# PMP7177_RevB Test Results

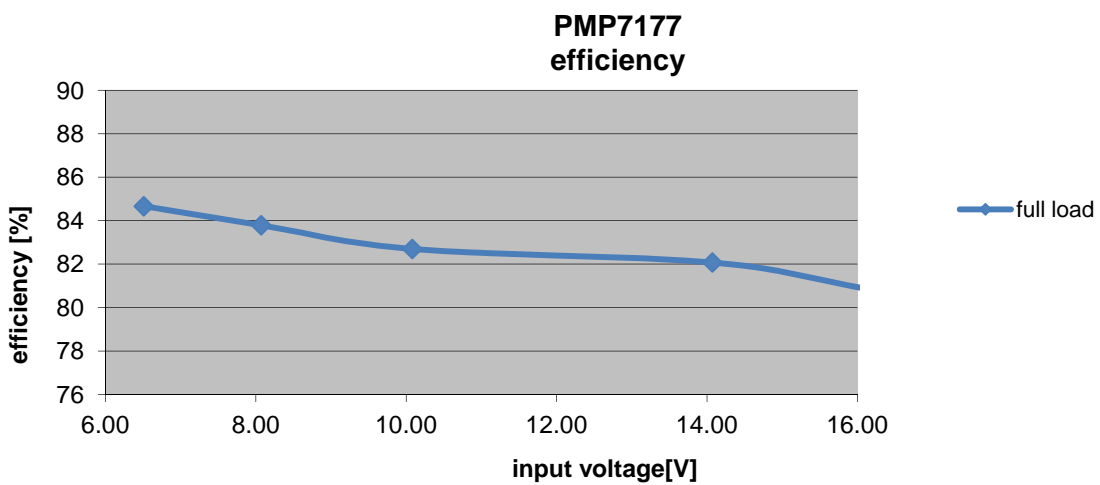**TEXAS INSTRUMENTS**

## 1   Efficiency

All outputs were fully loaded.

