*User's Guide*

# *TPS25946EVM: Evaluation Module for TPS25946 eFuse*

TEXAS INSTRUMENTS

**ABSTRACT**

This user's guide describes the evaluation module (EVM) for the variants of TPS25946 eFuse family. The TPS25946 device is a 2.7 V to 23 V, 5.5-A eFuse with integrated 28.3-mΩ FET. The TPS25946 family of eFuses have reverse current protection when disabled, bi-directional current flowing capability when enabled, adjustable overcurrent, inrush current, short-circuit, overtemperature protections, adjustable overcurrent transient blanking timer, adjustable undervoltage and overvoltage protections, and user defined output slew rate control.

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## Trademarks

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# 1 Introduction

The *TPS25946EVM eFuse Evaluation Board* allows reference circuit evaluation of Texas Instruments (TI) TPS25946 eFuse. The TPS25946 device is a 2.7 V to 23 V, 5.5-A eFuse with integrated 28.3-mΩ FET.
The TPS25946 family of eFuses have reverse current protection when disabled, bi-directional current flowing capability when enabled, adjustable overcurrent, inrush current, short-circuit, overtemperature protections, adjustable overcurrent transient blanking timer, adjustable undervoltage and overvoltage protections, and user defined output slew rate control.

## 1.1 EVM Features

General TPS25946EVM eFuse evaluation board features include:

- 2.7-V to 23-V (typ.) operation
- 0.5-A to 6-A programmable current limit using onboard jumpers
- Adjustable output voltage slew rate control
- Adjustable transient current blanking timer
- Adjustable current limit
- TVS diode for both input and output transient protection
- On-board Schottky diode at output prevents negative spike during overcurrent faults
- LED status for Power Good indication

## 1.2 EVM Applications

This EVM can be used on the following applications:

- Smart phones
- Tablets
- USB On-The-Go (OTG)
- POS terminals
- Digital camera

# 2 Description

The TPS25946EVM eFuse Evaluation Board enables the evaluation of TPS259460x and TPS259461x eFuses from TPS25946 family. This EVM comes with adjustable ITimer, dVdt, ILM, and PGTH settings. The input power is applied at connector J1, while J2 provides the output connection for the EVM; refer to the schematic in Figure 3-1, and EVM test setup in Figure 5-1. TVS diodes U2 and U3 provide input protection from transient overvoltages, while Schottky diode D2 provides output protection for the TPS25946. TVS diode U3 is useful to protect the device during transient caused by short circuit at the connector J1 when power is flowing from OUT (Connector J2) to IN (Connector J1).

S1 allows U1 to be RESET or disabled. A Power Good (PG) indicator is provided by a LED D3. Scaled device current can be monitored at TP8 with a factor of 0.13 V/A.

**Table 2-1. TPS25946EVM eFuse Evaluation Board Options and Setting**

| EVM Function | Vin UVLO Threshold | Vin OVLO Threshold | ITimer | Output Slew Rate (dv/dt) | Power Good Threshold (PGTH) | Current Limit | |
|---|---|---|---|---|---|---|---|
| | | | | | | Low Setting | High Setting |
| Performance evaluation of TPS25946, 2.7 V to 23 V, 5.5-A eFuse | 10.83 V | 16.38 V | Selectable - 183 µs, 1.83 ms, and 18.3 ms | Selectable - 0.6 mV/µs, 0.2 mV/µs, and 0.09 mV/µs | Selectable - With respect to Input (VIN) and Output (VOUT) | 0.5 A | 6 A |

# 3 Schematic

Figure 3-1 illustrates the EVM schematic.

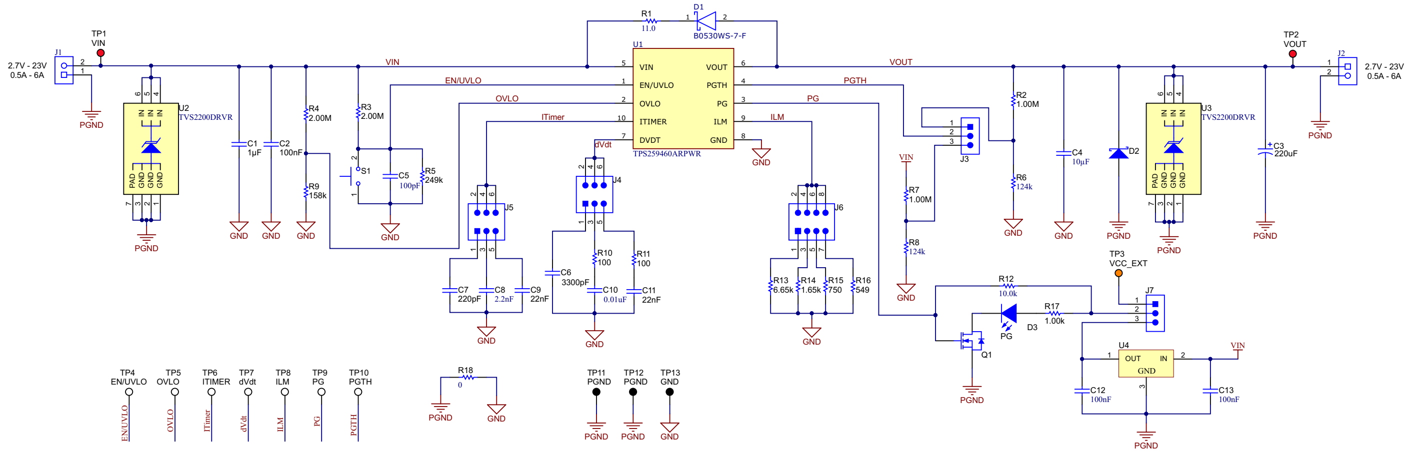


**Figure 3-1. TPS25946EVM eFuse Evaluation Board Schematic**

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**Note**

In order to evaluate the performance of TPS259461x variants, the jumper J3 needs to be at 2-3 position and the values of resistors R7 and R8 must be selected in such a way that voltage across the resistance, R8, is 3.3 V for a given input voltage of VIN. During the performance evaluation of TPS259461x variants, AUXOFF and $\overline{\text{FLT}}$ signals can be probed at the test points TP9 and TP10 respectively.

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# 4 General Configurations

## 4.1 Physical Access

Table 4-1 lists the TPS25946EVM eFuse Evaluation Board input and output connectors functionalities. Table 4-2 and Table 4-3 describe the availability of test points and the functionalities of the jumpers. Table 4-4 presents the function of the signal LED.

**Table 4-1. Input and Output Connector Functionality**

| Connector | Label | Description |
|---|---|---|
| J1 | VIN (+), PGND (–) | Intput Power to the eFuse |
| J2 | VOUT (+), PGND (–) | Output Power from the eFuse |

**Table 4-2. Test Points Description**

| Test Points | Label | Description |
|---|---|---|
| TP1 | VIN | Input voltage |
| TP2 | VOUT | Output voltage |
| TP3 | VCC_EXT | External VCC voltage for Power Good indicator |
| TP4 | EN/UVLO | EN/UVLO signal |
| TP5 | OVLO | OVLO signal |
| TP6 | ITimer | ITimer signal |
| TP7 | dVdt | Output voltage ramp control |
| TP8 | ILM | Current limit and monitor signal |
| TP9 | PG | Power Good signal |
| TP10 | PGTH | Power Good threshold signal |
| TP11 and TP12 | PGND | Power GND signal |
| TP13 | GND | IC GND signal |

