Power Management for Precision Analog

Introduction
Texas Instruments (TI) makes high-performance precision analog devices, including precision data converters and operational amplifiers. To preserve signal accuracy and integrity, these devices require power supplies with high-bandwidth power-supply ripple rejection (PSRR), very low internal noise and high efficiency. The following low-dropout linear regulators (LDOs) and DC/DC converters are just some of TI's ideal solutions for powering precision analog applications.

Low-Noise, High-PSRR LDOs
TPS7A3xxx/TPS7A4xxx
The negative-voltage TPS7A3001 LDO, when paired with the positive-voltage TPS7A4901 LDO, provides designers with a total solution for powering precision analog applications. These LDOs feature ultra-high PSRR performance with output noise as low as 16 µVrms and are designed to power noise-sensitive applications such as op amps, ADCs, DACs and other high-performance analog circuitry. TI offers another version of these LDOs, the TPS7A3301/4801, which have an output current of 1 A.

TPS7A8001
The TPS7A8001 is an LDO that offers very high PSRR at the output. This LDO uses an advanced BiCMOS process and a pMOSFET pass device to achieve very low noise and excellent transient response.

ADC and Op Amp Powered by Low-Noise LDOs

High-Efficiency DC/DC Converters
TPS63700
The TPS63700 is a high-efficiency inverting DC/DC converter generating a negative VOUT down to –15 V with an IOUT of up to 360 mA. The TPS63700 can be directly powered from a Li-Ion battery or a 3-cell NiMH/NiCd battery.

TPS62290
The TPS62290 is a highly efficient synchronous step-down DC/DC converter optimized for battery-powered portable applications. It provides an IOUT of up to 1 A from a single Li-Ion cell.

Visit www.ti.com/ldo
# LDOs and Converters for Precision Analog

<table>
<thead>
<tr>
<th>Device</th>
<th>Type</th>
<th>$V_{\text{IN}}$ (min) (V)</th>
<th>$V_{\text{IN}}$ (max) (V)</th>
<th>$V_{\text{OUT}}$ (min) (V)</th>
<th>$V_{\text{OUT}}$ (max) (V)</th>
<th>$I_{\text{OUT}}$ (max) (mA)</th>
<th>PSRR (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPS7A3001</td>
<td>LDO</td>
<td>–36</td>
<td>–3</td>
<td>–33</td>
<td>–1.2</td>
<td>–200</td>
<td>72 dB at 120 Hz</td>
</tr>
<tr>
<td>TPS7A3301</td>
<td>LDO</td>
<td>–36</td>
<td>–3</td>
<td>–34</td>
<td>–1.2</td>
<td>1000</td>
<td>65 dB at 1 kHz</td>
</tr>
<tr>
<td>TPS7A4901</td>
<td>LDO</td>
<td>3</td>
<td>36</td>
<td>1.2</td>
<td>33</td>
<td>150</td>
<td>72 dB at 120 Hz</td>
</tr>
<tr>
<td>TPS7A4801</td>
<td>LDO</td>
<td>3</td>
<td>36</td>
<td>1.2</td>
<td>34</td>
<td>1000</td>
<td>63 dB at 1 kHz</td>
</tr>
<tr>
<td>TPS7A4901</td>
<td>DC/DC converter</td>
<td>2.2</td>
<td>6.5</td>
<td>0.8</td>
<td>6</td>
<td>1000</td>
<td>63 dB at 1 kHz; 57 dB at 100 kHz</td>
</tr>
<tr>
<td>TPS65130/1</td>
<td>DC/DC converter</td>
<td>2.7</td>
<td>5.5</td>
<td>–15</td>
<td>15</td>
<td>200 (typ)</td>
<td>—</td>
</tr>
<tr>
<td>TPS62065</td>
<td>DC/DC converter</td>
<td>2.9</td>
<td>6</td>
<td>0.8</td>
<td>6</td>
<td>2000</td>
<td>—</td>
</tr>
<tr>
<td>TPS62290</td>
<td>DC/DC converter</td>
<td>2.3</td>
<td>6</td>
<td>0.6</td>
<td>6</td>
<td>1000</td>
<td>—</td>
</tr>
<tr>
<td>TPS62150</td>
<td>DC/DC converter</td>
<td>3</td>
<td>17</td>
<td>1.2</td>
<td>16</td>
<td>1000</td>
<td>—</td>
</tr>
<tr>
<td>TPS62140</td>
<td>DC/DC converter</td>
<td>3</td>
<td>17</td>
<td>1.2</td>
<td>16</td>
<td>2000</td>
<td>—</td>
</tr>
<tr>
<td>TPS54065</td>
<td>DC/DC converter</td>
<td>3.5</td>
<td>60</td>
<td>0.8</td>
<td>58</td>
<td>1500</td>
<td>—</td>
</tr>
<tr>
<td>TPS54065</td>
<td>DC/DC converter</td>
<td>3.5</td>
<td>60</td>
<td>0.8</td>
<td>58</td>
<td>500</td>
<td>—</td>
</tr>
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**Preview products are listed in bold blue.**

## TI's Reference Design for Noise-Sensitive and Precision Applications

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