**PMP7177 efficiency**
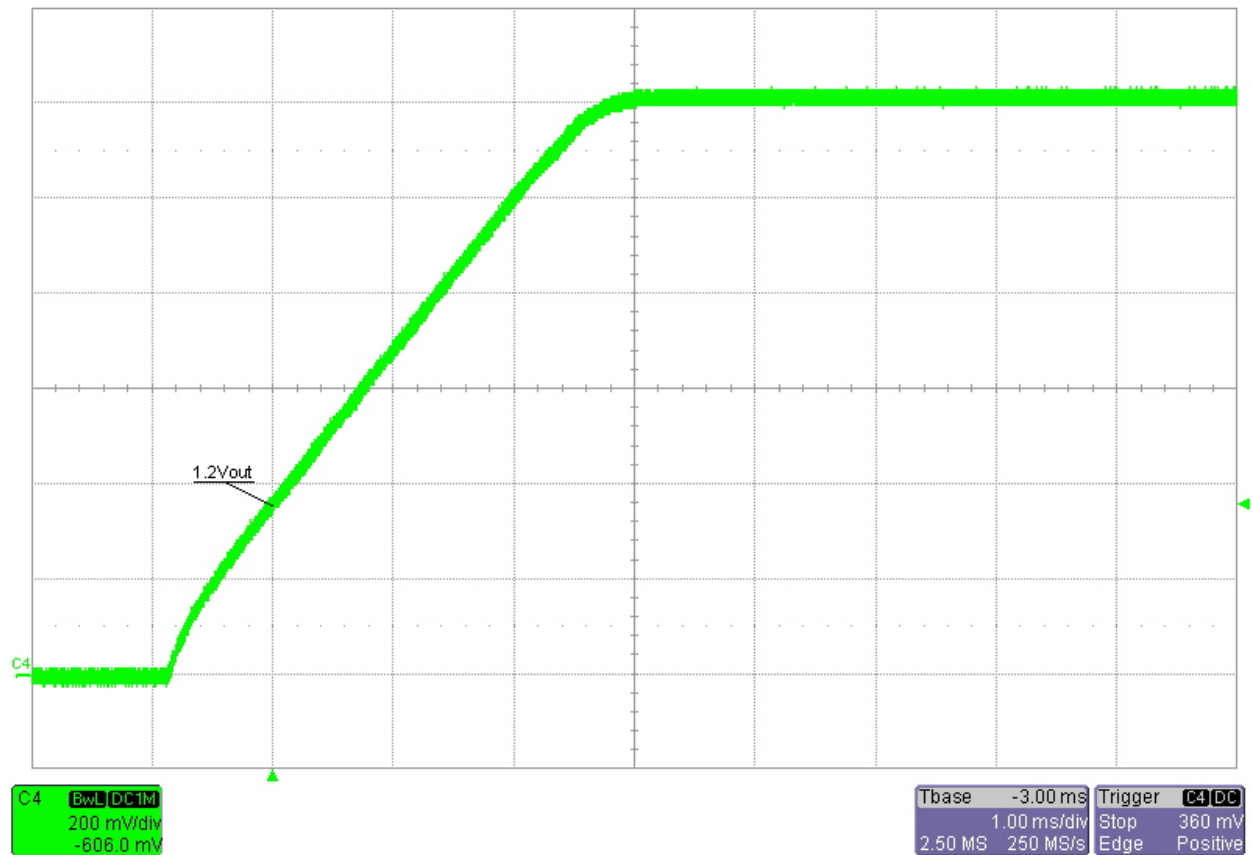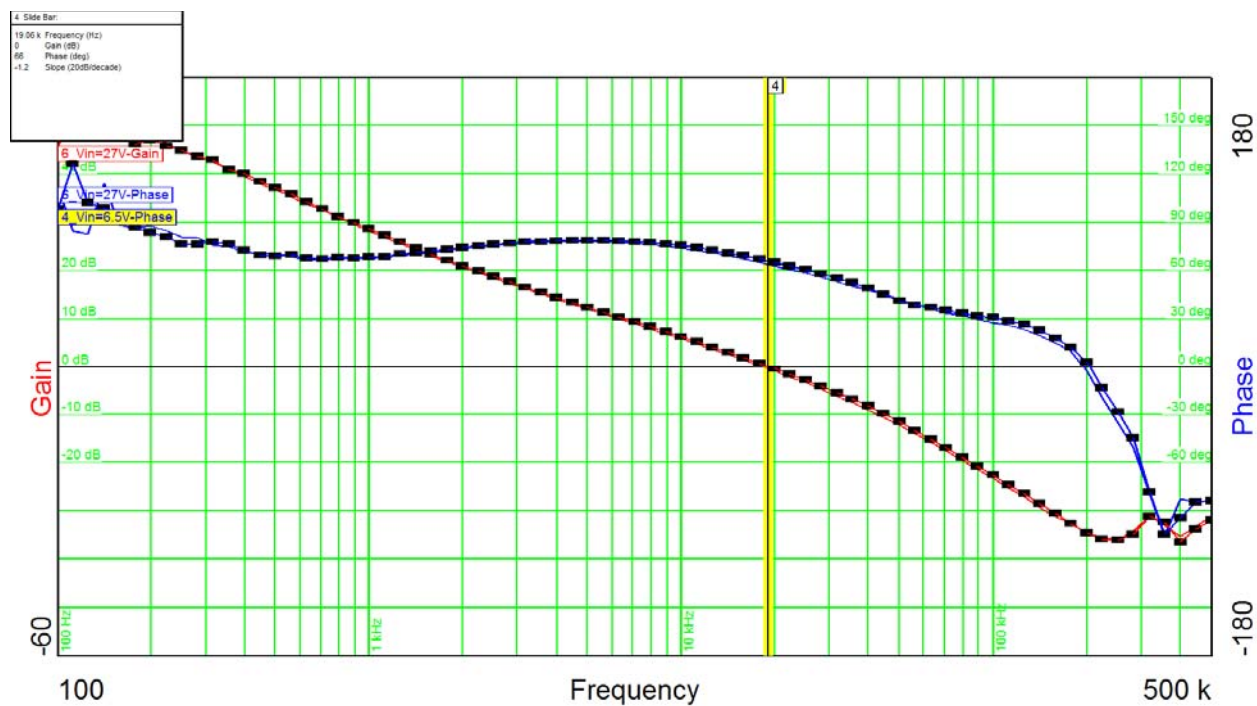
## 2   1.2V@3.0A

### 2.1   Startup

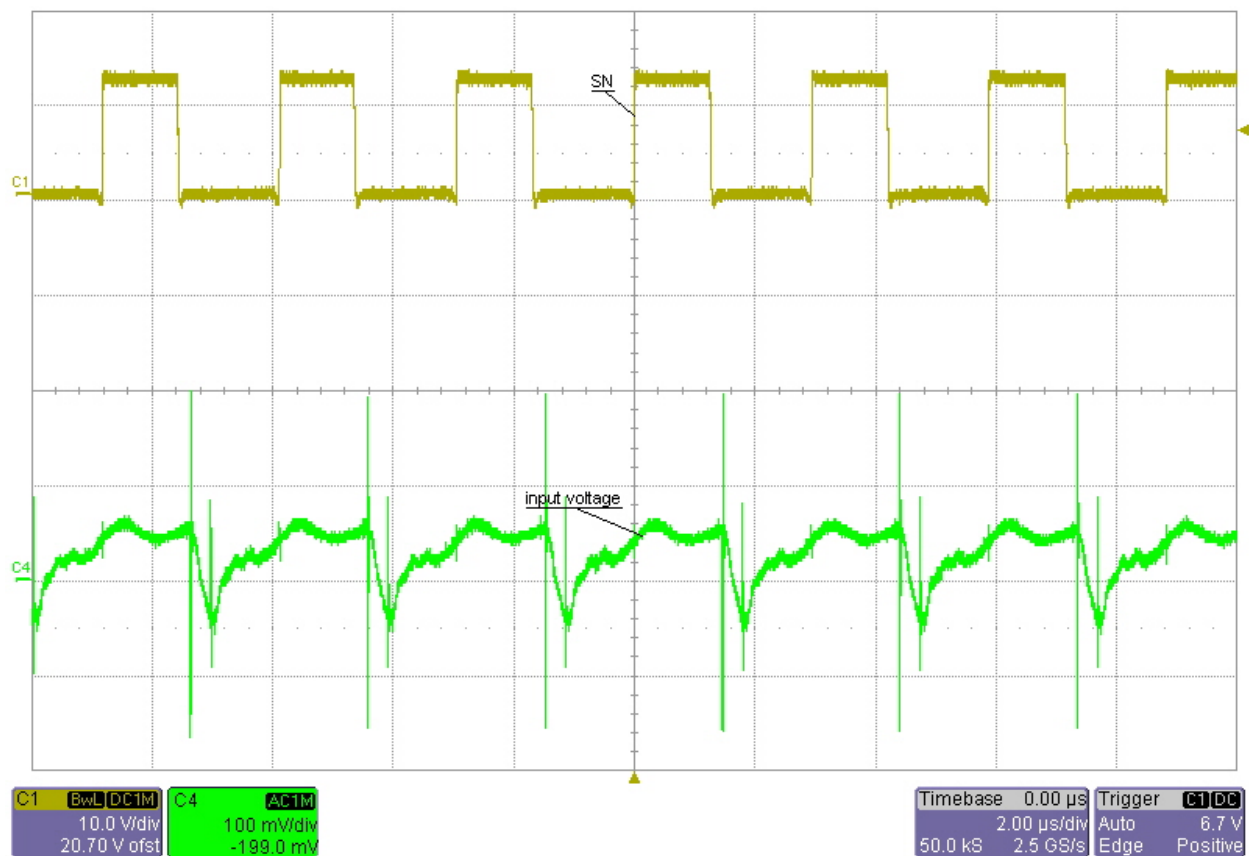Input voltage   = 12V
Load current    = 3.0A

## 2.2 Control Loop Frequency Response



Input voltage  = 6.5V
Phase margin  = 66°
Bandwidth  = 19 kHz

Input voltage  = 27V
Phase margin  = 65°
Bandwidth  = 18 kHz

# PMP7177_RevB Test Results

**TEXAS INSTRUMENTS**

## 2.3 Input ripple voltage

Input voltage  = 12V
Load current   = all output full loaded

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## 2.4   Output ripple voltage

Input voltage   = 12V
Load current   = 3.0A

## 2.5 Switch Node

Input voltage  = 27V
Load current   = 3.0A

## 2.6  Load Transients

Input voltage  = 12V
Load current  = 1.5A to 3.0A
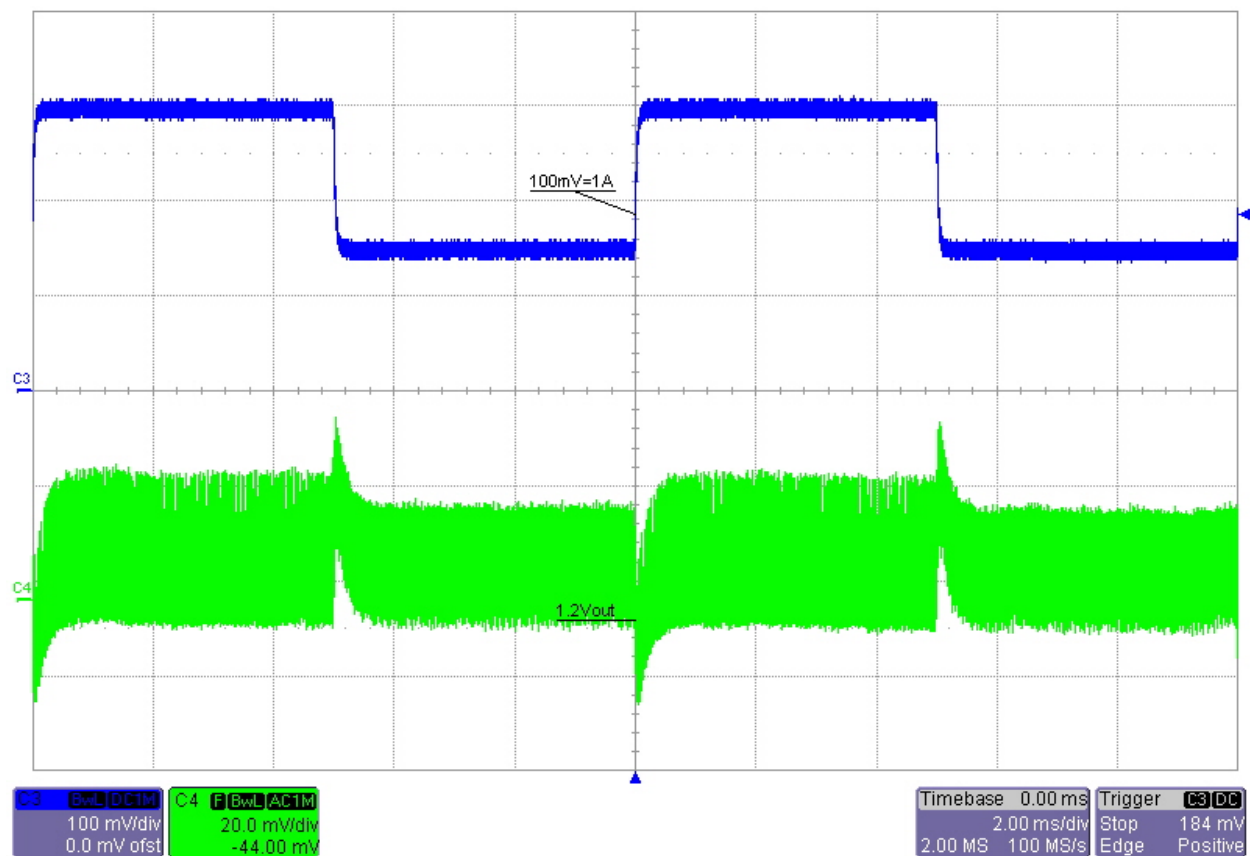
## 3   5V@0.8A