**Table 4-3. Jumper Descriptions and Default Positions**

<table>
<tr><th>Jumper</th><th>Label</th><th>Description</th><th>Default Jumper Position</th></tr>
<tr><td rowspan="2">J3[1]</td><td rowspan="2">PGTH Selection for TPS259460x variants</td><td>1-2 PGTH is respect to VOUT</td><td rowspan="2">1-2</td></tr>
<tr><td>2-3 PGTH is respect to VIN</td></tr>
<tr><td rowspan="3">J4</td><td rowspan="3">dVdt</td><td>1-2 Position sets Output Slew Rate to 0.6 mV/μs</td><td rowspan="3">3-4</td></tr>
<tr><td>3-4 Position sets Output Slew Rate to 0.2 mV/μs</td></tr>
<tr><td>5-6 Position sets Output Slew Rate to 0.09 mV/μs</td></tr>
<tr><td rowspan="3">J5</td><td rowspan="3">ITimer</td><td>1-2 Position sets the transient current blanking period to 183 μs</td><td rowspan="3">3-4</td></tr>
<tr><td>3-4 Position sets the transient current blanking period to 1.83 ms</td></tr>
<tr><td>5-6 Position sets the transient current blanking period to 18.3 ms</td></tr>
<tr><td rowspan="4">J6</td><td rowspan="4">ILM</td><td>1-2 Position sets the current limit to 0.5 A</td><td rowspan="4">7-8</td></tr>
<tr><td>3-4 Position sets the current limit to 2 A</td></tr>
<tr><td>5-6 Position sets the current limit to 4.5 A</td></tr>
<tr><td>7-8 Position sets the current limit to 6 A</td></tr>
<tr><td rowspan="2">J7</td><td rowspan="2">VCC Connection</td><td>1-2 Position connects external voltage, VCC_EXT as reference for PG</td><td rowspan="2">2-3</td></tr>
<tr><td>2-3 Position connects on board generated voltage, VCC as reference for PG</td></tr>
</table>

(1) In order to evaluate the performance of TPS259461x variants, the jumper J3 needs to be at 2-3 position.

**Table 4-4. LED Descriptions**

| LED | Description |
|---|---|
| D3 | When ON, indicates that PG is asserted |

## 4.2 Test Equipment and Set up

### 4.2.1 POWER SUPPLIES

One adjustable power supply 0-V to 30-V output and 0-A to 10-A output current limit.

### 4.2.2 METERS

Minimum a Digital Multi Meter (DMM) needed.

### 4.2.3 OSCILLOSCOPE

A DPO2024 or equivalent, three 10x voltage probes, and a DC current probe.

### 4.2.4 LOADS

One resistive load or equivalent which can tolerate up to 10-A DC load at 24 V and capable of the output short.

# 5 Test Setup and Procedures

In this user's guide, the test procedure is described for TPS259460A and TPS259460L devices. Make sure the evaluation board has default jumper settings as shown in Table 5-1.

**Table 5-1. Default Jumper Setting for TPS25946EVM eFuse Evaluation Board**

| J3 | J4 | J5 | J6 | J7 |
|---|---|---|---|---|
| 1-2 | 3-4 | 3-4 | 7-8 | 2-3 |

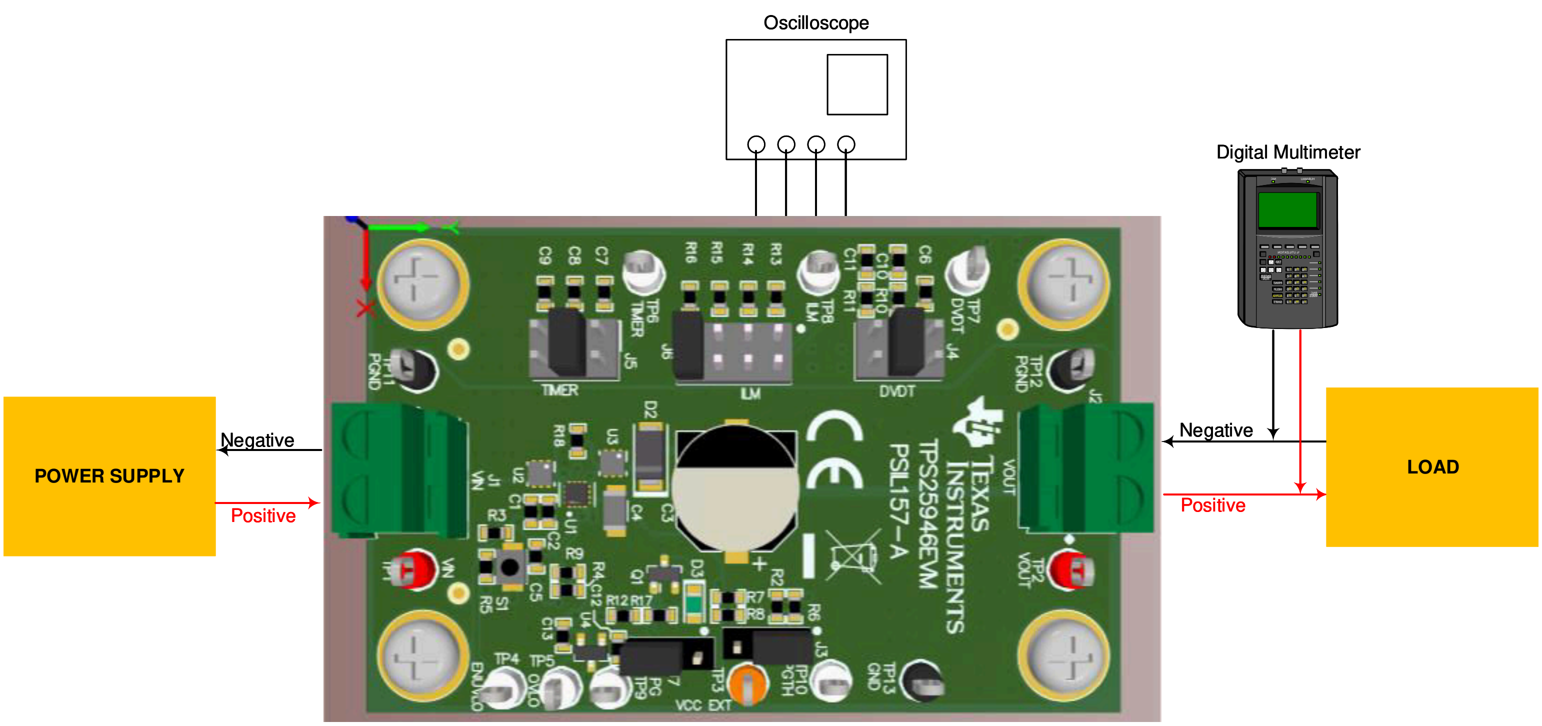


**Figure 5-1. TPS25946EVM Setup with Test Equipment**

Follow these instructions before starting any test and repeat again before moving to next test:

- Set the power supply output (VIN) to zero volts.
- Turn ON the power supply and set the power supply output (VIN) to 12 V, current limit of 10 A.
- Turn OFF the power supply.
- Set the jumper setting on EVM to default positions as shown in Table 5-1.

## 5.1 Hot Plug Test

Use the following instructions to measure the inrush current during hot plug event:

1. Set Jumper J4 position to desired slew rate as mentioned in Table 4-3.
2. Set the input supply voltage VIN to 12 V and current limit of 10 A. Enable the power supply.
3. Hot plug the supply between VIN and PGND points of connector J1.
4. Observe the waveforms at VOUT (TP2) and input current with an oscilloscope to measure the slew rate and rise time of the eFuse with a given input voltage of 12 V.

Figure 5-2 and Figure 5-3 show the examples of inrush current captured on the TPS25946EVM eFuse Evaluation Board during hot plug event using TPS259460x and TPS259461x variants respectively.

