LA75A
LINEAR AMPLIFIER FOR PIEZO

APPLICATIONS
› Piezo drive up to 3 channels
› High accuracy positioning

KEY FEATURES
› 90 mA continuous output
› 300 mA optional peak output
› [-20 V;150 V] output voltage range
› Low noise SNR 85 dB and THD 0.1%
› Push pull configuration in option
› Fully protected piezo amplifier
› Building block for multi channel configuration

RELATED PRODUCT
› Piezo actuators and stages
› CTEC Powered benchtop case
› CTEC Powered 19” subrack
› UC55 Controllers
› SG75 / ECS75 sensors conditioners

SPECIFICATIONS

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TYPICAL VALUE</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Function</td>
<td>Driver for piezoelectric actuator</td>
<td></td>
</tr>
<tr>
<td>Number of channels</td>
<td>1 ... 3</td>
<td></td>
</tr>
<tr>
<td><strong>Input</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Input voltage</td>
<td>-1 ... +7.5</td>
<td>V</td>
</tr>
<tr>
<td>Control Input impedance</td>
<td>10</td>
<td>kΩ</td>
</tr>
<tr>
<td><strong>Output</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output voltage</td>
<td>-20 ... +150</td>
<td>V</td>
</tr>
<tr>
<td>Continuous peak output current (1)</td>
<td>±90</td>
<td>mA</td>
</tr>
<tr>
<td>Transient peak output current (2)</td>
<td>±300</td>
<td>mA</td>
</tr>
<tr>
<td>Maximum output load</td>
<td>400</td>
<td>µF</td>
</tr>
<tr>
<td><strong>Power amplifier</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak output power (3)</td>
<td>45</td>
<td>W</td>
</tr>
<tr>
<td><strong>Gain</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gain</td>
<td>20</td>
<td>V/V</td>
</tr>
<tr>
<td>Gain error</td>
<td>±1</td>
<td>%</td>
</tr>
<tr>
<td>Gain linearity error</td>
<td>0.01</td>
<td>%</td>
</tr>
</tbody>
</table>

NON CONTRACTUAL PICTURE

RELATED PRODUCT

Piezo actuators and stages
CTEC Powered benchtop case
CTEC Powered 19” subrack
UC55 Controllers
SG75 / ECS75 sensors conditioners
> **Dynamic performance**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Typical Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small signal bandwidth (-3dB)</td>
<td>30</td>
<td>kHz</td>
</tr>
<tr>
<td>Power bandwidth</td>
<td>See chart</td>
<td></td>
</tr>
<tr>
<td>THD</td>
<td>0.1</td>
<td>%</td>
</tr>
<tr>
<td>Signal to Noise Ratio</td>
<td>85</td>
<td>dB</td>
</tr>
</tbody>
</table>

> **Protections**

- Overcurrent
- Overtemperature
- Overvoltage

**Annotations**

- Guaranteed in labs environment
- (1) Electronically limited
- (2) With EPC Enhanced Peak Current - During 600µs with a max repetition rate of 20ms - Internally limited - see specific application note
- (3) Max. instantaneous output power = max(p(t)) = max(u(t) x i(t)), with EPC
- (4) Unloaded
- (5) Computed as RMS output signal / RMS output Noise floor. [1; 200]Hz
- (6) Extended temperature under request
- (7) no Dynamic Current Limitation for integrated Push Pull option

**MISCELLANEOUS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Typical Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass</td>
<td>1</td>
<td>kg</td>
</tr>
<tr>
<td>Front face dimension</td>
<td>10F wide, 3U high</td>
<td></td>
</tr>
<tr>
<td>Warm up time</td>
<td>15</td>
<td>min</td>
</tr>
<tr>
<td>Cooling</td>
<td>Forced air</td>
<td></td>
</tr>
<tr>
<td>Operating temperature range (°C)</td>
<td>0 ... 40</td>
<td></td>
</tr>
<tr>
<td>Storage temperature range (°C)</td>
<td>-10 ... 50</td>
<td></td>
</tr>
</tbody>
</table>

**INTERFACES**

- Order input BNC type
- Piezo actuator Output LEMO EPL-00-250
- DC Offset 10-turn screw potentiometer
- DC Offset Range -1 ... +7.5V
- Servo ON/OFF Selector for control loop

**INCLUDED ACCESSORIES**

- Piezo actuator cable Coax 1.5m - Lemo connector / 2x banana 1mm plug
OPTIONS

- **Push pull**
  Capability to drive push-pull piezo mechanisms

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<tr>
<th>PARAMETER</th>
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</tr>
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<tbody>
<tr>
<td>Output DC voltage</td>
<td>130</td>
<td>V</td>
</tr>
<tr>
<td>DC error</td>
<td>±0.25</td>
<td>V</td>
</tr>
<tr>
<td>Average output current</td>
<td>±90</td>
<td>mA</td>
</tr>
<tr>
<td>Continuous peak output current</td>
<td>±90</td>
<td>mA</td>
</tr>
<tr>
<td>Load regulation</td>
<td>0.1</td>
<td>%</td>
</tr>
</tbody>
</table>

- **Output connector**
  LEMO EPG-00-303

- **UC55/UC65**
  Controller for position loop
  See specific datasheet

- **Piezo cable**
  Specific length on request
  Please contact CTEC for more detail

- **T LEMO**
  Able to connect 2 CTEC actuators in parallel
  Please contact CTEC for more detail

- **LEMO -BNC adapter**
  Converts LEMO to BNC connector

DRAWINGS

[Diagram of LA75A with labels for Input order, Servo switch, DC Offset potentiometer, and Piezo actuator connector]
TYPICAL PERFORMANCE CHARACTERISTICS

Power Bandwidth - LA75A

Frequency (Hz)

Normalized Gain (dB)

-20

-18

-16

-14

-12

-10

-8

-6

-4

-2

0

1

10

100

1000

0.5 µF

1.5 µF

3.2 µF

20 µF

VPP = +130VDC

Push Pull Configuration

V amplifier = [-20; +150]V