

Wearable Wireless Power EVM User's Guide

TSWITX-12V-EVM



www.semtech.com

Evaluation Board User's Guide

Description

TS51231 is a transmitter driver and output stage for wireless charging applications. It can support systems up to 5W output. Switching of the TS51231 is controlled by the wireless power transmitter controller (TS80002 or similar). TS51231 Tx EVM is a transmission evaluation board for wearable application. All the necessary function components occupy a 10mmX13mm of PCB area.

The wireless power Rx board should be work together with Tx board. The maximum output power of Rx EVM is 2W at 5V.

Jumper introduction

1. Tx board is rectangle and Rx board circler;
2. J1 on Tx board is input port and J1 on Rx board output port;
3. Short J2 jumper on Rx board can light LED1 to indicate output voltage, J2 should be open when conducting efficiency testing;

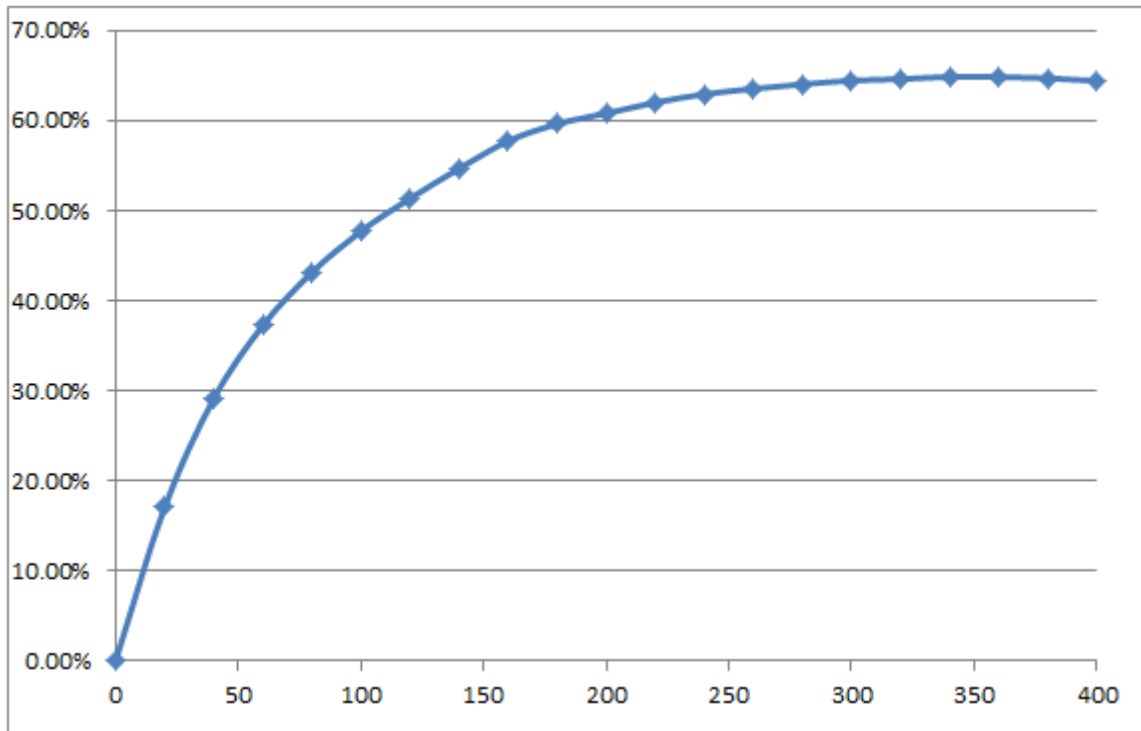
Operation Instruction

1. Connect 12Vin into J1 of Tx board;
2. On Rx Board, Connect e-load to J1 between VOUT+ and GND;
3. Set the required output current (0A-400mA) with electrical loads in CC mode;
4. place Rx board onto the top of Tx board, aligning to the circular edge; In order to get the maximum output power and efficiency, Rx board must be located right above the Tx coil and the space between Tx & Rx coils should be ~4mm.

