155R71H104ME14D	MuRata
C9, C11	2		0.1µF ±10% 50 V Ceramic Capacitor X8L 0603 (1608 Metric)	0603	GCM188L81H104KA57D	Murata Electronics North America
C10	1	4.7uF	CAP, CERM, 4.7 µF, 16 V,+/- 10%, X5R, AEC-Q200 Grade 3, 0603	0603	GRT188R61C475KE13D	MuRata
C12, C24, C25, C29	4	0.1uF	CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	0402	CGA2B3X7R1H104K050BB	TDK
C16, C17, C18, C19	4	22 µF	Cap Ceramic 22uF 25 V X7R 20% Pad SMD 1210 +125°C Automotive T/R	1210	CGA6P3X7R1E226M250AB	TDK
C26, C28, C30, C31	4	0.01uF	CAP, CERM, 0.01 uF, 50 V, +/- 10%, X7R, AEC-Q200 Grade 1, 0402	0402	CGA2B3X7R1H103K050BB	TDK
C27	1	100 pF	CAP, CERM, 100 pF, 50 V, +/- 5%, C0G/NP0, AEC-Q200 Grade 1, 0402	0402	CGA2B2C0G1H101J050BA	TDK
FID4, FID5, FID6	3		Fiducial mark. There is nothing to buy or mount.	N/A	N/A	N/A
J1, J2, J3, J4	4		Terminal, Turret, TH, Double	Keystone1502-2	1502-2	Keystone
JP1, JP6, JP7	3		Header, 2.54 mm, 3x1, Gold, TH	Header, 2.54mm, 3x1, TH	61300311121	Würth Elektronik
JP2, JP3, JP4, JP5	4		Header, 2.54 mm, 2x1, Gold, TH	Header, 2.54mm, 2x1, TH	61300211121	Würth Elektronik
L1	1	1uH	Shielded Power Inductor, 1uH, 20%, 17.8A IRMS, 5.8mOhm DCR max, AECQ200 Grade1, 5.28x5.48x3.1mm	SMT_IND_5MM28_5MM48	XGL5030-102MEC	Coilcraft
R3	1	147k	RES, 147 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402147KFKED	Vishay-Dale
R4	1	20 m	Res Thick Film 1206 0.02 Ohm 1% 1W ±75ppm/°C Molded SMD SMD Embossed T/R	1206	CRF1206-FZ-R020ELF	Bourns
R5	1	115k	RES, 115 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402115KFKED	Vishay-Dale
R6	1	49.9	RES, 49.9, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040249R9FKED	Vishay-Dale
R7, R9	2	10	RES, 10.0, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040210R0FKED	Vishay-Dale
R8	1	8.06k	RES, 8.06 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04028K06FKED	Vishay-Dale
R10	1	9.31k	RES, 9.31 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW04029K31FKED	Vishay-Dale
R11	1	150k	RES, 150 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402150KFKED	Vishay-Dale
R12, R13, R14	3	102k	RES, 102 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW0402102KFKED	Vishay-Dale

Table 3-1. Bill of Materials (continued)

Designator	Qty	Value	Description	Package Reference	Part Number	Manufacturer
R15	1	11.3k	RES, 11.3 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040211K3FKED	Vishay-Dale
SH-JP1, SH-JP2, SH-JP3, SH-JP4	4		Shunt, 100mil, Gold plated, Black	Shunt 2 pos. 100 mil	881545-2	TE Connectivity
TP1, TP2, TP3, TP4, TP5, TP6, TP7	7		Test Point, Miniature, Orange, TH	Orange Miniature Testpoint	5003	Keystone Electronics
U1	1		Automotive, 36-V, 4-Switch, Integrated Buck-boost Converter	VQFN21	TPS552872RYQR	Texas Instruments
C1, C2	0	2200 pF	CAP, CERM, 2200 pF, 250 V, +/- 10%, X7R, 0805	0805	GRM21AR72E222KW01D	MuRata
C20, C21	0	22 µF	Cap Ceramic 22uF 25 V X7R 20% Pad SMD 1210 +125°C Automotive T/R	1210	CGA6P3X7R1E226M250AB	TDK
C22	0	100uF	CAP, AL, 100 uF, 35 V, AEC-Q200 Grade 2, SMD	D6.3xL5.8mm	EEHZK1V101XP	Panasonic
C32	0	100 pF	CAP, CERM, 100 pF, 50 V, +/- 5%, C0G/NP0, AEC-Q200 Grade 1, 0402	0402	CGA2B2C0G1H101J050BA	TDK
FID1, FID2, FID3	0		Fiducial mark. There is nothing to buy or mount.	N/A	N/A	N/A
R1, R2	0	2.2	RES, 2.20, 1%, 0.25 W, AEC-Q200 Grade 0, 1206	1206	ERJ-8RQF2R2V	Panasonic
R16	0	10.0k	RES, 10.0 k, 1%, 0.063 W, AEC-Q200 Grade 0, 0402	0402	CRCW040210K0FKED	Vishay-Dale

4 Additional Information

Trademarks

All trademarks are the property of their respective owners.