### 3.1   Startup

Input voltage   = 12V
Load current   = 0.6A

## 3.2 Control Loop Frequency Response
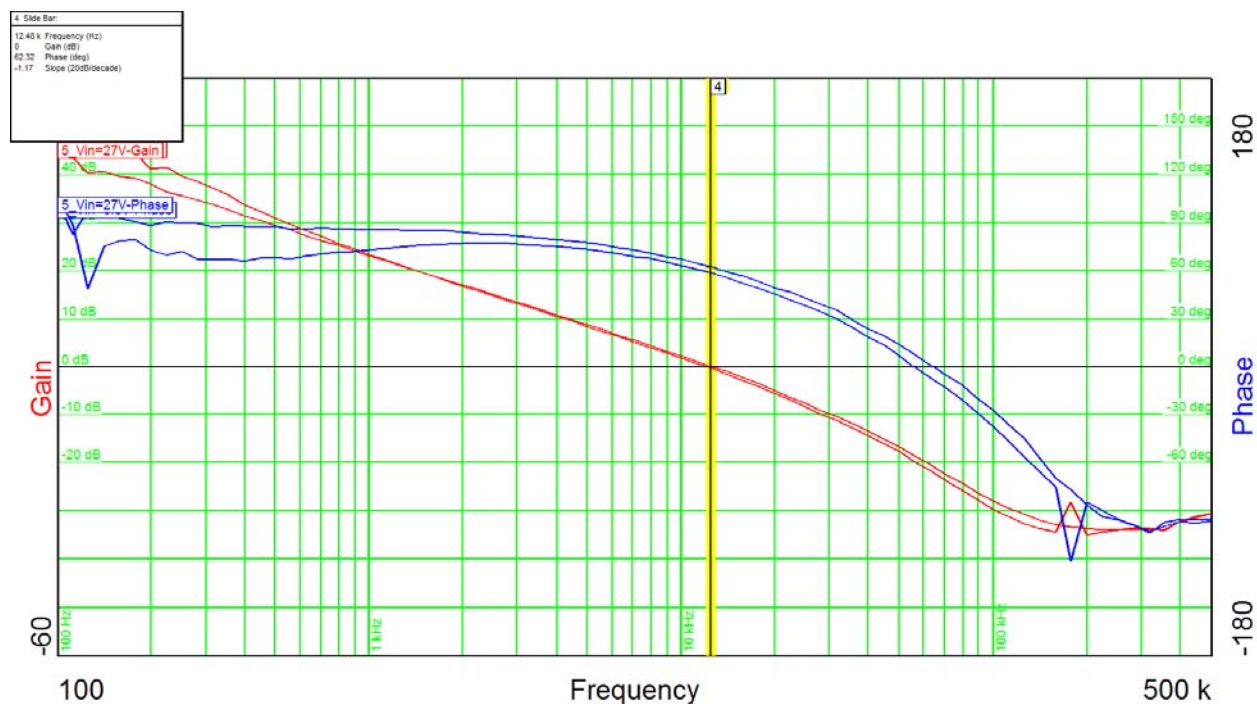


Input voltage  = 6.5V
Phase margin  = 62°
Bandwidth  = 12 kHz


Input voltage  = 27V
Phase margin  = 60°
Bandwidth  = 12 kHz
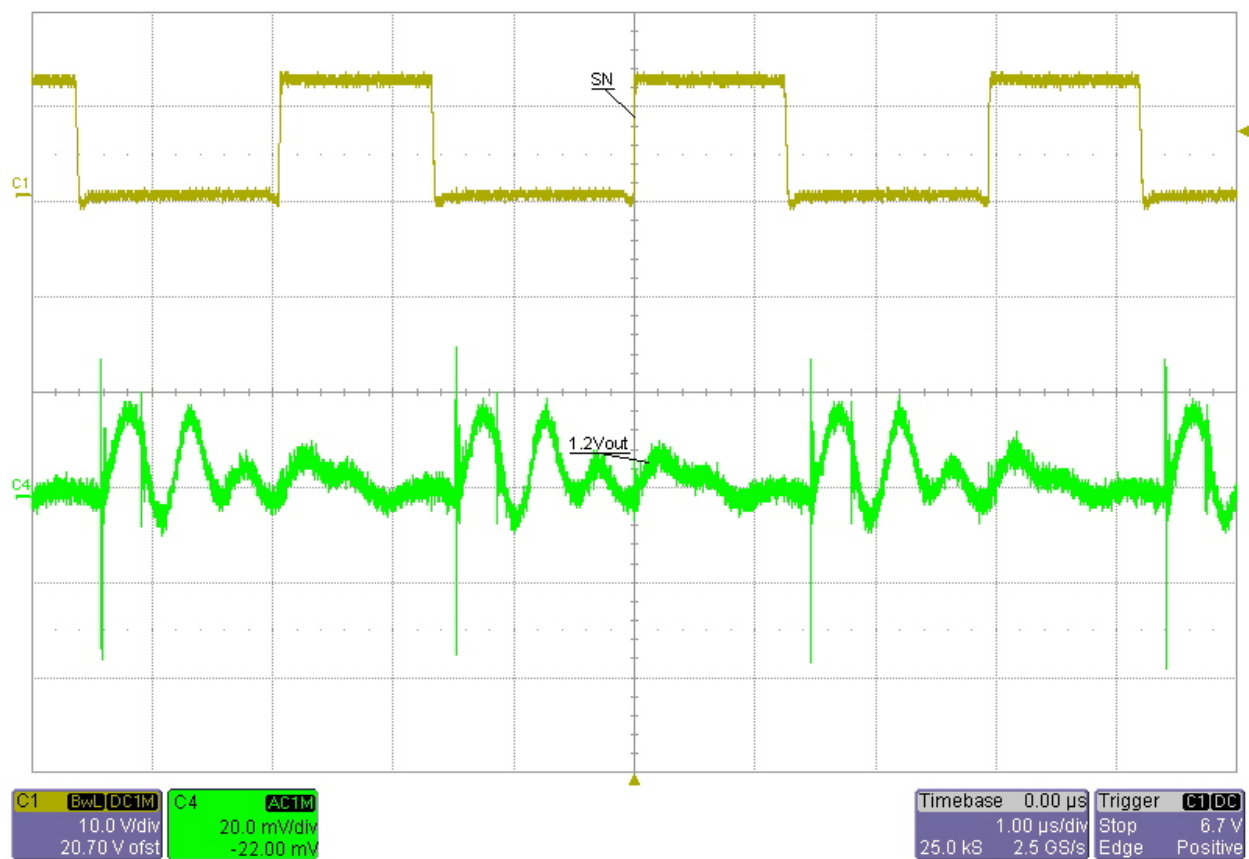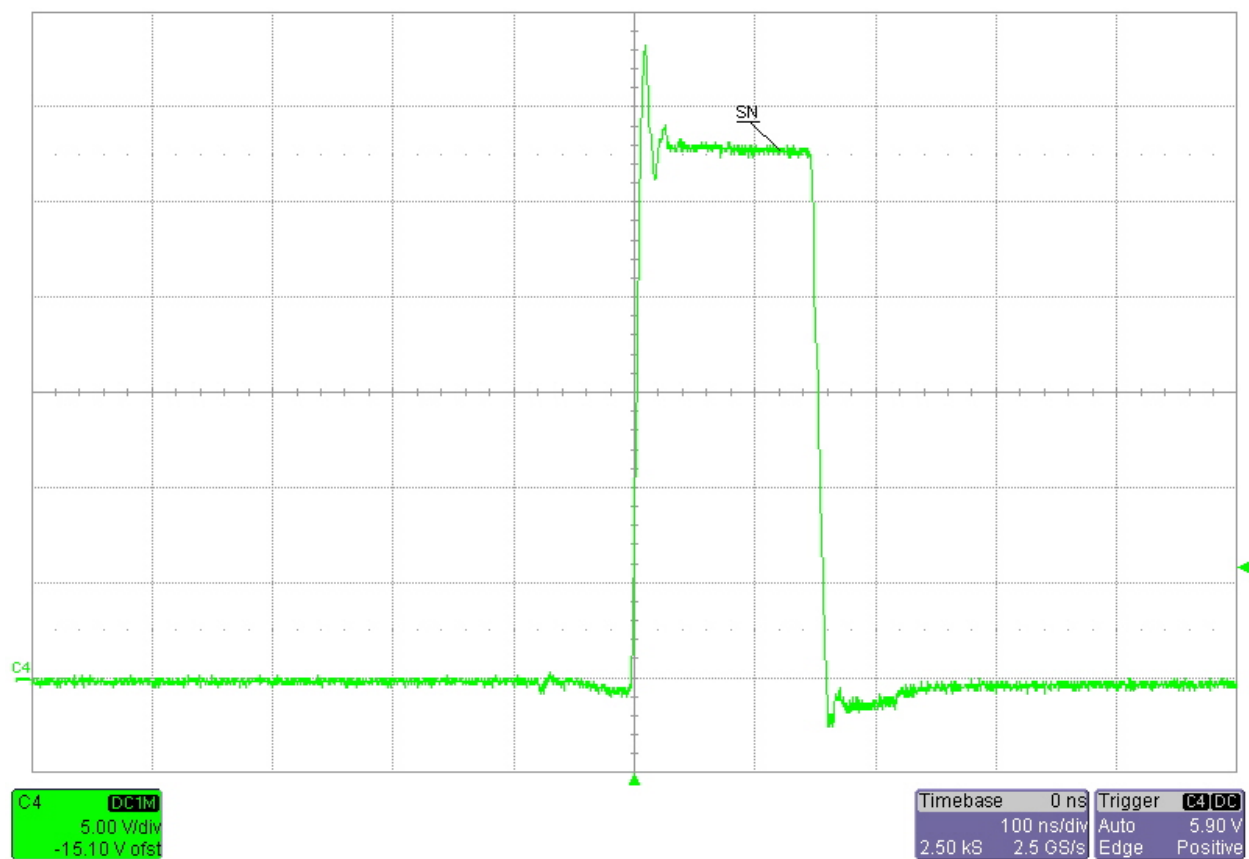
## 3.3 Output ripple voltage