Efficiency

Evaluation Board User's Guide

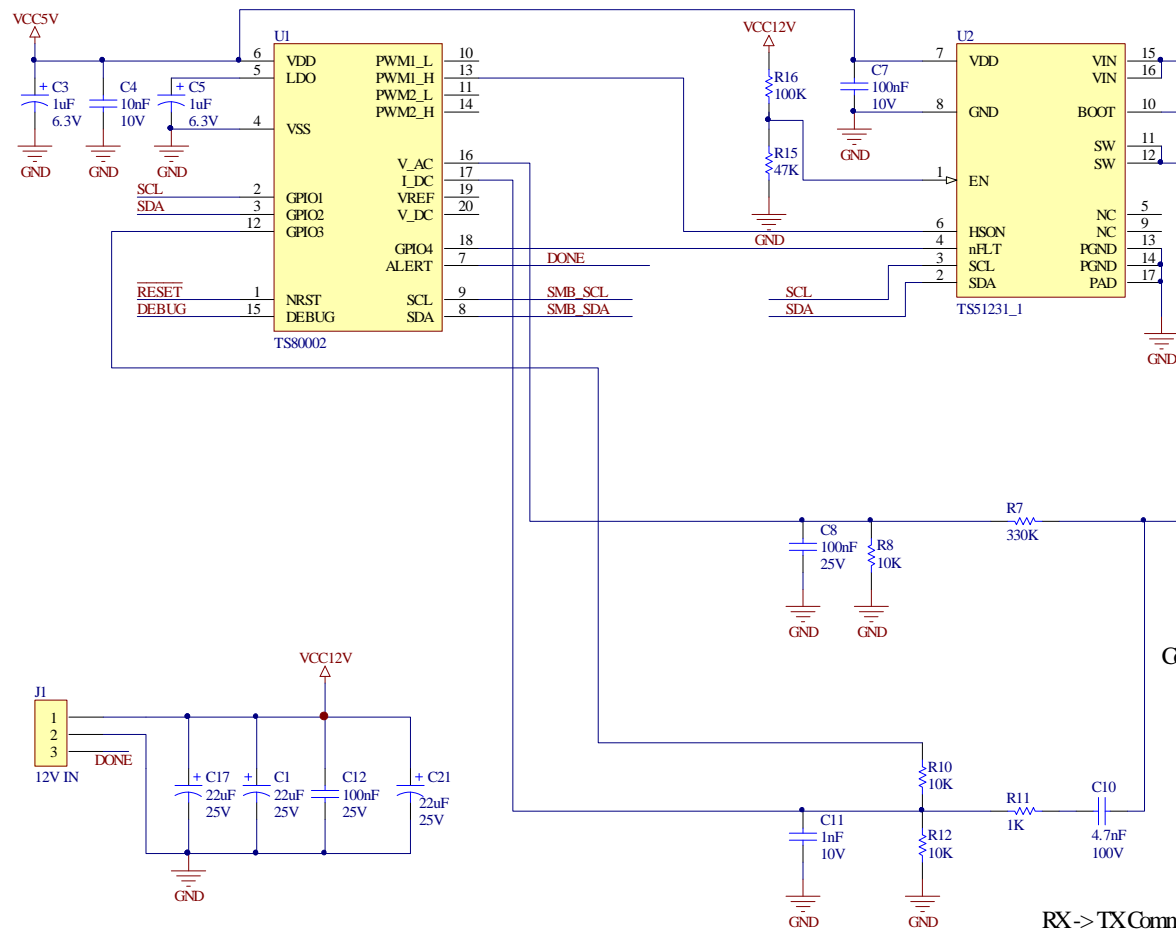
efficiency Vs Load



TSWIRX-5V2-EVM on TSWITX-12V-EVM

Evaluation Board User's Guide

Schematic



RX -> TX Conn

Evaluation Board User's Guide

Bill of Materials

| Designator | Comment | Value | Value2 | Footprint | LibRef | Quantity |
|--------------|-------------------------------------|-------|--------|-------------------------|----------------------|----------|
| C1, C17, C21 | Cap | 22uF | 25V | CAPC0805L | Cap Pol | 3 |
| C2, C12 | Cap | 100nF | 25V | CAPC0402L | Cap | 2 |
| C3, C5 | Cap | 1uF | 6.3V | CAPC0402L | Cap Pol | 2 |
| C4 | Cap | 10nF | 10V | CAPC0402L | Cap | 1 |
| C6, C16 | Cap C0G | 2.2nF | 50V | CAPC0805L | Cap | 2 |
| C7, C8 | Cap | 100nF | 25V | CAPC0402L | Cap | 2 |
| C9 | Cap X7R | 1nF | 100V | CAPC0603L | Cap | 1 |
| C10 | Cap X7R | 4.7nF | 100V | CAPC0603L | Cap | 1 |
| C11 | Cap | 1nF | 25V | CAPC0402L | Cap | 1 |
| C18 | Cap | 22nF | 25V | CAPC0402L | Cap | 1 |
| C19 | Cap C0G | NP | | CAPC0603L | Cap | 1 |
| Coil | Y31-60182F, WT292965-12K2- TS | | | OD 29mm | | 1 |
| D1 | 1SS400T1G | 200V | | SOD523-L | Diode | 1 |
| J1 | 12V IN | | | SIP3A | CON3, 2.54mm,1*3p | 1 |
| R7 | Res | 330K | | RESC0402L | Res | 1 |
| R9 | Res | 1K | | RESC0603L | Res | 1 |
| R11 | Res | 1K | | RESC0402L | Res | 1 |
| R10, R12,R8 | Res | 10K | | RESC0402L | Res | 2 |
| R15 | Res | 47K | | RESC0402L | Res | 1 |
| R16 | Res | 100K | | RESC0402L | Res | 1 |
| U1 | TS80002 | | | UFQFPN50P300X300-20VN | TS80002-QFN | 1 |
| U2 | TS51231 | | | QFN50P300X300-16V6-165N | TS51231 | 1 |