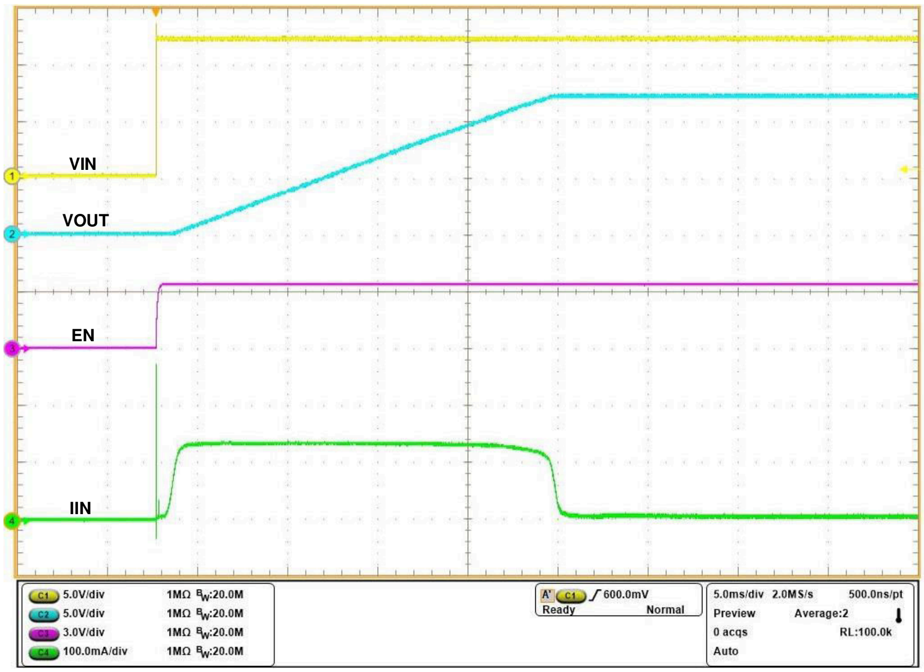


**Figure 5-2. TPS259460x Hot Plug Profile (VIN = 12 V, Cout = 220 µF, CdVdt = 3300 pF, No Load)**

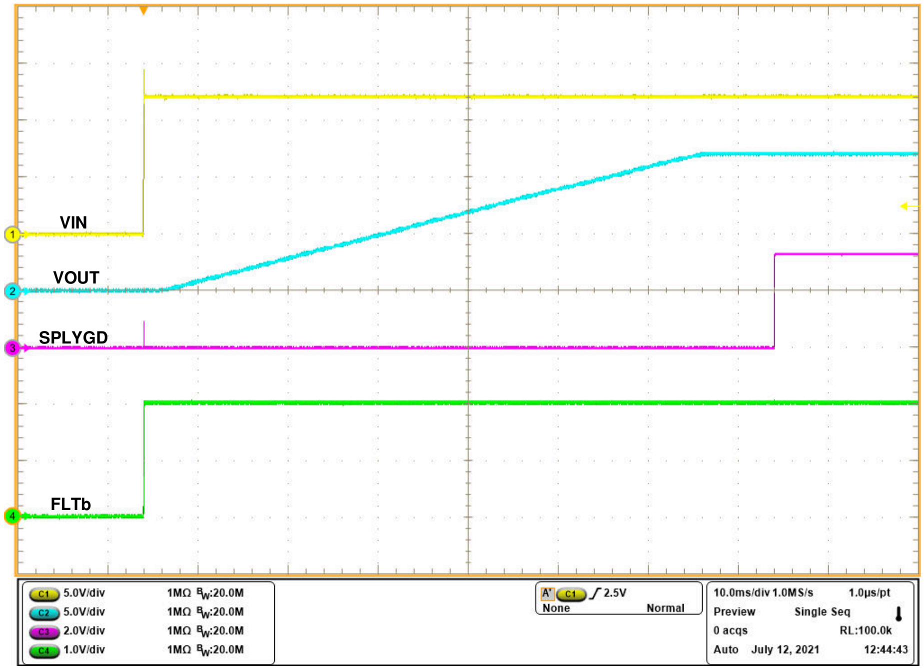


**Figure 5-3. TPS259461x Hot Plug Profile (VIN = 12 V, Cout = 220 µF, CdVdt = 10 nF, No Load)**

## 5.2 Startup With a Combination of Capacitive and Resistive Loads

Use the following instructions to power-up the TPS259460x and TPS259461x eFuses with capacitive and resistive loads:

1. Set Jumper J4 position to desired slew rate as mentioned in Table 4-3.
2. Set the input supply voltage VIN to 12 V and current limit of 10 A.
3. Connect a load of 5 Ω between VOUT and PGND points of connector J2.
4. Connect the input supply between VIN and PGND points of connector J1. Enable the power supply.
5. Observe the waveform at VOUT (TP2) and input current with an oscilloscope to measure the slew rate and rise time of the eFuse with a given input voltage of 12 V.

Figure 5-4 shows the startup profile of TPS25946 eFuse with a combination of capacitive and resistive loads.

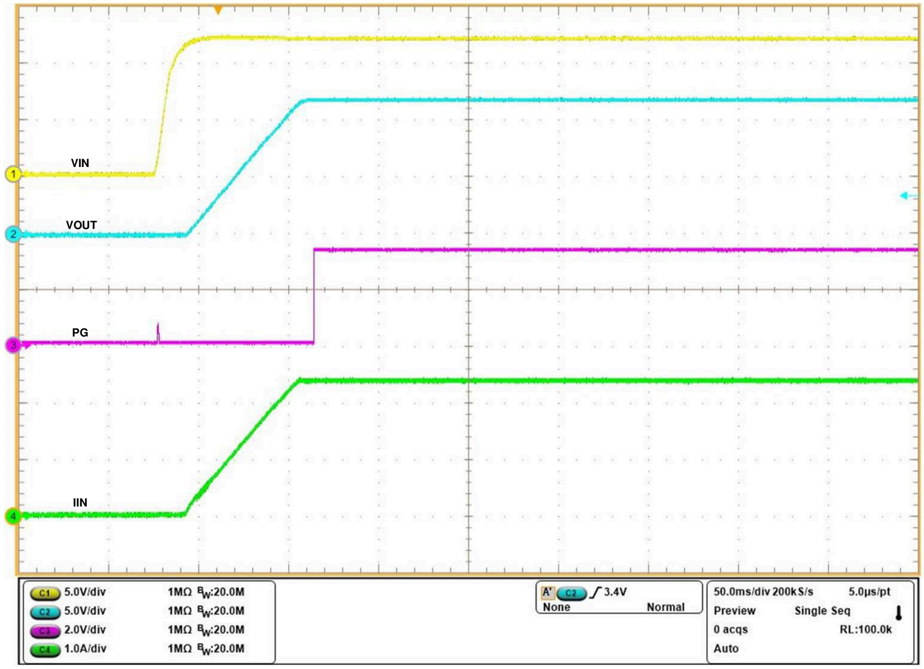


**Figure 5-4. TPS259460x Startup Profile With a Combination of Capacitive and Resistive Load (VIN = 12 V, Cout = 470 µF, Rout = 5 Ω, CdVdt = 3300 pF)**

## 5.3 Power-Up into Short Test

Use the following instructions to perform the power-up into short test:

1. Set the input supply voltage VIN to 12 V and current limit of 10 A. Keep the power supply OFF.
2. Short the output of the device. For example, VOUT to PGND with a shorter cable.
3. Keep the TPS25946 eFuse disabled by pushing the switch S1.
4. Turn ON the power supply.
5. Enable the TPS25946 eFuse by releasing the switch S1.

Figure 5-5 and Figure 5-6 show the test waveforms of power-up into output short on the TPS25946EVM eFuse Evaluation Board for TPS259460x and TPS259461x variants respectively.