Input voltage = 12V
Load current = 0.6A
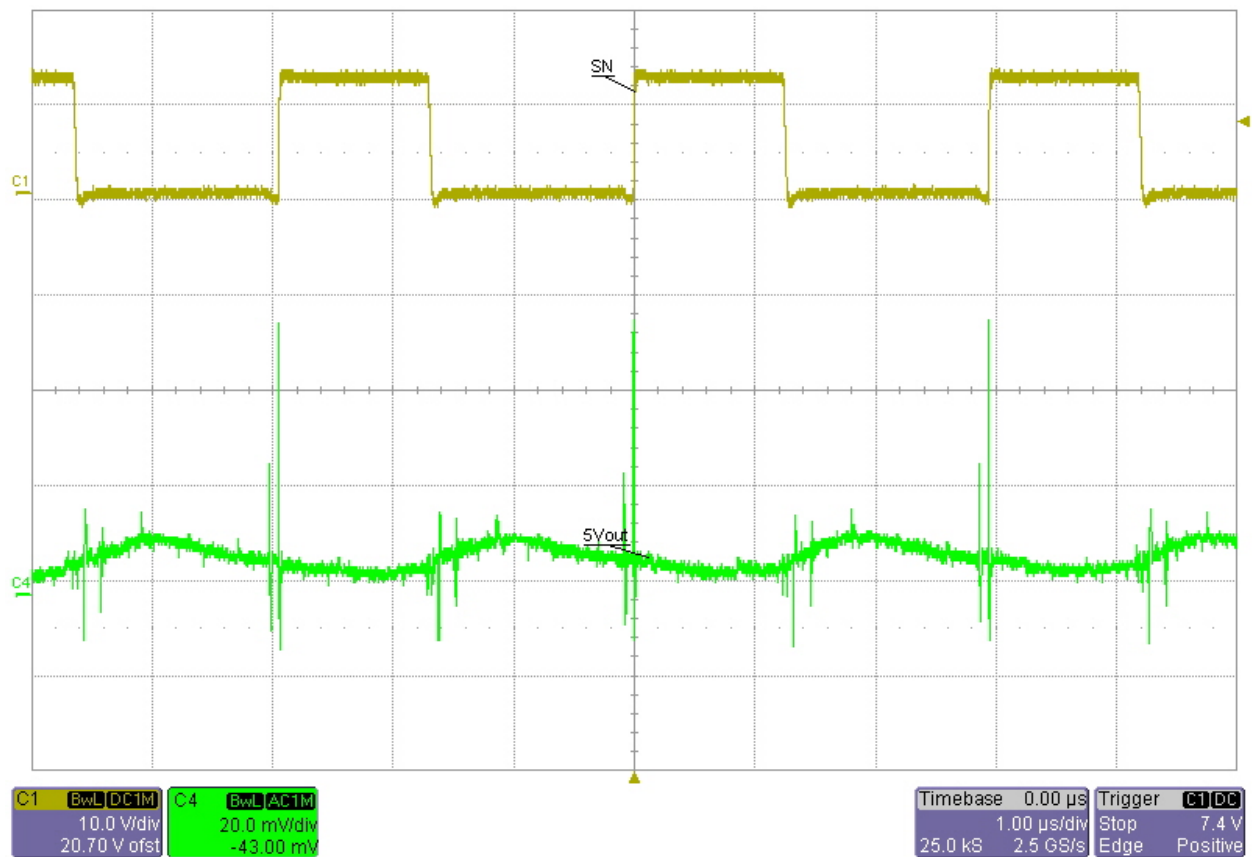
## 3.4   Switch Node

Input voltage   = 27V
Load current    = 0.6A

**TEXAS INSTRUMENTS**
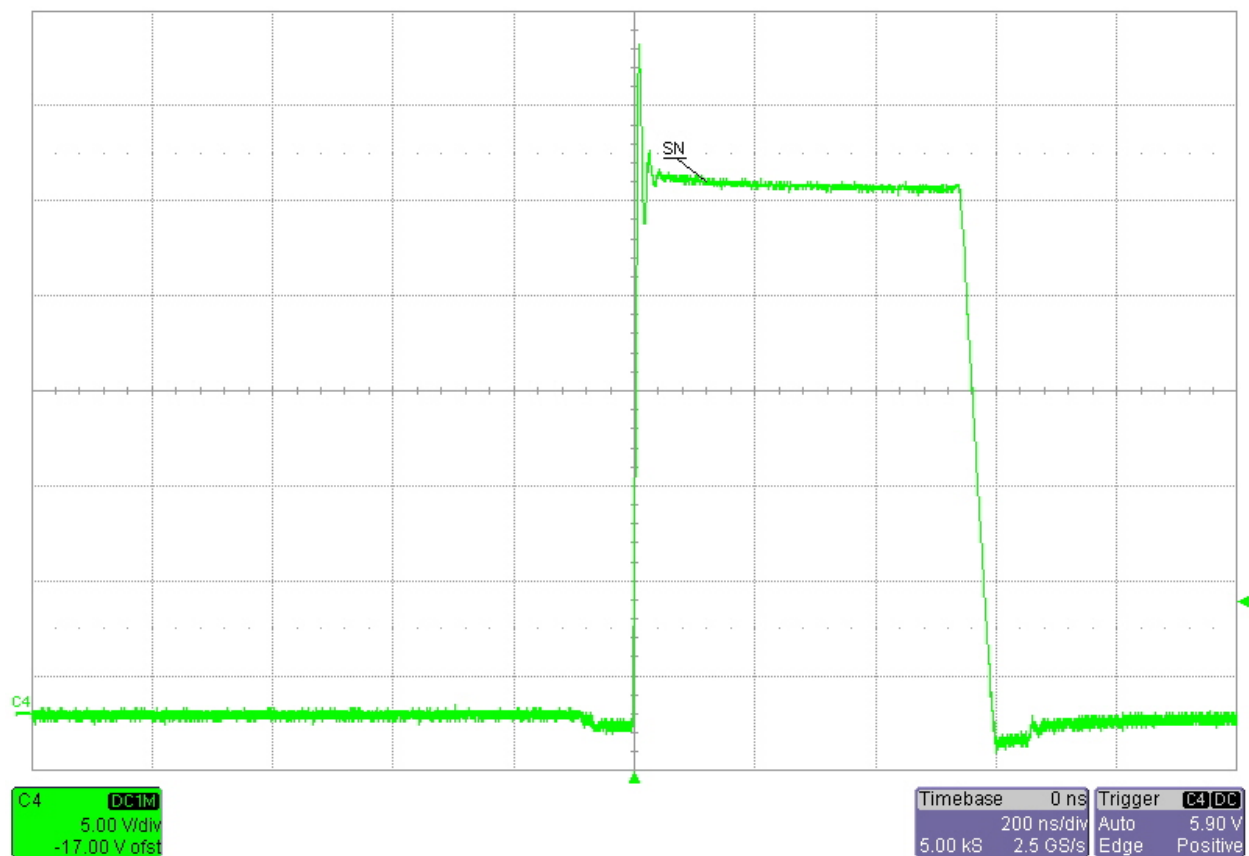
## 4   1.8V@0.46A

### 4.1   Startup

Input voltage   = 5V
Load current   = 0.46A

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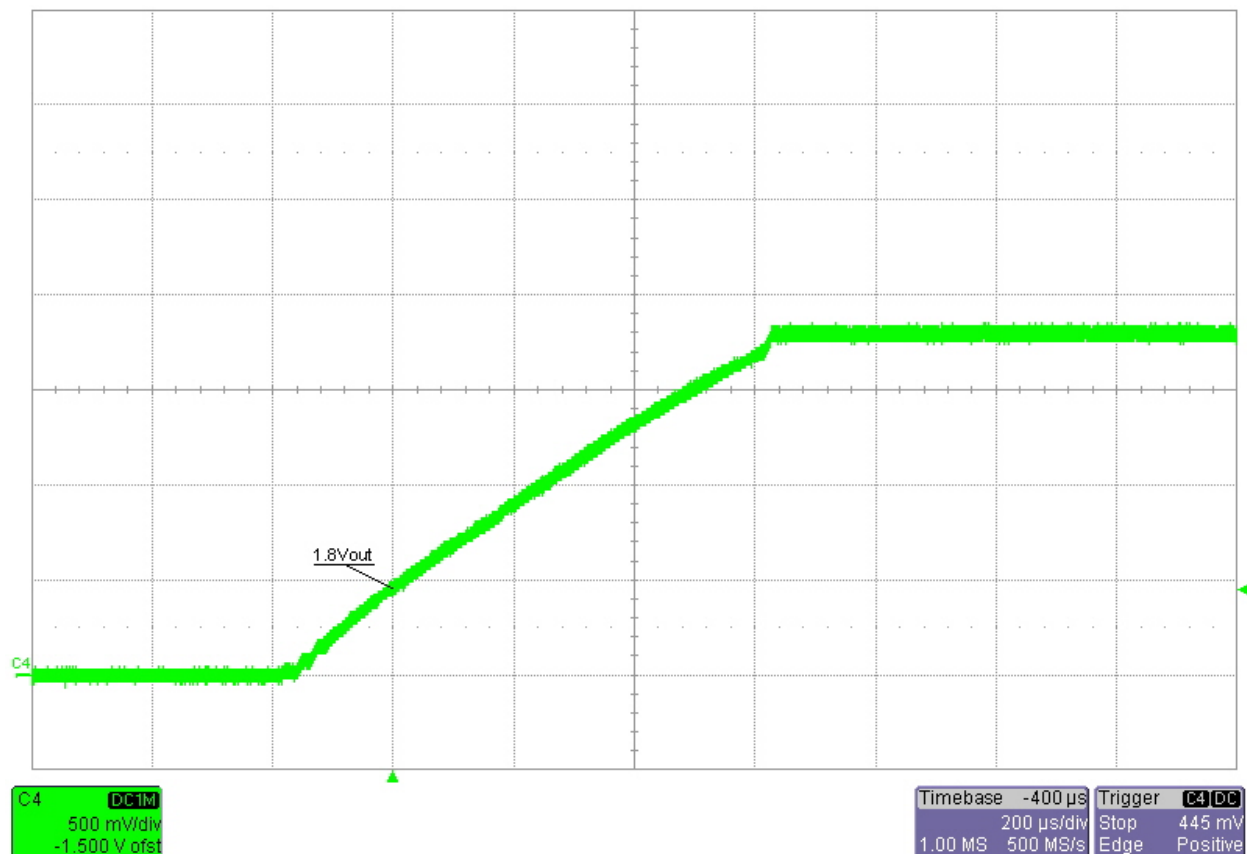
## 4.2  Output ripple voltage

