Differential TGC for Ultrasound AFEs

Project Title: Differential TGC for Ultrasound AFEs

Designed for: Public Release

Assembly Variant: 001

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Revision History

Rev | ECN # | Approved Date | Approved by | Notes
--- | --- | --- | --- | ---
N/A | N/A | N/A | N/A | N/A

Block Diagram

- DAC8802
- FPGA or Controller Interface
- SPI
- +5V
- I-to-V Converters
  - +13V
  - -13V
- OPA2209
- THS4130
  - VCM
  - VCNL-P
  - VCNL (0 to 1.5V)
  - VCM (0.75V)
  - VCNL-M
- Passive Attenuator
- +13V -13V
- +13V
- -10V
- +10V
- 10V from REF5010
- Resistor Divider
  - 10V
  - 0.75V
- Required VCM as per AFE
- +10V to 12V
- LM5160
  - +15V
  - -15V
  - +13V
  - -13V
  - +5V
- TPS7A39
- TPS7A47

Used only if +/−15V is not available.
Internal Reference = 1.188V for VOUTP
Internal Reference = 1.4V for VOUTP
Internal Reference = -1.188V for VOUTN

5V-12V VIN-B
15V
GND

VIN-A
+15V
GND
+15V

Fsw=200kHz

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+10V Buffered Reference Voltage Generation

-10V Buffered Reference Voltage Generation

Output CM Voltage Generation

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Mount R34 and unmount R35 for Midscale Output
Mount R35 and unmount R34 for Zeroscale Output

14-Bit Dual MDAC
I-to-V Converters
2nd Order Multiple Feedback Filter (fc = 150kHz)
Passive Attenuator
Differential TGC for Ultrasound AFEs

Variant/Label Table

<table>
<thead>
<tr>
<th>Variant</th>
<th>Label Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>ChangeMe!</td>
</tr>
<tr>
<td>002</td>
<td>ChangeMe!</td>
</tr>
</tbody>
</table>

Assembly Notes:

ZZ1
This Assembly Note is for PCB labels only

ZZ2
These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ3
These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ4
These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

PCB Number: TIDA-01427
PCB Rev: E2

Contact: http://www.ti.com/support

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