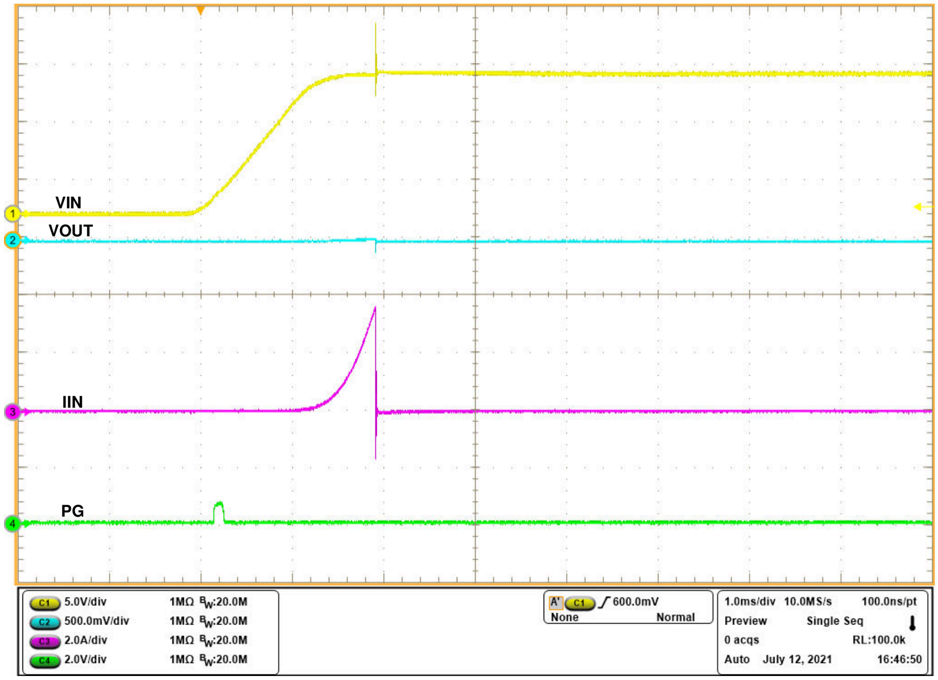


**Figure 5-5. Power-Up into Output Short Response of TPS259460x eFuse (VIN Stepped Up From 0 V to 12 V, RILM = 549 Ω, CITimer = 2.2 nF, OUT Shorted to PGND)**

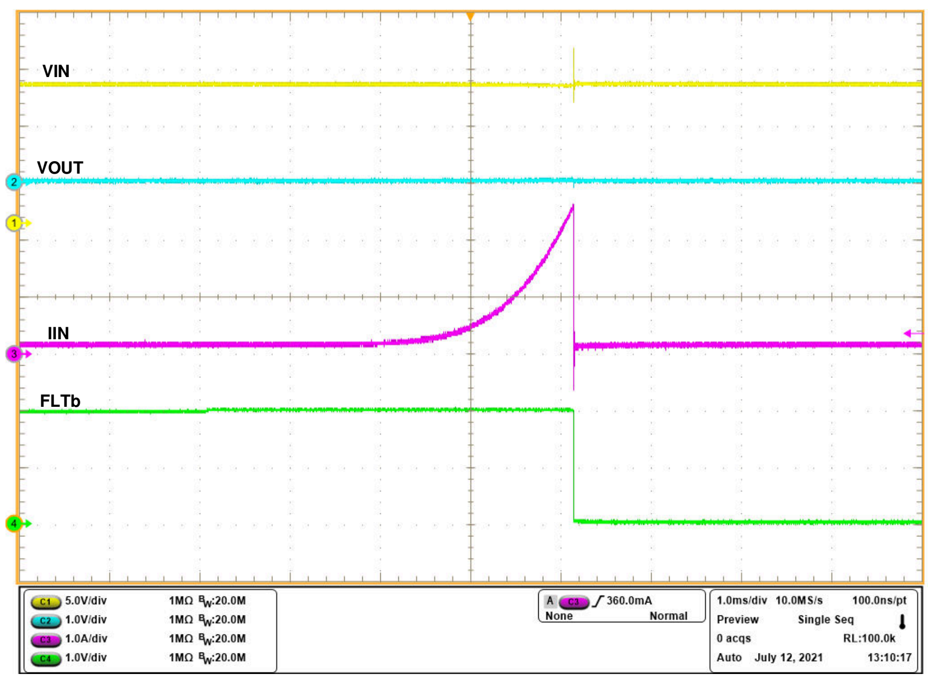


**Figure 5-6. Power-Up into Output Short Response of TPS259461x eFuse (VIN = 12 V, RILM = 549 Ω, CITimer = 2.2 nF, OUT Shorted to PGND, VEN/UVLO Stepped Up From 0 V to 1.3 V)**

## 5.4 Overvoltage Lockout Test

Use the following instructions to perform the overvoltage protection test:

1. Set the input supply voltage VIN to 12 V and current limit of 10 A. Apply the supply between VIN and PGND at connector J1 and enable the power supply.
2. Apply a load of 20 Ω between VOUT and PGND at connector J2.
3. Increase the input supply VIN from 12 V to 16 V, and observe the waveforms using an oscilloscope.

Figure 5-7 shows overvoltage lockout response of TPS25946 eFuse on TPS25946EVM eFuse Evaluation Board.

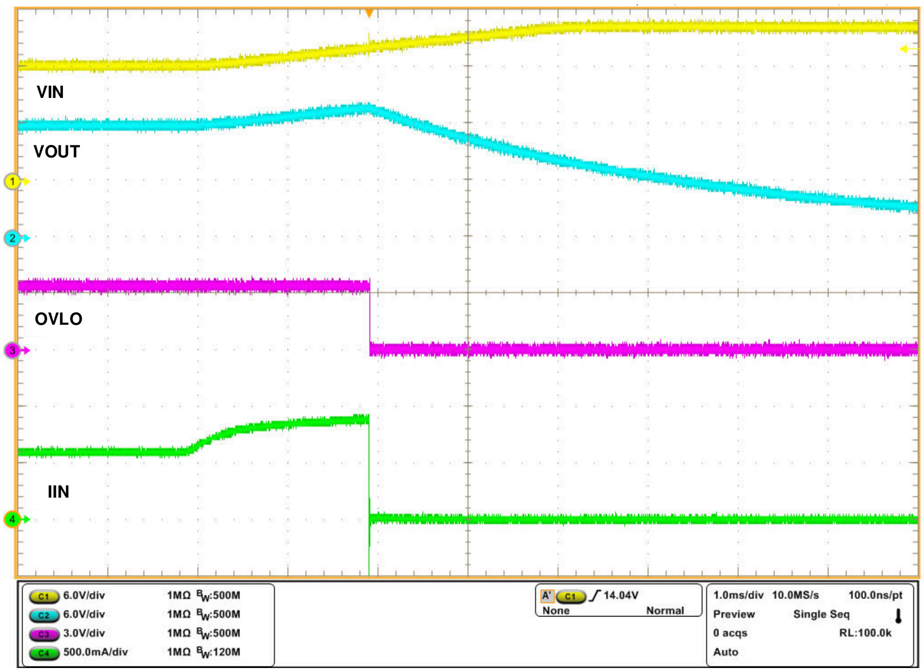


**Figure 5-7. Overvoltage Lockout Response of TPS25946 eFuse (VIN Ramped Up From 12 V to 16 V, Cout = 220 µF, Rout = 20 Ω, VIN Overvoltage Lockout Threshold Set to 13.2 V)**

## 5.5 Transient Overload Performance

Use the following instructions to observe the transient overload performance:

1. Place jumper J5 to an appropriate position to obtain required blanking period as per Table 4-3.
2. Place jumper J6 in a suitable position to set required current limit as per Table 4-3.
3. Set the input supply voltage VIN to 12 V and current limit of 10 A and enable the power supply.
4. Now apply an overload greater than the set current limit (using the jumper J6) between VOUT and PGND for a time duration less than the blanking period decided by using jumper J5.
5. Observe the waveforms using an oscilloscope.

Figure 5-8 shows transient overload performance of TPS25946 eFuse on TPS25946EVM eFuse Evaluation Board.

