TPS54425 – 3.3V @ 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 19mV 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, -34mV minimum, 42mV maximum
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
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**, -2.2V minimum and 13.2V maximum

2V/div, 1us/div

![Figure 3]
4 Efficiency & load regulation

The efficiency and load regulation are shown in 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](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>56.3 °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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</tbody>
</table>
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<td>Computers and Peripherals</td>
</tr>
<tr>
<td>Data Converters</td>
<td>Consumer Electronics</td>
</tr>
<tr>
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<td>Energy and Lighting</td>
</tr>
<tr>
<td>DSP</td>
<td>Industrial</td>
</tr>
<tr>
<td>Clocks and Timers</td>
<td>Medical</td>
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<td>Security</td>
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</tr>
<tr>
<td>Microcontrollers</td>
<td>Video and Imaging</td>
</tr>
<tr>
<td>RFID</td>
<td></td>
</tr>
<tr>
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<td></td>
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<td></td>
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