STANDARD TERMS FOR EVALUATION MODULES

1. *Delivery:* TI delivers TI evaluation boards, kits, or modules, including any accompanying demonstration software, components, and/or documentation which may be provided together or separately (collectively, an "EVM" or "EVMs") to the User ("User") in accordance with the terms set forth herein. User's acceptance of the EVM is expressly subject to the following terms.
 - 1.1 EVMs are intended solely for product or software developers for use in a research and development setting to facilitate feasibility evaluation, experimentation, or scientific analysis of TI semiconductors products. EVMs have no direct function and are not finished products. EVMs shall not be directly or indirectly assembled as a part or subassembly in any finished product. For clarification, any software or software tools provided with the EVM ("Software") shall not be subject to the terms and conditions set forth herein but rather shall be subject to the applicable terms that accompany such Software
 - 1.2 EVMs are not intended for consumer or household use. EVMs may not be sold, sublicensed, leased, rented, loaned, assigned, or otherwise distributed for commercial purposes by Users, in whole or in part, or used in any finished product or production system.
2. *Limited Warranty and Related Remedies/Disclaimers:*
 - 2.1 These terms do not apply to Software. The warranty, if any, for Software is covered in the applicable Software License Agreement.
 - 2.2 TI warrants that the TI EVM will conform to TI's published specifications for ninety (90) days after the date TI delivers such EVM to User. Notwithstanding the foregoing, TI shall not be liable for a nonconforming EVM if (a) the nonconformity was caused by neglect, misuse or mistreatment by an entity other than TI, including improper installation or testing, or for any EVMs that have been altered or modified in any way by an entity other than TI, (b) the nonconformity resulted from User's design, specifications or instructions for such EVMs or improper system design, or (c) User has not paid on time. Testing and other quality control techniques are used to the extent TI deems necessary. TI does not test all parameters of each EVM. User's claims against TI under this Section 2 are void if User fails to notify TI of any apparent defects in the EVMs within ten (10) business days after delivery, or of any hidden defects with ten (10) business days after the defect has been detected.
 - 2.3 TI's sole liability shall be at its option to repair or replace EVMs that fail to conform to the warranty set forth above, or credit User's account for such EVM. TI's liability under this warranty shall be limited to EVMs that are returned during the warranty period to the address designated by TI and that are determined by TI not to conform to such warranty. If TI elects to repair or replace such EVM, TI shall have a reasonable time to repair such EVM or provide replacements. Repaired EVMs shall be warranted for the remainder of the original warranty period. Replaced EVMs shall be warranted for a new full ninety (90) day warranty period.

WARNING

Evaluation Kits are intended solely for use by technically qualified, professional electronics experts who are familiar with the dangers and application risks associated with handling electrical mechanical components, systems, and subsystems.

User shall operate the Evaluation Kit within TI's recommended guidelines and any applicable legal or environmental requirements as well as reasonable and customary safeguards. Failure to set up and/or operate the Evaluation Kit within TI's recommended guidelines may result in personal injury or death or property damage. Proper set up entails following TI's instructions for electrical ratings of interface circuits such as input, output and electrical loads.

NOTE:

EXPOSURE TO ELECTROSTATIC DISCHARGE (ESD) MAY CAUSE DEGRADATION OR FAILURE OF THE EVALUATION KIT; TI RECOMMENDS STORAGE OF THE EVALUATION KIT IN A PROTECTIVE ESD BAG.

3 Regulatory Notices:

3.1 United States

3.1.1 Notice applicable to EVMs not FCC-Approved:

FCC NOTICE: This kit is designed to allow product developers to evaluate electronic components, circuitry, or software associated with the kit to determine whether to incorporate such items in a finished product and software developers to write software applications for use with the end product. This kit is not a finished product and when assembled may not be resold or otherwise marketed unless all required FCC equipment authorizations are first obtained. Operation is subject to the condition that this product not cause harmful interference to licensed radio stations and that this product accept harmful interference. Unless the assembled kit is designed to operate under part 15, part 18 or part 95 of this chapter, the operator of the kit must operate under the authority of an FCC license holder or must secure an experimental authorization under part 5 of this chapter.