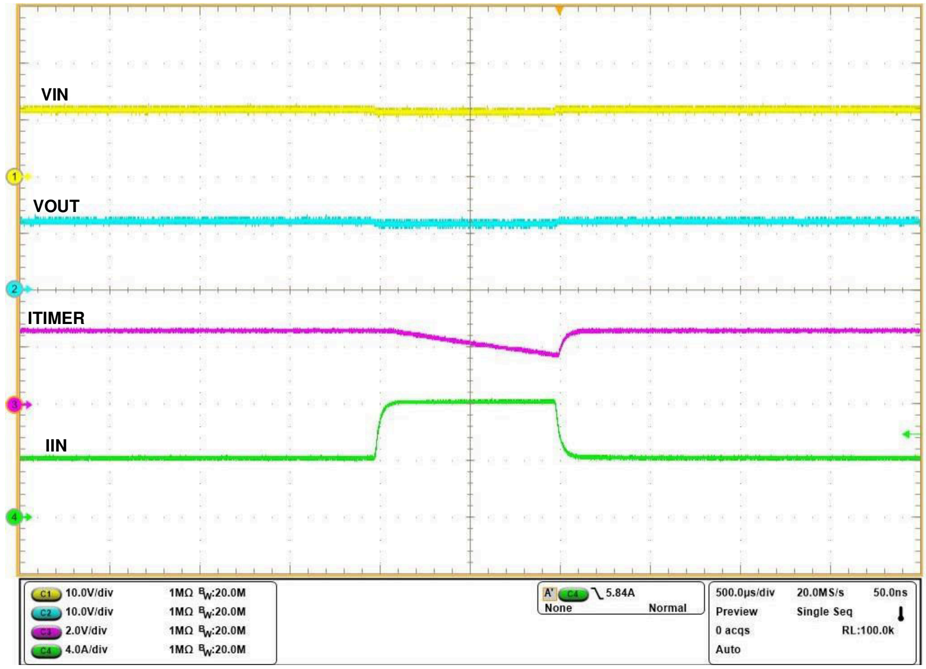


**Figure 5-8. Transient Overload Performance of TPS25946 eFuse (VIN = 12 V, CITimer = 2.2 nF, Cout = 470 µF, RILM = 549 Ω, IOUT Ramped From 4 A to 8 A Then 4 A Within 1 ms)**

## 5.6 Overcurrent Test

Use the following instructions to perform the overcurrent test on TPS25946 eFuse:

1. Place jumper J5 to an appropriate position to obtain required blanking period as per Table 4-3.
2. Place jumper J6 in a suitable position to set required current limit as per Table 4-3.
3. Set the input supply voltage VIN to 12 V and current limit of 10 A and enable the power supply.
4. Now apply an overload greater than the set current limit (using jumper J6) between VOUT and PGND (use a resistive load to apply overcurrent).
5. The device responds to output overcurrent condition by actively limiting the current after a user adjustable transient fault blanking interval, set by using jumper J5. During active current limit, the output voltage will drop resulting in increased device power dissipation. If the device internal temperature exceeds the thermal shutdown threshold, the device will turn off.

Figure 5-9, Figure 5-10, and Figure 5-11 show the current limit *behaviors* of TPS25946 eFuse at different overcurrent fault durations and with different variants.

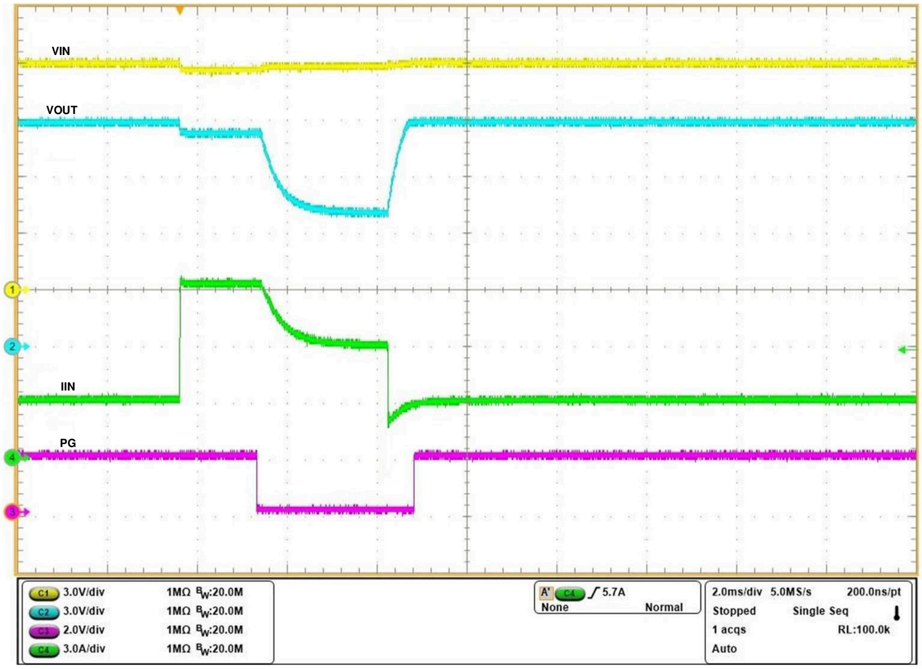


**Figure 5-9. Current Limit Response of TPS259460x (VIN = 12 V, CITimer = 2.2 nF, Cout = 220 µF, RILM = 549 Ω, IOUT Stepped From 3 A to 9 A for 4.7 ms)**

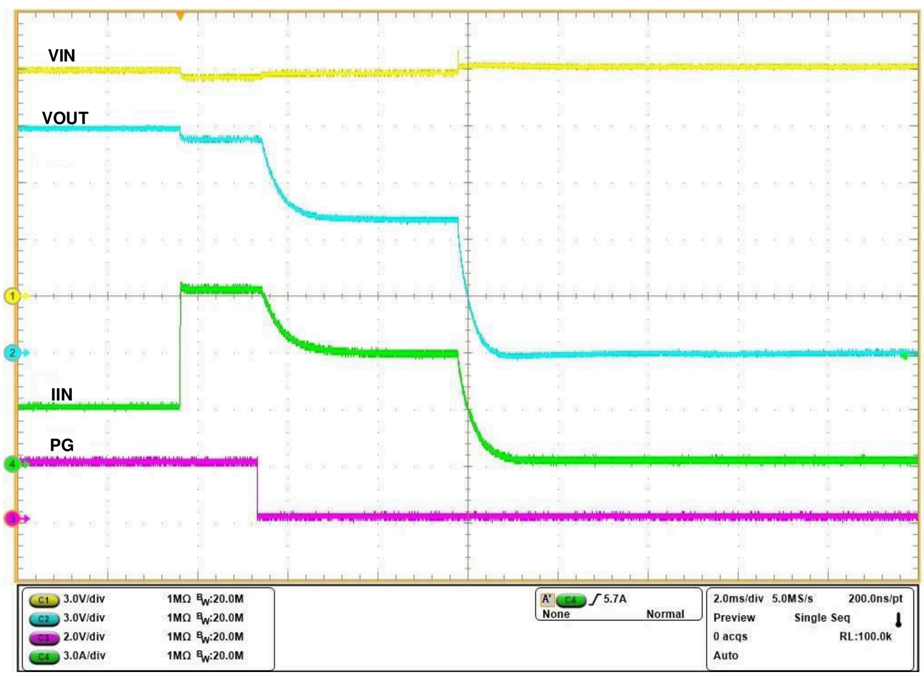


**Figure 5-10. Current Limit Response of TPS259460x (VIN = 12 V, CITimer = 2.2 nF, Cout = 220 µF, RILM = 549 Ω, IOUT Stepped From 3 A to 9 A for 8 ms)**