Evaluation Board User's Guide

EVB Layout layers

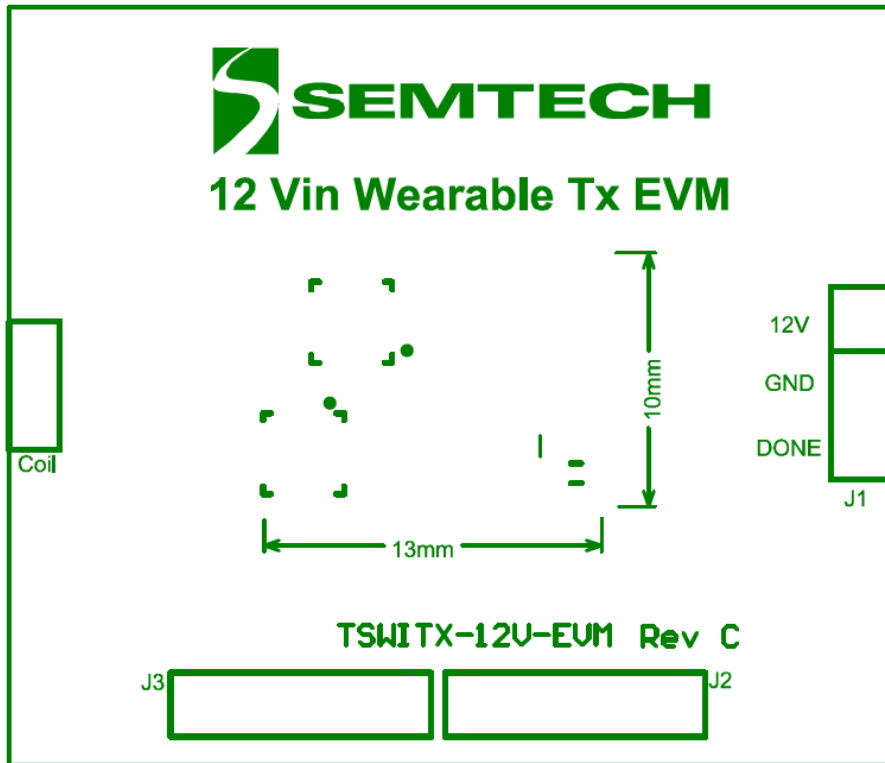


Figure 2: Silk screen top layer

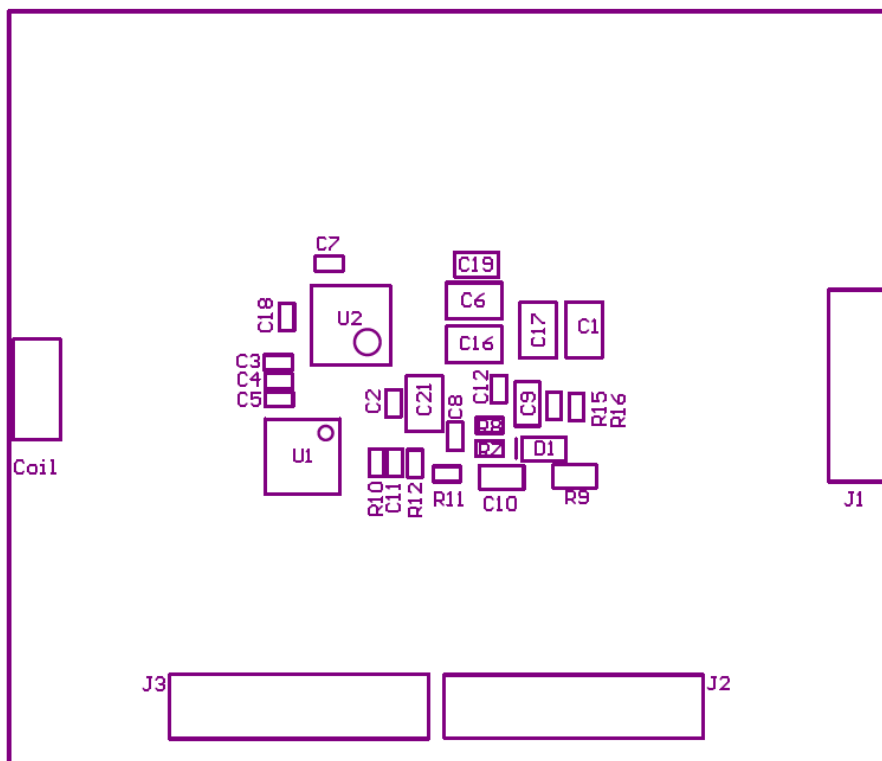


Figure 3: Mechanical13 layer

Evaluation Board User's Guide

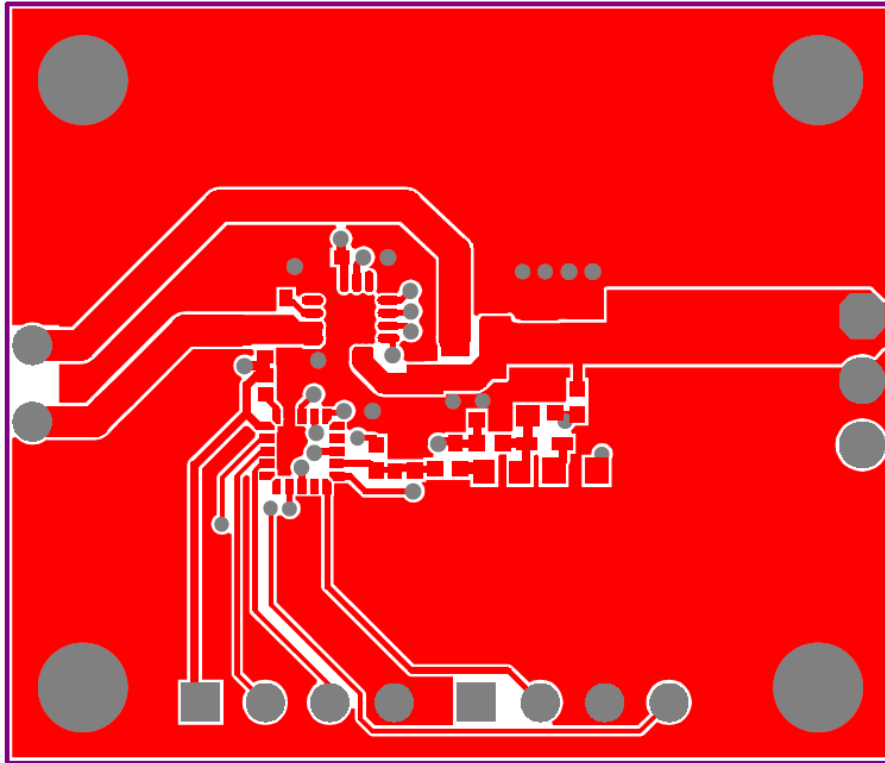


Figure 4: Top layer

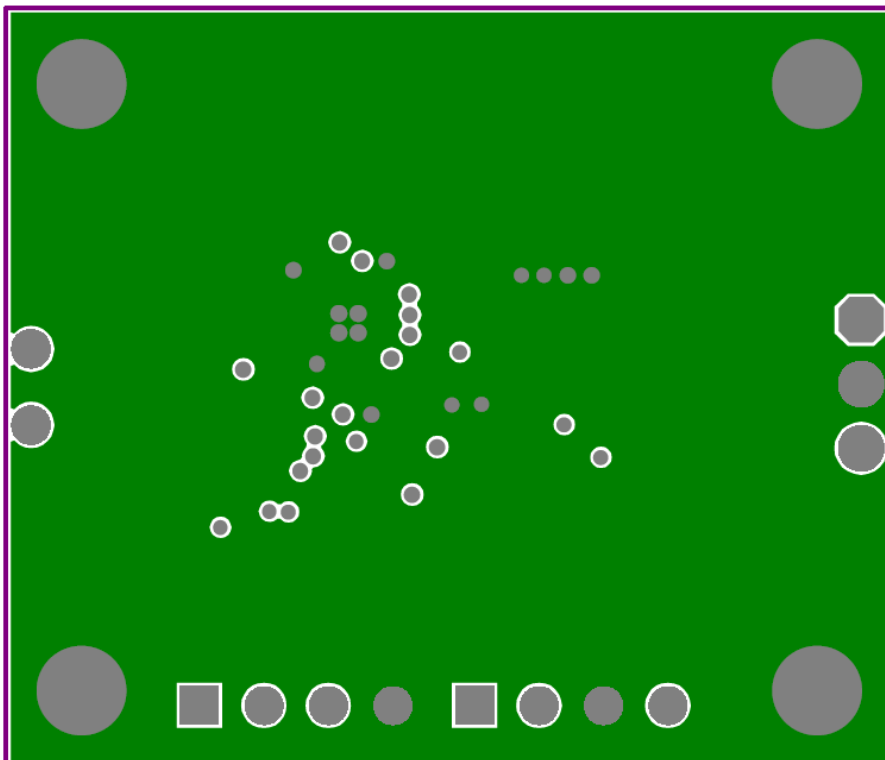


Figure 5: Ground layer

Evaluation Board User's Guide

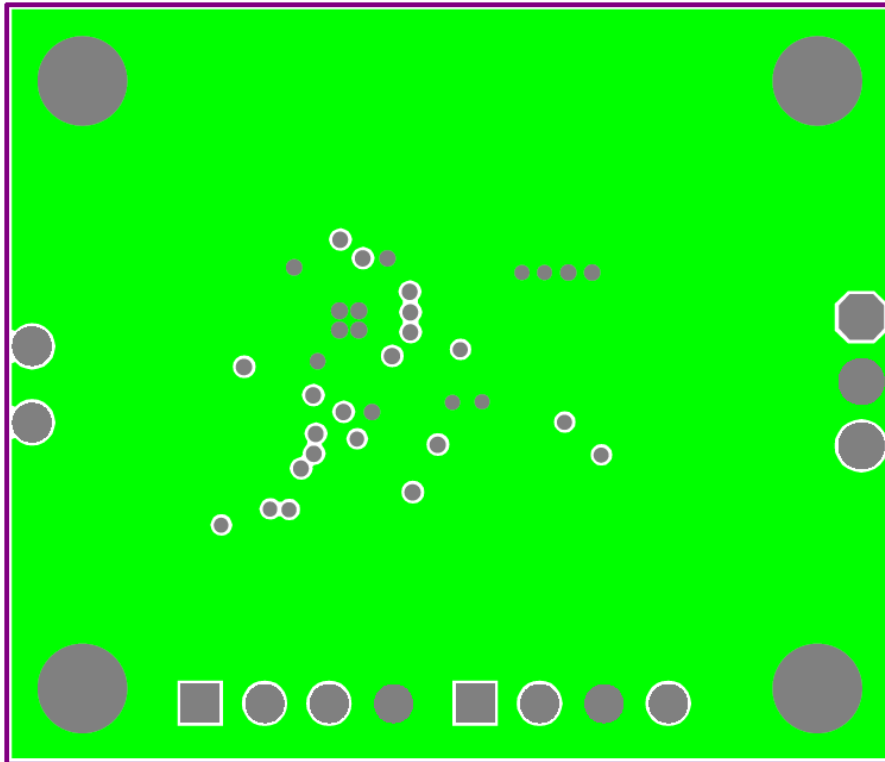


Figure 6: Signal layer