Input voltage   = 5V
Load current   = 0.46A
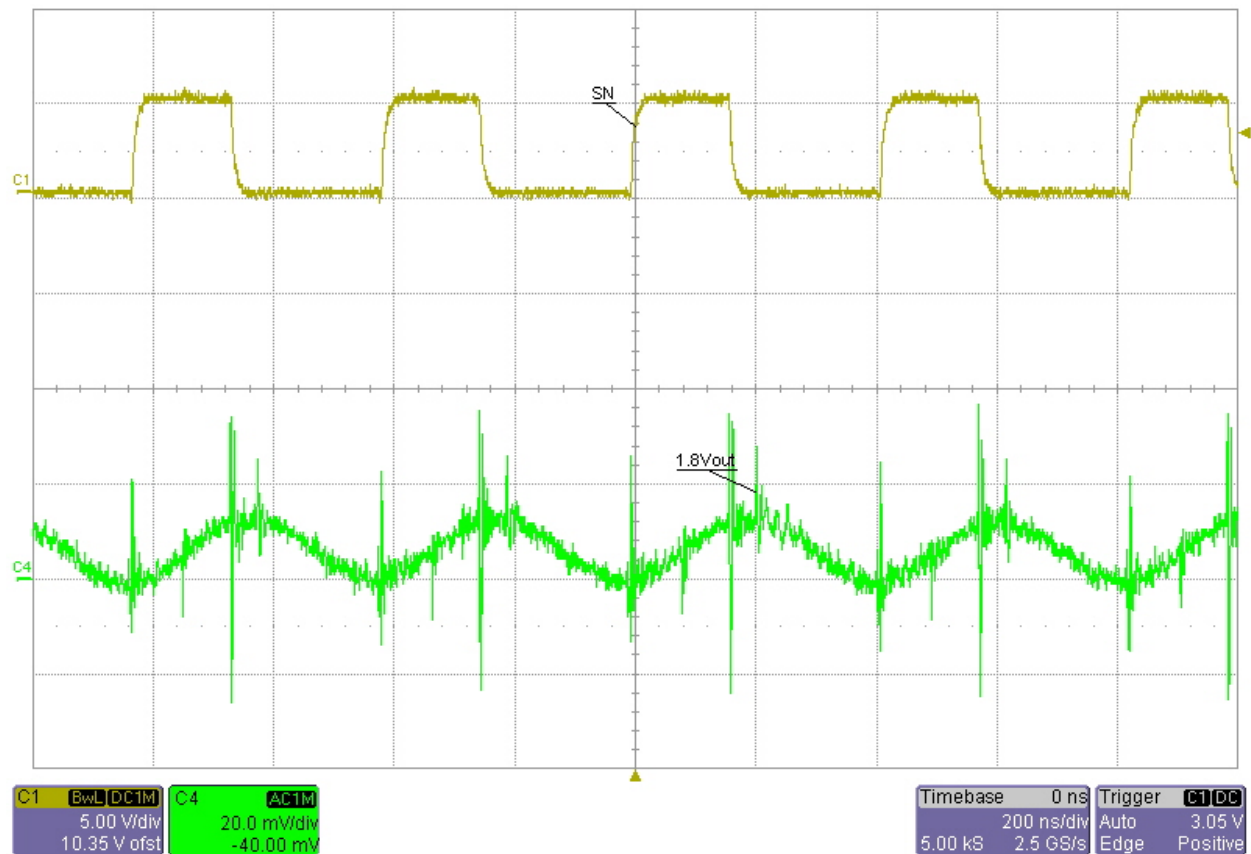
### 4.3 Switch Node

Input voltage   = 5V
Load current    = 0.46A
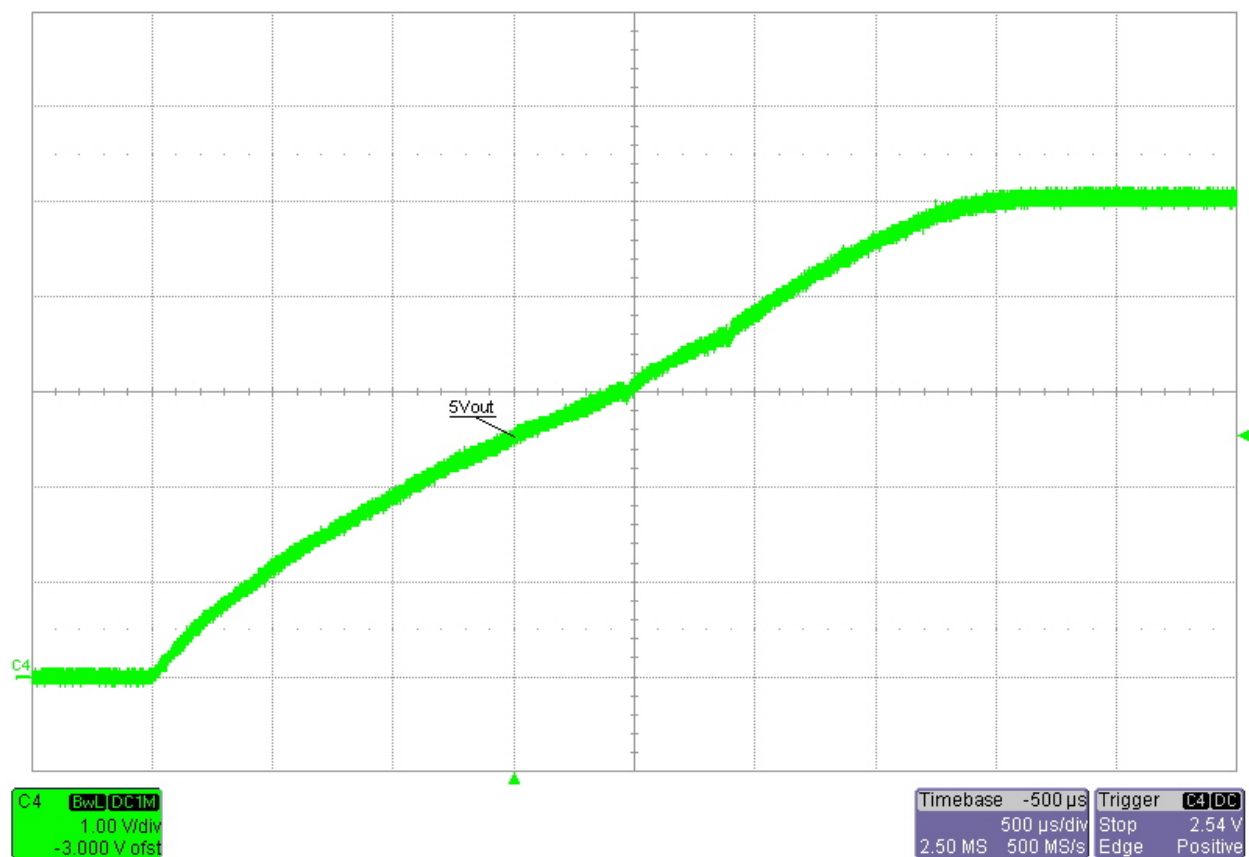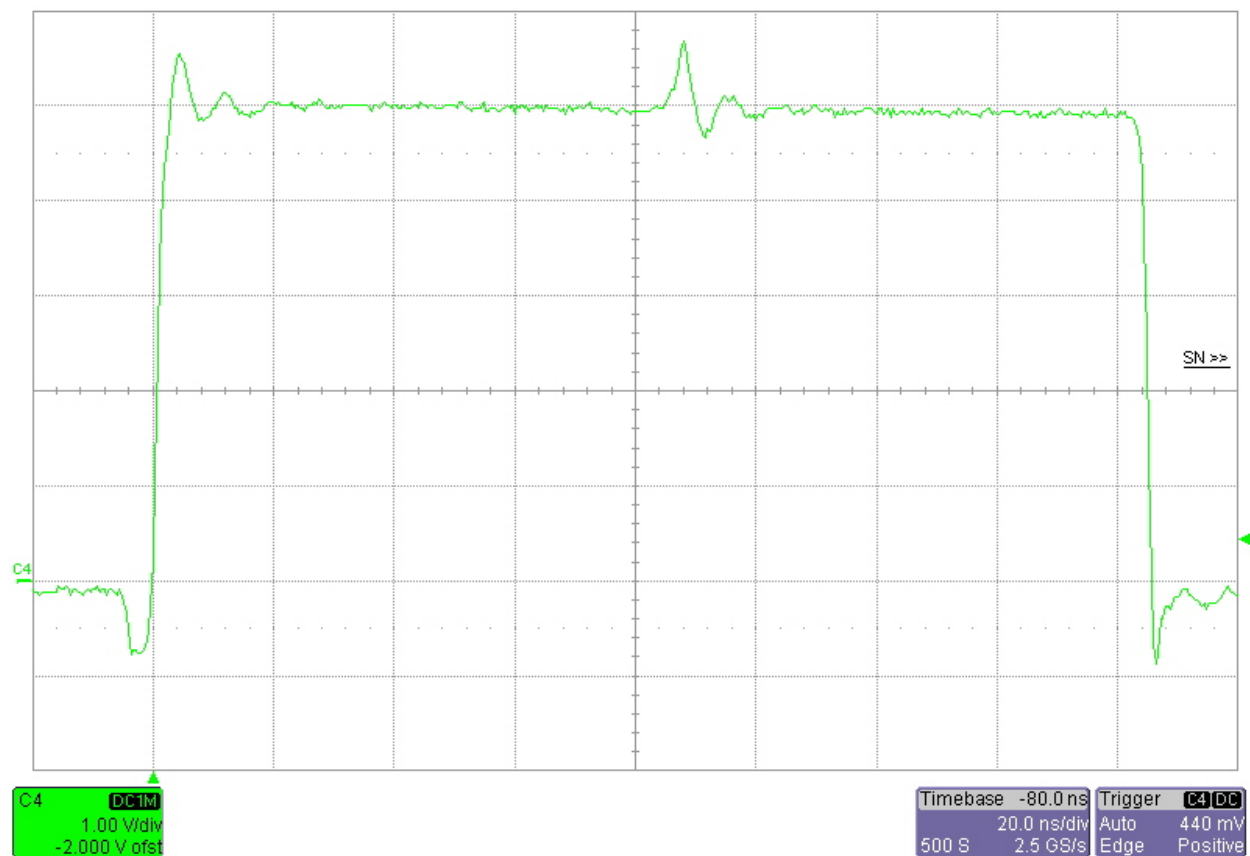
## 4.4 Load Transients