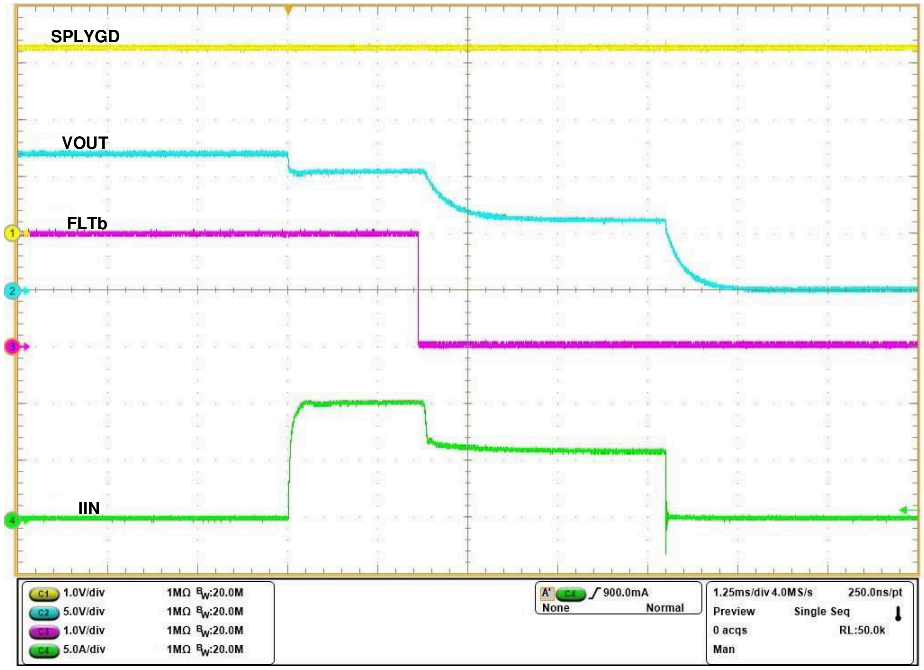


**Figure 5-11. Current Limit Response of TPS259461x (VIN = 12 V, CITimer = 2.2 nF, Cout = 220 μF, RILM = 549 Ω, IOUT Stepped From 0 A to 10 A for 8 ms)**

## 5.7 Output Hot Short Test

Use the following instructions to perform the output hot short test:

1. Set the input supply voltage VIN to 12 V and current limit of 10 A. Turn ON the power supply.
2. Short the output of the device for example, VOUT to PGND with a shorter cable.
3. Observe the waveforms using an oscilloscope.

Figure 5-12 and Figure 5-13 show the test waveforms of output hot short on the TPS25946EVM eFuse Evaluation Board.

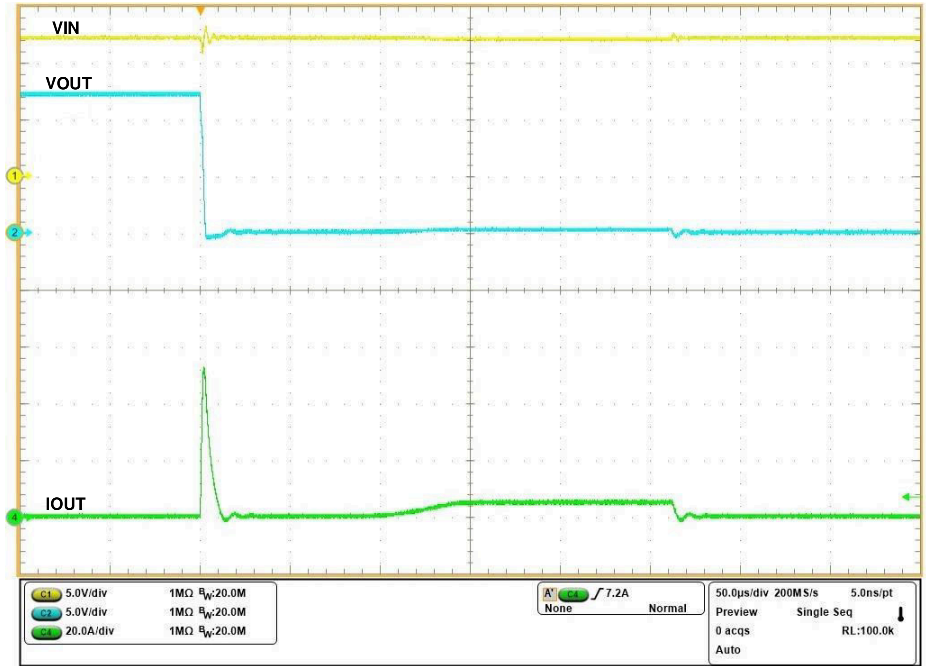


**Figure 5-12. Output Hot Short Response of TPS25946 Device (Vin = 12 V, Cout = 10 µF, ILIM = 549 Ω)**

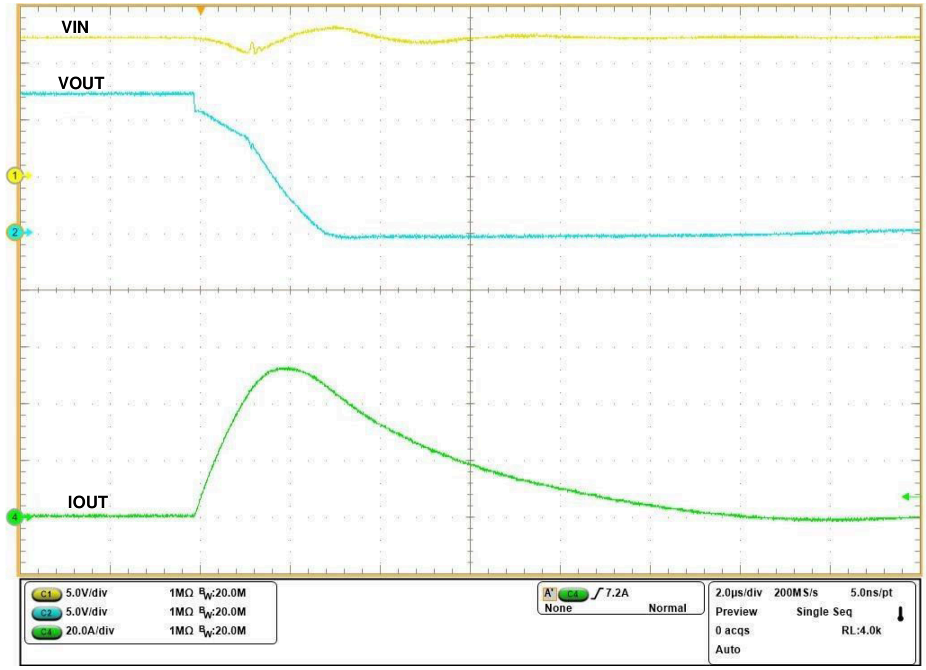


**Figure 5-13. Output Hot Short Response (Zoomed) of TPS25946 Device (Vin = 12 V, Cout = 10 µF, ILIM = 549 Ω)**

Note that it is very difficult to obtain repeatable and similar short-circuit testing results. The following contributes to the variation in results:

- Source bypassing
- Input leads
- Board layout
- Component selection
- Output shorting method
- Relative location of the short
- Instrumentation

The actual short exhibits a certain degree of randomness because it microscopically bounces and arcs. Ensure that configuration and methods are used to obtain realistic results. Hence, do not expect to see waveforms exactly like the waveforms in this user's guide because every setup is different.

### 5.8 USB On-The-Go (OTG) Performance

Use the following instructions to observe USB On-The-Go (OTG) performance:

1. Set the input supply voltage to 5 V and current limit of 10 A. Apply the supply between VOUT and PGND at connector J2.
2. Connect a load of 200 mA between VIN and PGND at connector J1.
3. Turn on the input power supply at the connector J2.
4. Enable the eFuse by applying 1.5 V externally between TP4 and GND. This external power supply is not required if the EN/UVLO set point is above the voltage between TP1 and PGND before the device geting enabled, which is the difference between the input supply at J2 and the voltage drops across R1 and D1.
5. Note that if the Power Good (PG) signal is required to observe during this OTG mode of operation with 5-V input, the resistor R8 needs to be changed to 360 kΩ.