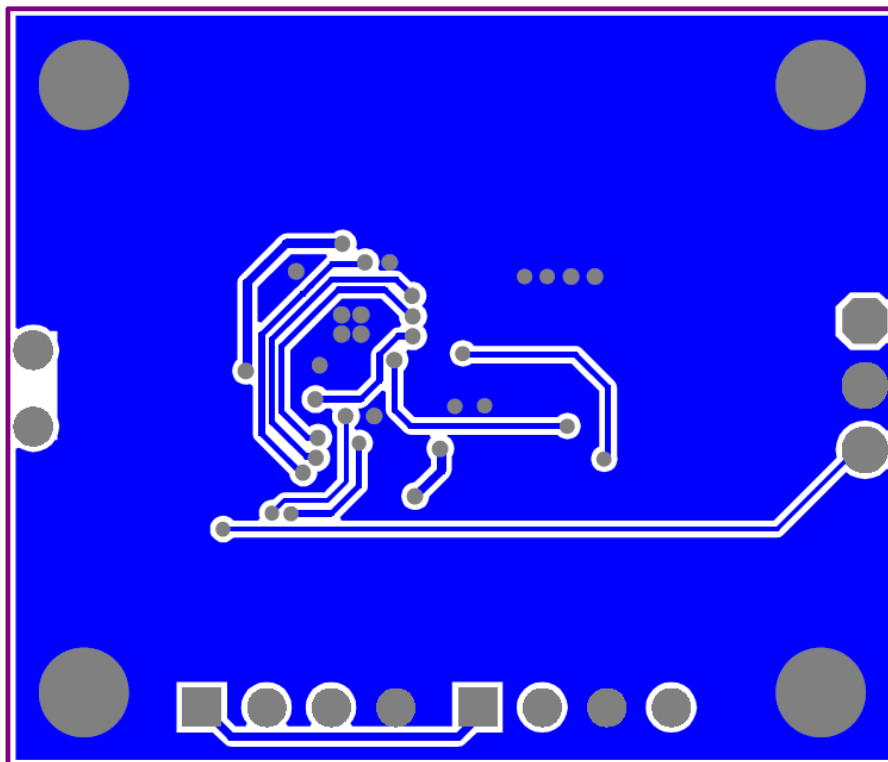


Figure 7: Bottom layer

Evaluation Board User's Guide

All Design files for this EVB are available. Please call Semtech.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Power Management IC Development Tools](#) category:

Click to view products by [Semtech](#) manufacturer:

Other Similar products are found below :

[EVAL-ADM1168LQEBZ](#) [EVB-EP5348UI](#) [MIC23451-AAAYFL EV](#) [MIC5281YMME