Input voltage = 5V
Load current = 0.2A to 0.46A



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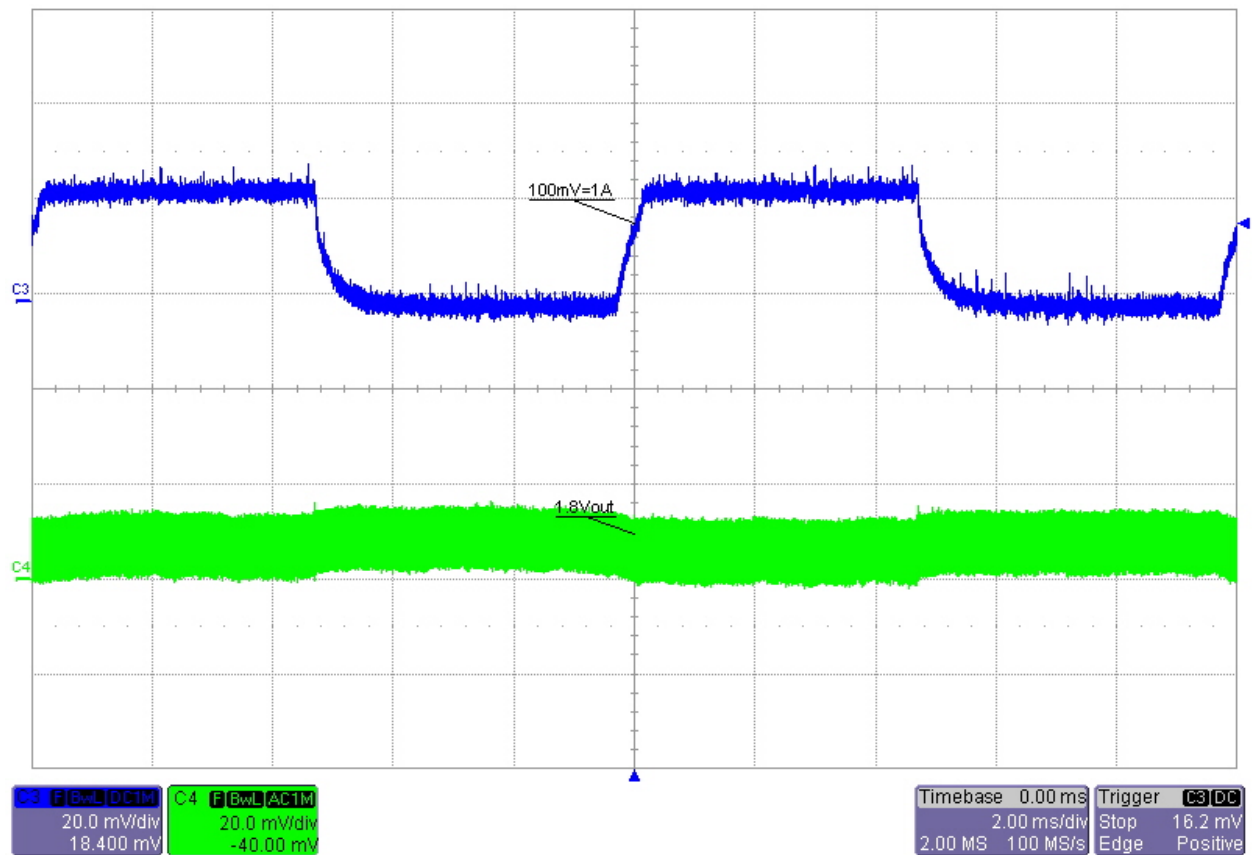
## 5  3.3V@0.42A

### 5.1  Startup

Input voltage   = 5V
Load current    = 0.42A
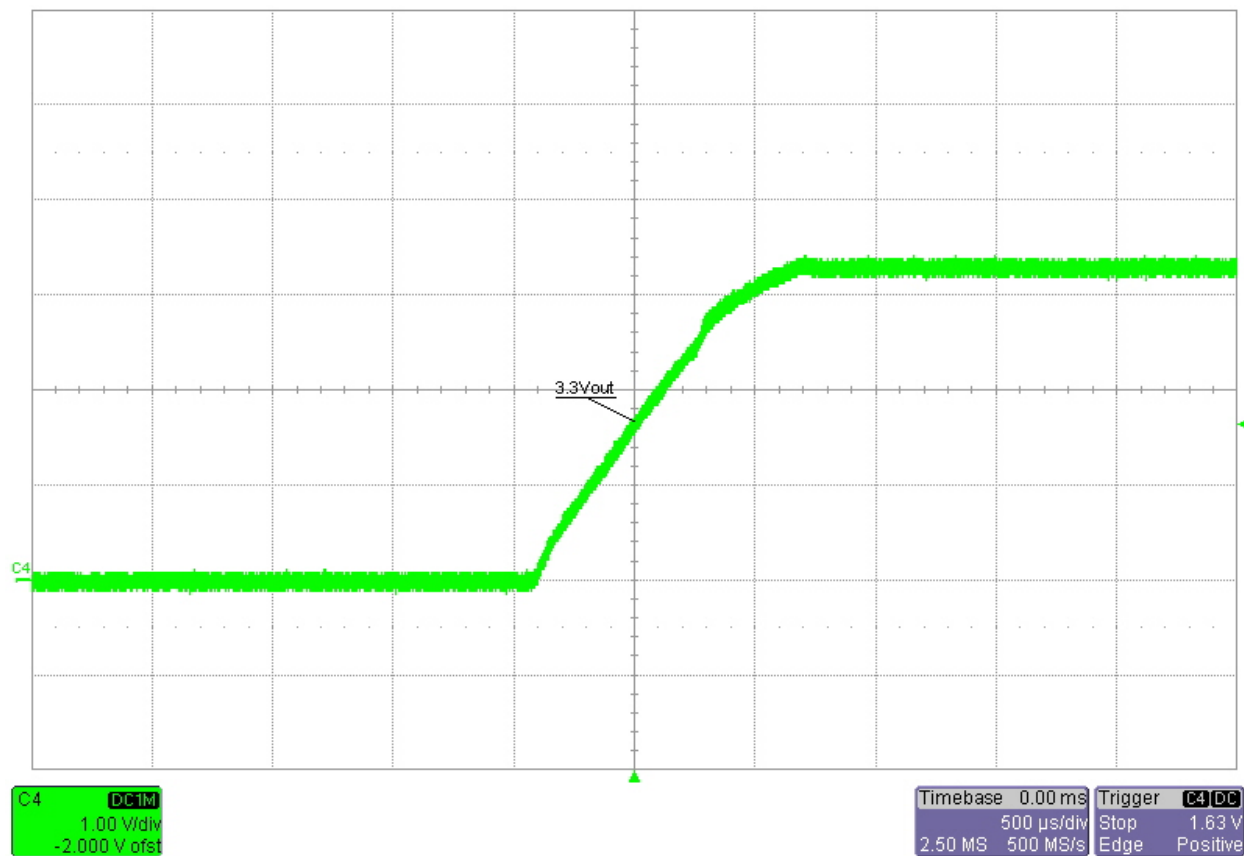


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## 5.2 Output ripple voltage