Figure 5-14 shows the schematic to evaluate USB On-The-Go (OTG) port protection performance of TPS25946x eFuse.

Figure 5-15 shows the power-up of TPS25946x eFuse during USB On-The-Go (OTG) mode.

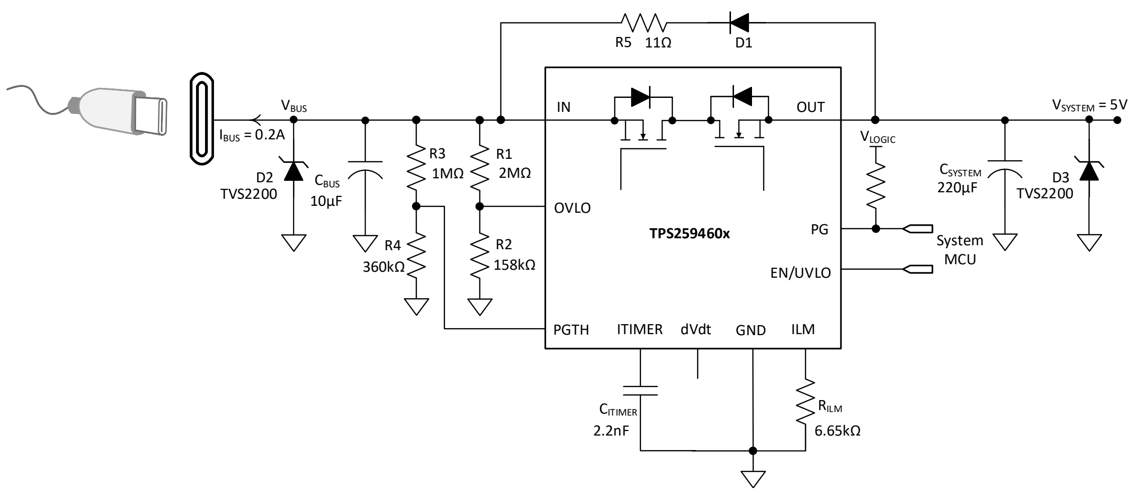


**Figure 5-14. Schematic to Evaluate USB On-The-Go (OTG) Port Protection Performance of TPS25946x eFuse**

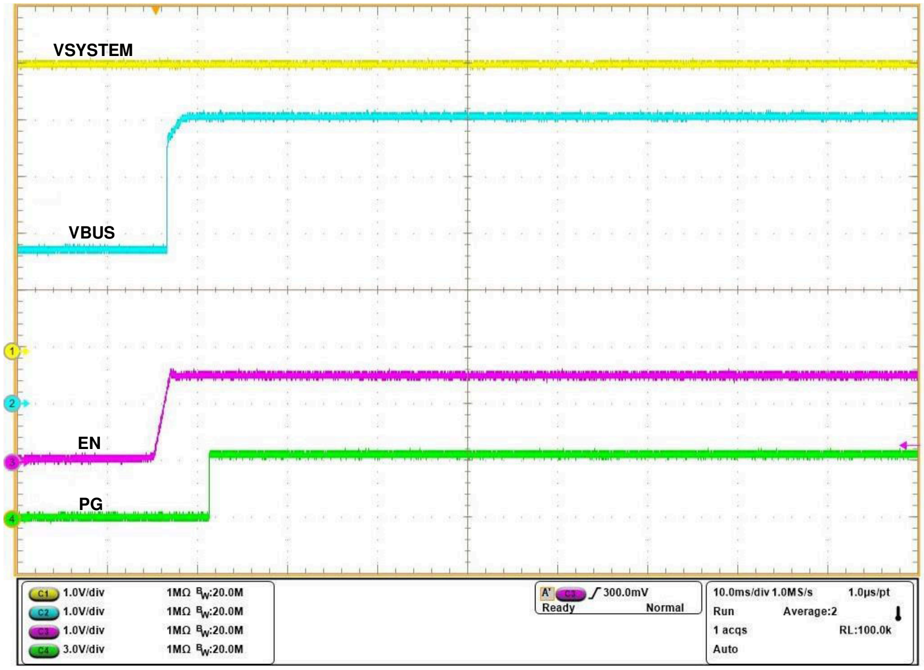


**Figure 5-15. Power-Up of TPS25946 eFuse During USB On-The-Go (OTG) Mode (VSYSTEM = 5 V, IBUS = 0.2 A, CdVdt = OPEN)**

# 6 EVAL Board Assembly Drawings and Layout Guidelines

## 6.1 PCB Drawings

Figure 6-1 shows component placement of the EVAL Board. Figure 6-2 shows PCB layout images.

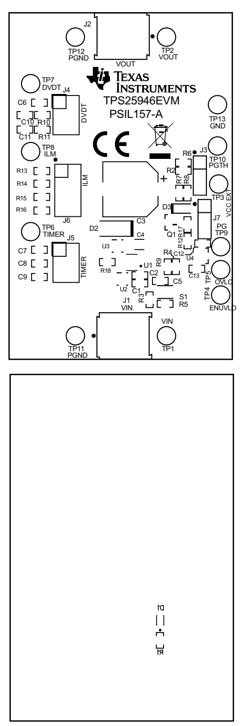


**Figure 6-1. TPS25946EVM Board (a) Top Assembly (b) Bottom Assembly**

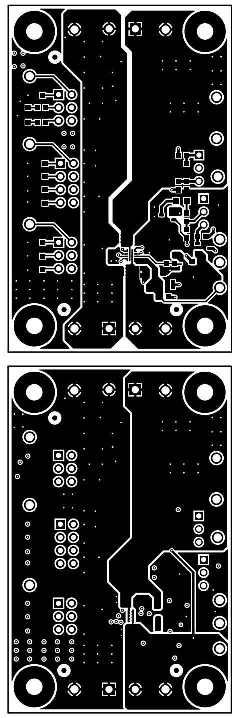

**Figure 6-2. TPS25946EVM Board (a) Top Layer (b) Bottom Layer**

# 7 Bill Of Materials (BOM)

Table 7-1 lists the EVM BOM.

