TPS54425 – 1.0V @ 3.0A

1 Output ripple voltage

The output ripple voltage at 3.0A load and 12.0V input voltage is shown in Figure 1.

Channel C2: output voltage, -8mV minimum and 11mV maximum
20mV/div, 2us/div, AC coupled

Figure 1
2 Transient response

The transient response at an input voltage of 12.0V is shown in Figure 2.

Channel C2: output voltage, no voltage change measurable
20mV/div, 1ms/div, AC coupled

Channel C1: load current, load step 1.5A to 3.0A and vice versa
1A/div, 1ms/div

![Figure 2](image-url)
3 Switching node

The drain-source voltage on the switching node at an input voltage of 12.0V is shown in Figure 3.

Channel C1: **drain-source voltage**, -1.8V minimum and 13.0V maximum

2V/div, 1us/div

![Figure 3]
4 Efficiency & load regulation

The efficiency and load regulation are shown in Figure 4.

Figure 4
5 Thermal measurement

The thermal image (Figure 5) shows the circuit at an ambient temperature of 21 °C with an input voltage of 12.0V and a load of 3.0A.

![Thermal image showing circuit temperatures](image)

**Figure 5**

<table>
<thead>
<tr>
<th>Markers</th>
<th>Label</th>
<th>Temperature</th>
<th>Emissivity</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1</td>
<td>49.1 °C</td>
<td>0.95</td>
<td>21.0 °C</td>
<td></td>
</tr>
<tr>
<td>U1</td>
<td>52.1 °C</td>
<td>0.95</td>
<td>21.0 °C</td>
<td></td>
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