3.1.2 For EVMs annotated as FCC – FEDERAL COMMUNICATIONS COMMISSION Part 15 Compliant:

CAUTION

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Interference Statement for Class A EVM devices

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Interference Statement for Class B EVM devices

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- 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.

3.2 Canada

3.2.1 For EVMs issued with an Industry Canada Certificate of Conformance to RSS-210 or RSS-247

Concerning EVMs Including Radio Transmitters:

This device complies with Industry Canada license-exempt RSSs. Operation is subject to the following two conditions:

(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Concernant les EVMs avec appareils radio:

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Concerning EVMs Including Detachable Antennas:

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication. This radio transmitter has been approved by Industry Canada to operate with the antenna types listed in the user guide with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Concernant les EVMs avec antennes détachables

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante. Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés dans le manuel d'usage et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

3.3 Japan

3.3.1 *Notice for EVMs delivered in Japan:* Please see http://www.tij.co.jp/lstds/ti_ja/general/eStore/notice_01.page 日本国内に輸入される評価用キット、ボードについては、次のところをご覧ください。

<https://www.ti.com/ja-jp/legal/notice-for-evaluation-kits-delivered-in-japan.html>

3.3.2 *Notice for Users of EVMs Considered "Radio Frequency Products" in Japan:* EVMs entering Japan may not be certified by TI as conforming to Technical Regulations of Radio Law of Japan.

If User uses EVMs in Japan, not certified to Technical Regulations of Radio Law of Japan, User is required to follow the instructions set forth by Radio Law of Japan, which includes, but is not limited to, the instructions below with respect to EVMs (which for the avoidance of doubt are stated strictly for convenience and should be verified by User):

1. Use EVMs in a shielded room or any other test facility as defined in the notification #173 issued by Ministry of Internal Affairs and Communications on March 28, 2006, based on Sub-section 1.1 of Article 6 of the Ministry's Rule for Enforcement of Radio Law of Japan,
2. Use EVMs only after User obtains the license of Test Radio Station as provided in Radio Law of Japan with respect to EVMs, or
3. Use of EVMs only after User obtains the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to EVMs. Also, do not transfer EVMs, unless User gives the same notice above to the transferee. Please note that if User does not follow the instructions above, User will be subject to penalties of Radio Law of Japan.

【無線電波を送信する製品の開発キットをお使いになる際の注意事項】 開発キットの中には技術基準適合証明を受けていないものがあります。技術適合証明を受けていないものご使用に際しては、電波法遵守のため、以下のいずれかの措置を取っていただく必要がありますのでご注意ください。

1. 電波法施行規則第6条第1項第1号に基づく平成18年3月28日総務省告示第173号で定められた電波暗室等の試験設備でご使用いただく。
2. 実験局の免許を取得後ご使用いただく。
3. 技術基準適合証明を取得後ご使用いただく。

なお、本製品は、上記の「ご使用にあたっての注意」を譲渡先、移転先に通知しない限り、譲渡、移転できないものとします。

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3.3.3 *Notice for EVMs for Power Line Communication:* Please see http://www.tij.co.jp/lstds/ti_ja/general/eStore/notice_02.page

電力線搬送波通信についての開発キットをお使いになる際の注意事項については、次のところをご覧ください。 <https://www.ti.com/ja-jp/legal/notice-for-evaluation-kits-for-power-line-communication.html>

3.4 European Union

3.4.1 *For EVMs subject to EU Directive 2014/30/EU (Electromagnetic Compatibility Directive):*

This is a class A product intended for use in environments other than domestic environments that are connected to a low-voltage power-supply network that supplies buildings used for domestic purposes. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

-
- 4 *EVM Use Restrictions and Warnings:*
 - 4.1 EVMS ARE NOT FOR USE IN FUNCTIONAL SAFETY AND/OR SAFETY CRITICAL EVALUATIONS, INCLUDING BUT NOT LIMITED TO EVALUATIONS OF LIFE SUPPORT APPLICATIONS.
 - 4.2 User must read and apply the user guide and other available documentation provided by TI regarding the EVM prior to handling or using the EVM, including without limitation any warning or restriction notices. The notices contain important safety information related to, for example, temperatures and voltages.
 - 4.3 *Safety-Related Warnings and Restrictions:*
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