Input voltage  = 5V
Load current   = 0.42A

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# PMP7177_RevB Test Results

**TEXAS INSTRUMENTS**

## 5.3   Switch Node

Input voltage   = 5V
Load current    = 0.42A



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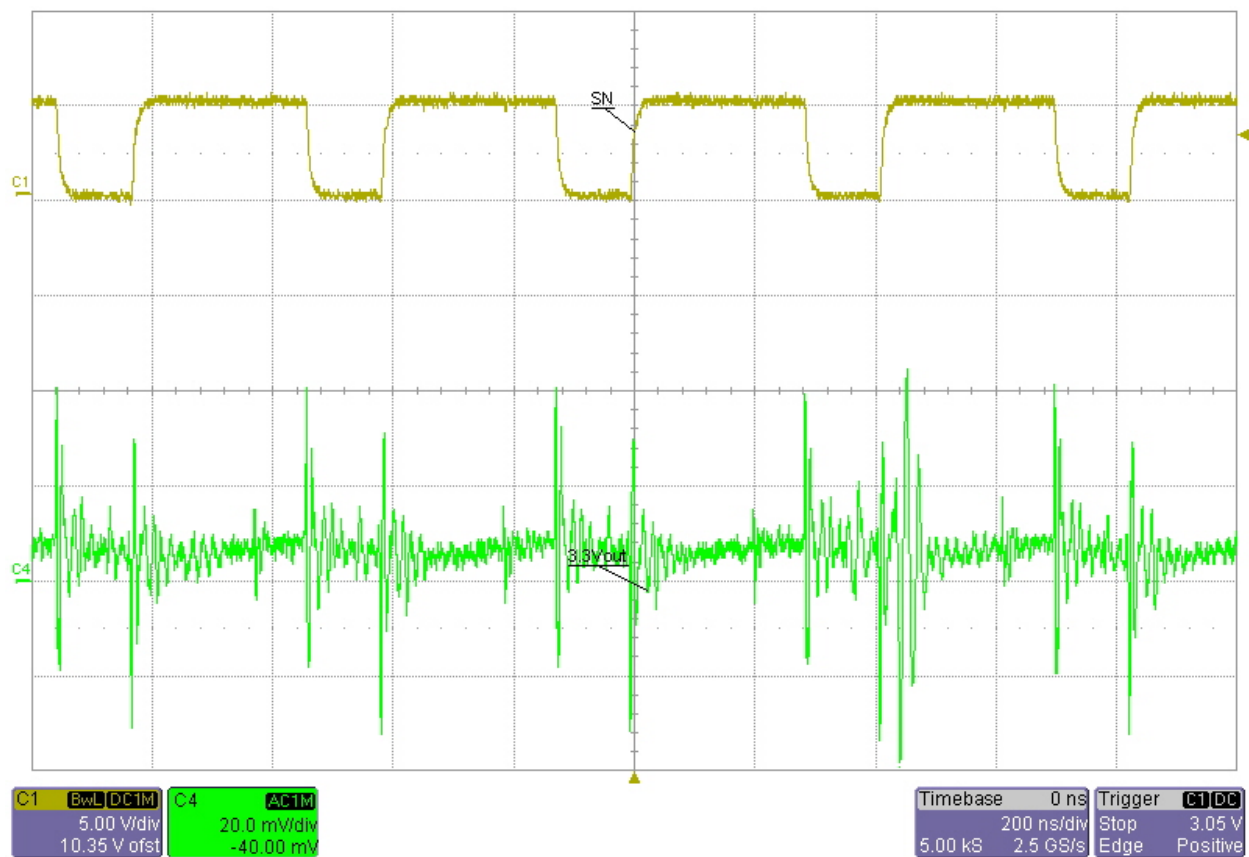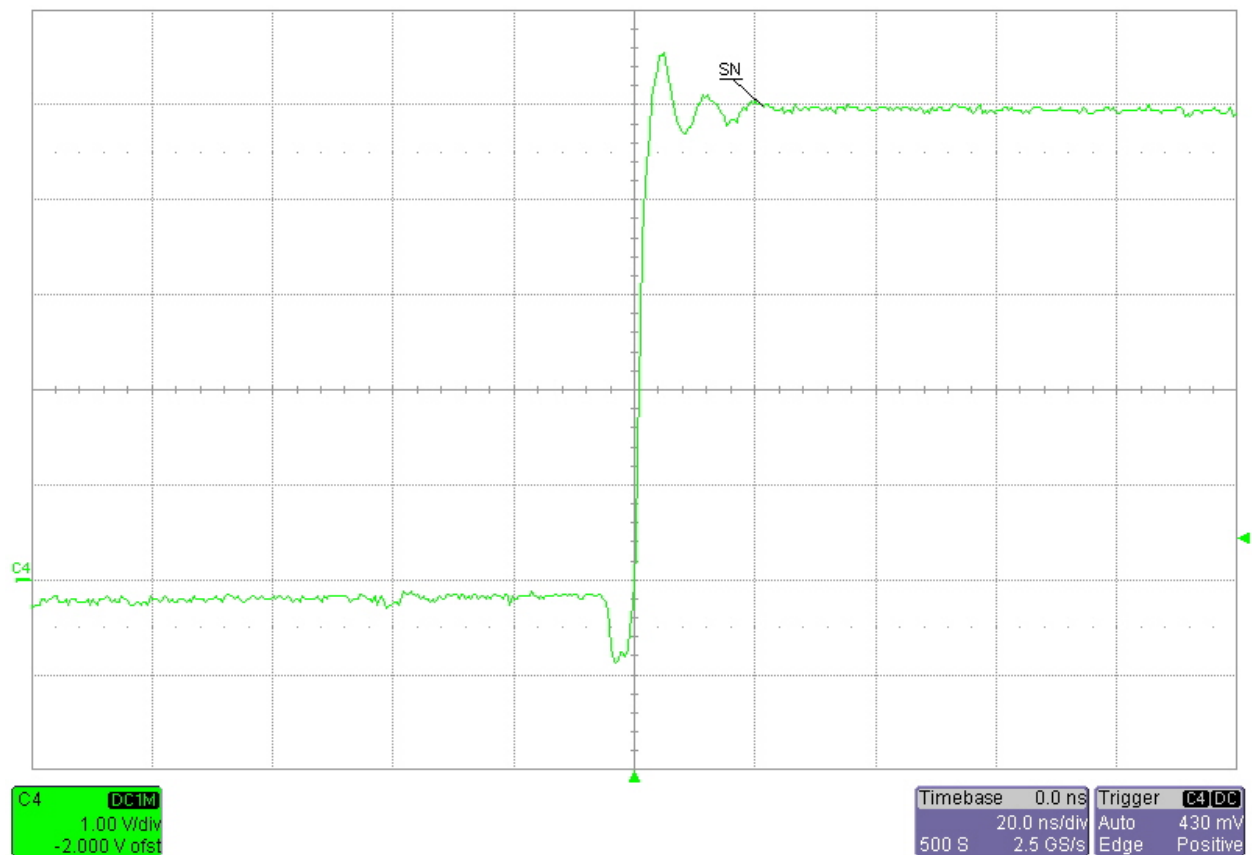
## 5.4 Load Transients

Input voltage   = 5V
Load current    = 0.1A to 0.3A

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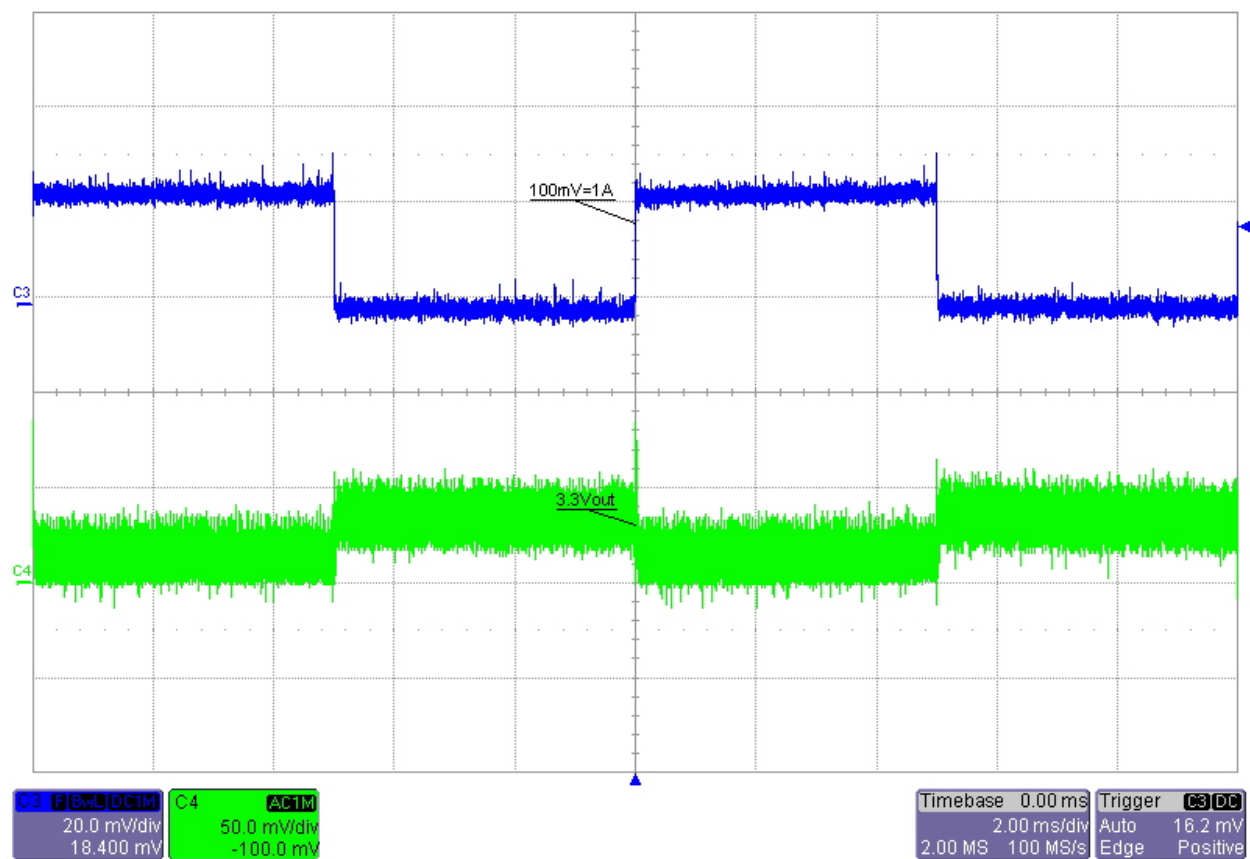
## 6   2.8V@0.11A

