Motor Current Measurement using Hall Sensors

The voltage across Burden is also given as input to the comparators for OC detection.

Note: The SMA Connectors are used to connect to external ADC EVMs.
Currently PVMD is set to 6V and RS4 is DNP.
When LP2992 is not used, Mount RS4 and Set PVMD = 5V.
Burden Resistor = 42.2 ohms (when external +5V operated ADC is used)
Burden Resistor = 27 ohms (when internal ADC of MCU is used)

Table:

<table>
<thead>
<tr>
<th>Number of primary turns</th>
<th>Primary current (nominal) I_p [mA]</th>
<th>Primary current (maximum) I_p [mA]</th>
<th>Nominal output current I_o [mA]</th>
<th>Turns ratio K_o</th>
<th>Primary resistance R_p [mΩ]</th>
<th>Primary inductance L_p [μH]</th>
<th>Recommended PCB connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>25</td>
<td>55</td>
<td>25</td>
<td>1:1000</td>
<td>0.18</td>
<td>0.012</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>27</td>
<td>24</td>
<td>2:1000</td>
<td>0.81</td>
<td>0.054</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>18</td>
<td>24</td>
<td>3:1000</td>
<td>1.62</td>
<td>0.110</td>
<td></td>
</tr>
</tbody>
</table>

Level-shifting + Unity Gain Buffer

LP Sallen-Key Filter (fc = 160kHz)

Unity Gain Amplifier

LP Multiple Feedback Filter (fc = 160kHz)

Pseudo Differential signal conditioning - Unipolar

Pseudo Differential signal conditioning - Bipolar
Fully differential signal conditioning (This section is not populated for TIDA-00316 Design)

Overcurrent Protection
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