**Table 7-1. TPS25946EVM BOM**

| Comment | Description | Designator | Footprint | LibRef | Quantity |
|---|---|---|---|---|---|
| C1608X7R1V105K080AC | CAP, CERM, 1 uF, 35 V, +/- 10%, X7R, 0603 | C1 | 0603 | CMP-0007052-4 | 1 |
| C1608X7R1H104K080AA | CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, 0603 | C2 | 0603 | CMP-0007044-1 | 1 |
| EEE-FC1V221P | CAP, AL, 220 uF, 35 V, +/- 20%, 0.15 ohm, SMD | C3 | SM_RADIAL_G | CMP-0010667-1 | 1 |
| CGA5L1X7R1H106K160AC | CAP, CERM, 10 µF, 50 V,+/- 10%, X7R, AEC-Q200 Grade 1, 1206 | C4 | 1206_190 | CMP-0085950-1 | 1 |
| 885012006057 | CAP, CERM, 100 pF, 50 V, +/- 5%, C0G/NP0, 0603 | C5 | 0603 | CMP-0006822-4 | 1 |
| C0603X332K5RACTU | CAP, CERM, 3300 pF, 50 V, +/- 10%, X7R, 0603 | C6 | 0603 | CMP-0006985-4 | 1 |
| C0603C221K5RACTU | CAP, CERM, 220 pF, 50 V, +/- 10%, X7R, 0603 | C7 | 0603 | CMP-0006895-2 | 1 |
| C0603C222K5RACTU | CAP, CERM, 2200 pF, 50 V, +/- 10%, X7R, 0603 | C8 | 0603 | CMP-0006898-4 | 1 |
| C0603X223K5RACTU | CAP, CERM, 0.022 uF, 50 V, +/- 10%, X7R, 0603 | C9, C11 | 0603 | CMP-0006984-4 | 2 |
| GRM1885C1H103JA01D | CAP, CERM, 0.01 uF, 50 V, +/- 5%, C0G/NP0, 0603 | C10 | 0603 | CMP-0007174-4 | 1 |
| 06035C104KAT2A | CAP, CERM, 0.1 uF, 50 V, +/- 10%, X7R, 0603 | C12, C13 | 0603 | CMP-0006802-4 | 2 |
| B0530WS-7-F | DIODE SCHOTTKY 30V 500MA SOD323 | D1 | FP-B0530WS-7-F_SOD323-MFG | CMP-0091894-1 | 1 |
| B330A-13-F | Diode, Schottky, 30 V, 3 A, SMA | D2 | SMA | CMP-0028350-2 | 1 |
| LTST-C170KGKT | LED, Green, SMD | D3 | LTST-C170KGKT_Green | CMP-0002888-1 | 1 |
| Fiducial | Fiducial mark. There is nothing to buy or mount. | FID1, FID2, FID3, FID4, FID5, FID6 | Fiducial10-20 | CMP-0077181-1 | 6 |

**Table 7-1. TPS25946EVM BOM (continued)**

| Comment | Description | Designator | Footprint | LibRef | Quantity |
|---|---|---|---|---|---|
| NY PMS 440 0025 PH | Machine Screw, Round, #4-40 x 1/4, Nylon, Philips panhead | H1, H2, H3, H4 | NY PMS 440 0025 PH | CMP-0003617-1 | 4 |
| 1902C | Standoff, Hex, 0.5"L #4-40 Nylon | H5, H6, H7, H8 | Keystone_1902C | CMP-0003610-1 | 4 |
| 282841-2 | Terminal Block, 2x1, 5.08mm, TH | J1, J2 | TEC_282841-2 | CMP-0054973-1 | 2 |
| Header_3x1_Launchpad | Header, 100mil, 3x1, Tin, TH | J3, J7 | CONN_PEC03SAAN | CMP-0002338-1 | 2 |
| PEC03DAAN | Header, 100mil, 3x2, Tin, TH | J4, J5 | SULLINS_PEC03DAAN | CMP-0054552-1 | 2 |
| PEC04DAAN | Header, 100mil, 4x2, Tin, TH | J6 | CONN_PEC04DAAN | CMP-0054542-1 | 1 |
| 2N7002 | MOSFET, N-CH, 60 V, 115 A, SOT-23 | Q1 | SOT-23 | CMP-0000768-1 | 1 |
| RC0603FR-0711RL | RES, 11.0, 1%, 0.1 W, 0603 | R1 | 0603 | CMP-0022767-4 | 1 |
| RC0603FR-071ML | RES, 1.00 M, 1%, 0.1 W, 0603 | R2, R7 | 0603 | CMP-0022899-4 | 2 |
| RC0603FR-072ML | RES, 2.00 M, 1%, 0.1 W, 0603 | R3, R4 | 0603 | CMP-0023004-4 | 2 |
| RC0603FR-07249KL | RES, 249 k, 1%, 0.1 W, 0603 | R5 | 0603 | CMP-0022941-4 | 1 |
| CRCW0603124KFKEA | RES, 124 k, 1%, 0.1 W, AEC-Q200 Grade 0, 0603 | R6, R8 | 0603 | CMP-0022026-4 | 2 |
| RC0603FR-07158KL | RES, 158 k, 1%, 0.1 W, 0603 | R9 | 0603 | CMP-0022812-4 | 1 |
| RC0603FR-07100RL | RES, 100, 1%, 0.1 W, 0603 | R10, R11 | 0603 | CMP-0022736-4 | 2 |
| RG1608P-103-B-T5 | RES, 10.0 k, 0.1%, 0.1 W, 0603 | R12 | 0603 | CMP-0023404-3 | 1 |
| RC0603FR-076K65L | RES, 6.65 k, 1%, 0.1 W, 0603 | R13 | 0603 | CMP-0023251-5 | 1 |
| RC0603FR-071K65L | RES, 1.65 k, 1%, 0.1 W, 0603 | R14 | 0603 | CMP-0022885-5 | 1 |
| RC0603FR-07750RL | RES, 750, 1%, 0.1 W, 0603 | R15 | 0603 | CMP-0023266-5 | 1 |
| RC0603FR-07549RL | RES, 549, 1%, 0.1 W, 0603 | R16 | 0603 | CMP-0023179-5 | 1 |
| RC0603FR-071KL | RES, 1.00 k, 1%, 0.1 W, 0603 | R17 | 0603 | CMP-0022895-5 | 1 |
| ERJ-3GEY0R00V | RES, 0, 5%, 0.1 W, 0603 | R18 | 0603 | CMP-0025874-2 | 1 |
| B3U-1000P | SWITCH TACTILE SPST-NO 0.05A 12V | S1 | SW_B3U-1000P | CMP-0002150-2 | 1 |
| SPC02SYAN | Shunt, 100mil, Flash Gold, Black | SH-J3, SH-J4, SH-J5, SH-J6, SH-J7 | SPC02SYAN | CMP-0003642-1 | 5 |

**Table 7-1. TPS25946EVM BOM (continued)**

| Comment | Description | Designator | Footprint | LibRef | Quantity |
|---|---|---|---|---|---|
| VIN | Test Point, Multipurpose, Red, TH | TP1 | Keystone5010 | CMP-0055147-1 | 1 |
| VOUT | Test Point, Multipurpose, Red, TH | TP2 | Keystone5010 | CMP-0055147-1 | 1 |
| VCC_EXT | Test Point, Multipurpose, Orange, TH | TP3 | Keystone5013 | CMP-0055150-1 | 1 |
| EN/UVLO | Test Point, Multipurpose, White, TH | TP4 | Keystone5012 | CMP-0055149-1 | 1 |
| OVLO | Test Point, Multipurpose, White, TH | TP5 | Keystone5012 | CMP-0055149-1 | 1 |
| ITIMER | Test Point, Multipurpose, White, TH | TP6 | Keystone5012 | CMP-0055149-1 | 1 |
| dVdt | Test Point, Multipurpose, White, TH | TP7 | Keystone5012 | CMP-0055149-1 | 1 |
| ILM | Test Point, Multipurpose, White, TH | TP8 | Keystone5012 | CMP-0055149-1 | 1 |
| PG | Test Point, Multipurpose, White, TH | TP9 | Keystone5012 | CMP-0055149-1 | 1 |
| PGTH | Test Point, Multipurpose, White, TH | TP10 | Keystone5012 | CMP-0055149-1 | 1 |
| PGND | Test Point, Multipurpose, Black, TH | TP11, TP12 | Keystone5011 | CMP-0055148-1 | 2 |
| GND | Test Point, Multipurpose, Black, TH | TP13 | Keystone5011 | CMP-0055148-1 | 1 |
| TPS259460ARPWR | 2.7- 23V, 5.5 A, 28 mO eFuse with bi-directional current support, VQFN-HR10 | U1 | RPW0010A-MFG | CMP-0091678-1 | 1 |
| TVS2200DRVR | 22-V Precision Surge Protection Clamp, DRV0006A (WSON-6) | U2, U3 | DRV0006A | CMP-0077834-1 | 2 |
| LM3480IM3-3.3/NOPB | 100 mA, Quasi Low-Dropout Linear Voltage Regulator, 3-pin SOT-23, Pb-Free | U4 | DBZ0003A_N | CMP-0071020-1 | 1 |

## 8 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265