### 6.1   Output ripple voltage

Input voltage   = 3.3V
Load current   = 0.11A

**TEXAS INSTRUMENTS**
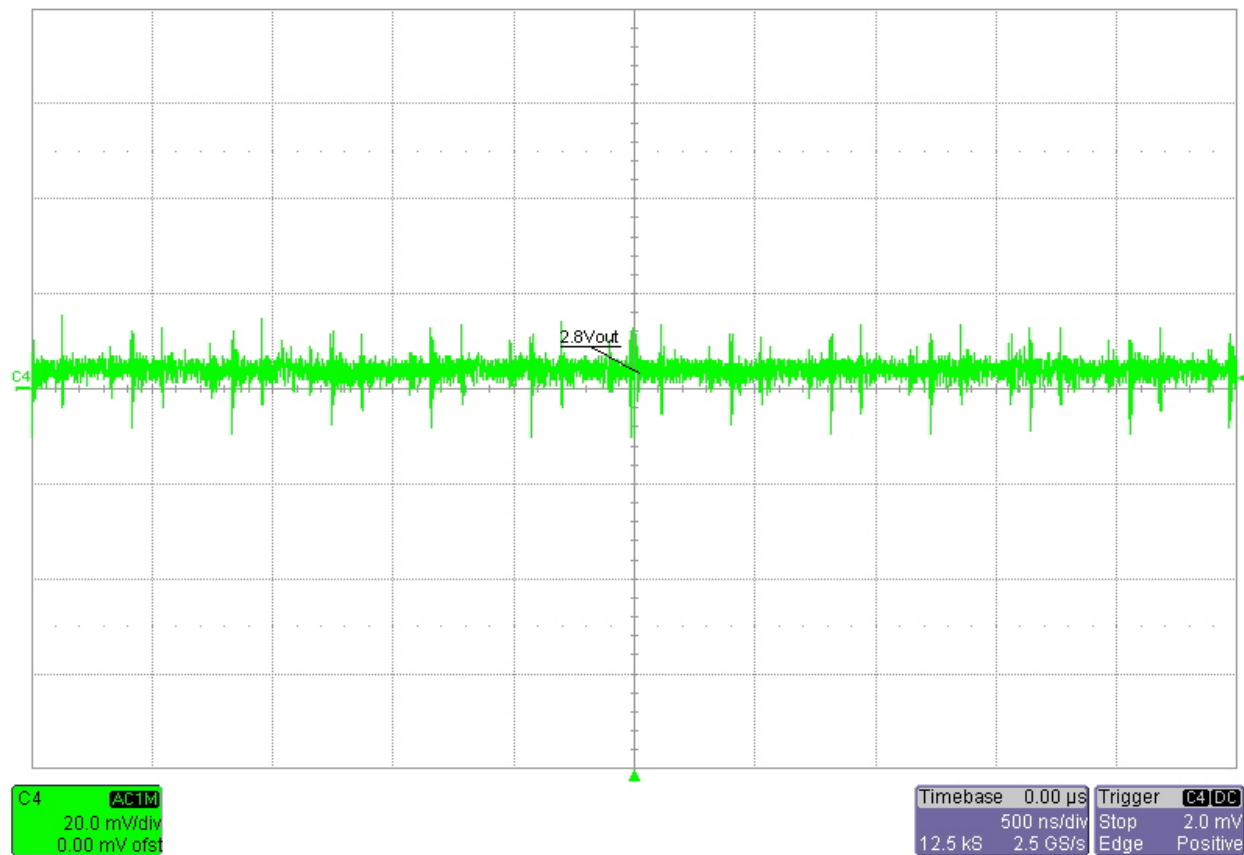
## 7   1.3V@0.22A

### 7.1   Output ripple voltage

Input voltage   = 1.8V
Load current   = 0.22A
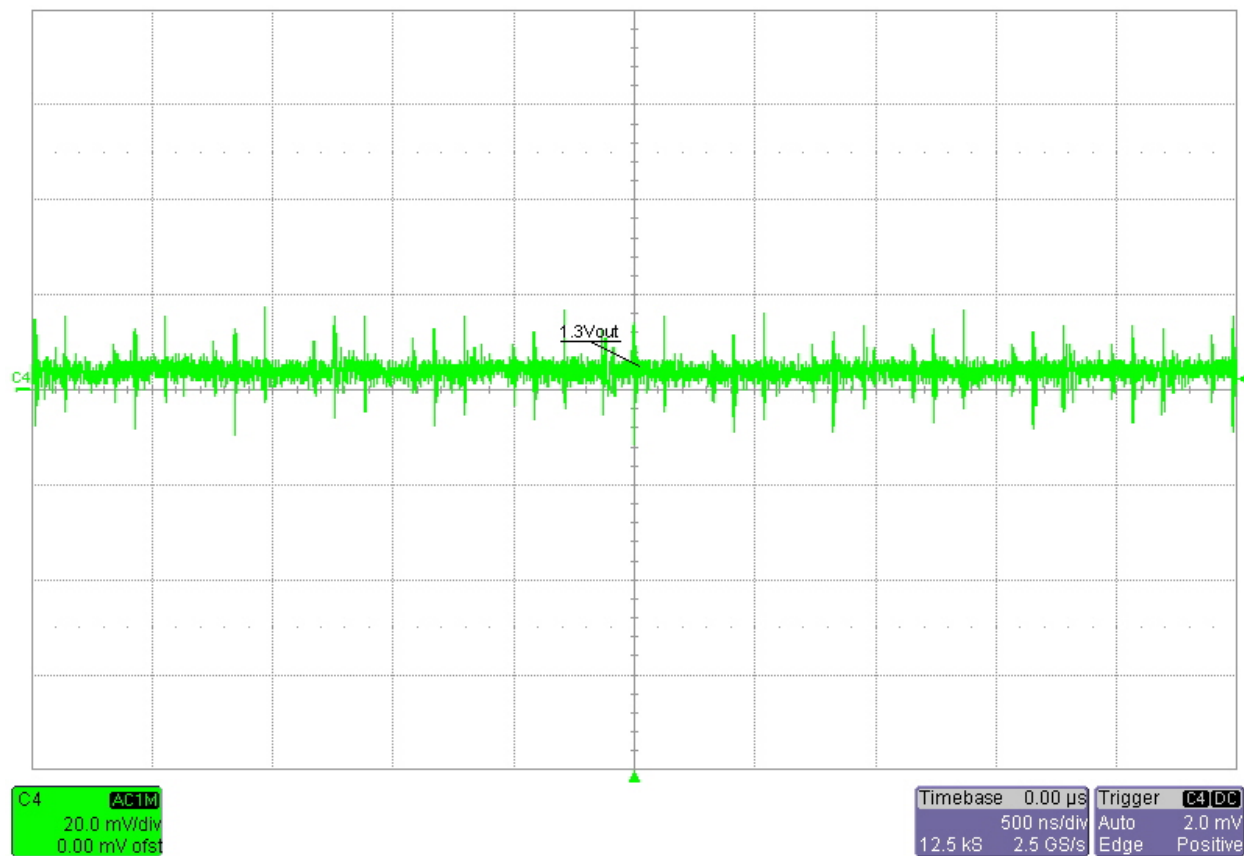
## 8   Thermal Analysis

The images below show the infrared images taken from the FlexCam after 15min at full load.

Input voltage              = 16V (worst case)
Ambient temperature    = 25°C
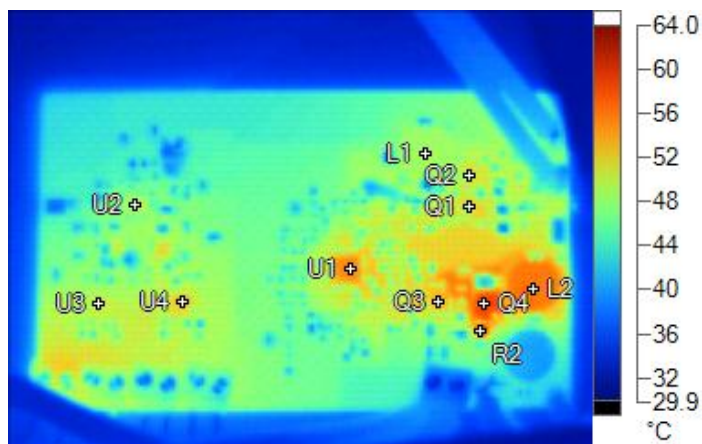


| Name | Temperature | |
|------|-------------|--|
| R2 | 63.3°C | |
| Q4 | 59.3°C | |
| Q3 | 53.2°C | |
| Q2 | 50.4°C | |
| Q1 | 51.2°C | |
| L1 | 48.6°C | |
| L2 | 56.3°C | |
| U1 | 55.6°C | |
| U4 | 54.5°C | |
| U3 | 51.1°C | |
| U2 | 49.0°C | |

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3. Since the EVM is not a completed product, it may not meet all applicable regulatory and safety compliance standards (such as UL, CSA, VDE, CE, RoHS and WEEE) which may normally be associated with similar items. You assume full responsibility to determine and/or assure compliance with any such standards and related certifications as may be applicable. You will employ reasonable safeguards to ensure that your use of the EVM will not result in any property damage, injury or death, even if the EVM should fail to perform as described or expected.

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