EV](#) [DA9063-EVAL](#) [ADP122-3.3-EVALZ](#) [ADP130-0.8-EVALZ](#) [ADP130-1.2-EVALZ](#) [ADP130-1.5-EVALZ](#) [ADP130-1.8-EVALZ](#) [ADP1714-3.3-EVALZ](#) [ADP1716-2.5-EVALZ](#) [ADP1740-1.5-EVALZ](#) [ADP1752-1.5-EVALZ](#) [ADP1828LC-EVALZ](#) [ADP1870-0.3-EVALZ](#) [ADP1871-0.6-EVALZ](#) [ADP1873-0.6-EVALZ](#) [ADP1874-0.3-EVALZ](#) [ADP1882-1.0-EVALZ](#) [ADP199CB-EVALZ](#) [ADP2102-1.25-EVALZ](#) [ADP2102-1.875EVALZ](#) [ADP2102-1.8-EVALZ](#) [ADP2102-2-EVALZ](#) [ADP2102-3-EVALZ](#) [ADP2102-4-EVALZ](#) [ADP2106-1.8-EVALZ](#) [ADP2147CB-110EVALZ](#) [AS3606-DB](#) [BQ24010EVM](#) [BQ24075TEVM](#) [BQ24155EVM](#) [BQ24157EVM-697](#) [BQ24160EVM-742](#) [BQ24296MEVM-655](#) [BQ25010EVM](#) [BQ3055EVM](#) [NCV891330PD50GEVB](#) [ISLUSBI2CKIT1Z](#) [LM2744EVAL](#) [LM2854EVAL](#) [LM3658SD-AEV/NOPB](#) [LM3658SDEV/NOPB](#) [LM3691TL-1.8EV/NOPB](#) [LM4510SDEV/NOPB](#) [LM5033SD-EVAL](#) [LP38512TS-1.8EV](#) [EVAL-ADM1186-1MBZ](#) [EVAL-ADM1186-2MBZ](#)