6-Lead SOT-23 ADC Driver for the 8-/10-Lead Family of 14-/16-/18-Bit PulSAR ADC Evaluation Boards

FEATURES
Enables quick breadboarding/prototyping
User defined circuit configuration
Edge-mounted header for easy connections
Standalone power supply for power supply adjustments

COMPATIBLE PulSAR EVALUATION BOARDS
8-lead PulSAR evaluation board
16-bit ADCs: AD7683, AD7684, AD7694
10-lead PulSAR evaluation board
14-bit ADCs: AD7942, AD7946
16-bit ADCs: AD7685, AD7686, AD7687, AD7688, AD7693, AD7980, AD7983, AD7988-5
18-bit ADCs: AD7690, AD7691, AD7982, AD7984, AD7989-5

GENERAL DESCRIPTION
The Analog Devices, Inc., 6-lead SOT-23 ADC driver is used to evaluate the performance of amplifiers in an SOT package with the 8-/10-lead family of 14-/16-/18-bit PulSAR® ADC evaluation boards. This add-on board can easily be inserted on either side of the ADC evaluation board using the 7-pin header. Figure 1 shows the mounted SOT-23 ADC driver on the ADC evaluation board. Figure 5 and Figure 6 show the bare SOT-23 ADC driver—component side and solder side, respectively.

Figure 2 shows the evaluation board schematic. Figure 3 shows how the user can configure the 6-lead SOT-23 ADC driver to drive a single-ended ADC. Figure 4 shows how the user can configure the 6-lead SOT-23 ADC driver to drive a single-ended signal into a differential ADC. The bill of materials is listed in Table 1.

NOTES
1. TO ROUTE THE INPUTS, OUTPUTS, AND SUPPLIES ONTO THE 6-LEAD SOT-23 ADC DRIVER PROPERLY, R20, R21, R28, R35, R36, AND R40 ON THE ADC EVALUATION BOARD MUST BE REMOVED. FOR MORE INFORMATION, SEE THE UG-340 FOR THE ADC EVALUATION BOARD SCHEMATICS.

Figure 1. A 6-Lead SOT-23 ADC Driver Mounted onto a 10-Lead PulSAR ADC Evaluation Board
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REVISION HISTORY
5/14—Revision 0: Initial Version
NOTES
TO ROUTE THE INPUTS, OUTPUTS, AND SUPPLIES ONTO THE 6-LEAD SOT-23 ADC DRIVER PROPERLY, R20, R21, R28, R35, R36, AND R40 ON THE ADC EVALUATION BOARD MUST BE REMOVED. FOR MORE INFORMATION, SEE THE UG-340 FOR THE ADC EVALUATION BOARD SCHEMATIC.

Figure 2. 6-Lead SOT-23 ADC Driver Schematic
NOTES
TO ROUTE THE INPUTS, OUTPUTS, AND SUPPLIES ONTO THE 6-LEAD SOT-23 ADC DRIVER PROPERLY, R20, R21, R28, R35, R36, AND R40 ON THE ADC EVALUATION BOARD MUST BE REMOVED. FOR MORE INFORMATION, SEE THE UG-340 FOR THE ADC EVALUATION BOARD SCHEMATICS.

Figure 3. Configuring the 6-Lead SOT-23 ADC Driver to Drive a Single-Ended ADC
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Figure 4. Configuring the 6-Lead SOT-23 ADC Driver to Drive a Single-Ended Signal into a Differential ADC
EVALUATION BOARD LAYOUT PATTERN

Figure 5. 6-Lead SOT-23 ADC Driver, Component Side

Figure 6. 6-Lead SOT-23 ADC Driver, Solder Side
## BILL OF MATERIALS

Table 1.

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Reference Designator</th>
<th>Description</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>VEE, GND, VCC</td>
<td>3-pin power supply header</td>
<td>3-pin header</td>
</tr>
<tr>
<td>8</td>
<td>VinP, VinN, GND, VCC, VEE, VREF, VOUTP, VOUTN</td>
<td>Supply input and output connections</td>
<td>7-pin header</td>
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<td>1</td>
<td>PD</td>
<td>Jumper to control power-down</td>
<td>2-pin jumper</td>
</tr>
<tr>
<td>2</td>
<td>C17, C18</td>
<td>10 µF capacitor</td>
<td>1206</td>
</tr>
<tr>
<td>16</td>
<td>C1 to C16</td>
<td>Capacitor, user defined</td>
<td>0603</td>
</tr>
<tr>
<td>1</td>
<td>DUT</td>
<td>See the amplifier data sheet for SOT-23 package dimensions</td>
<td>SOT-23</td>
</tr>
<tr>
<td>30</td>
<td>R1 to R30</td>
<td>Resistor, user defined</td>
<td>R0603</td>
</tr>
</tbody>
</table>
ESD Caution

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

Legal Terms and Conditions

By using the evaluation board discussed herein (together with any tools, components documentation or support materials, the “Evaluation Board”), you are agreeing to be bound by the terms and conditions set forth below (“Agreement”) unless you have purchased the Evaluation Board, in which case the Analog Devices Standard Terms and Conditions of Sale shall govern. Do not use the Evaluation Board until you have read and agreed to the Agreement. Your use of the Evaluation Board shall signify your acceptance of the Agreement. Do not use the Evaluation Board for any other purpose. Furthermore, the license granted is expressly made subject to the following additional limitations: Customer shall not (i) rent, lease, display, sell, transfer, assign, sublicense, or distribute the Evaluation Board; and (ii) permit any Third Party to access the Evaluation Board. As used herein, the term “Third Party” includes any entity other than ADI, Customer, their employees, affiliates and in-house consultants. The Evaluation Board is NOT sold to Customer; all rights not expressly granted herein, including ownership of the Evaluation Board, are reserved by ADI. CONFIDENTIALITY. This Agreement and the Evaluation Board shall all be considered the confidential and proprietary information of ADI. Customer may not disclose or transfer any portion of the Evaluation Board to any other party for any reason. Upon discontinuation of use of the Evaluation Board or termination of this Agreement, Customer agrees to promptly return the Evaluation Board to ADI. ADDITIONAL RESTRICTIONS. Customer may not disassemble, decompile or reverse engineer chips on the Evaluation Board. Customer shall inform ADI of any occurred damages or any modifications or alterations it makes to the Evaluation Board, including but not limited to soldering or any other activity that affects the material content of the Evaluation Board. Modifications to the Evaluation Board must comply with all applicable laws, including but not limited to the RoHS Directive. TERMINATION. ADI may terminate this Agreement at any time upon giving written notice to Customer. ADI’s total liability from any and all causes shall be limited to the amount of one hundred US dollars ($100.00). EXPORT. Customer agrees that it will not directly or indirectly export the Evaluation Board to any country, and that it will comply with all applicable United States federal laws and regulations relating to exports. GOVERNING LAW. This Agreement shall be governed by and construed in accordance with the substantive laws of the Commonwealth of Massachusetts (excluding conflict of law rules). Any legal action regarding this Agreement will be heard in the state or federal courts having jurisdiction in Suffolk County, Massachusetts, and Customer hereby submits to the personal jurisdiction and venue of such courts. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement and is expressly disclaimed.