Overview
The LA4582CM is a preamplifier plus power amplifier IC that support auto-reverse, and was developed for 3-V headphone stereo systems.

Features
- The LA4582CM was developed for cassette playback systems, and in addition to preamplifier and power amplifier functions, it also provides low boost and automatic power limitation (PVSS: Peak Volume Select System) functions.
- Provided in a 36-pin miniature flat package (0.65 mm lead pitch) that is optimal for set miniaturization.
- Capable of driving 8-Ω speakers
- Two-channel playback auto-reverse preamplifier
- Two-channel headphone power amplifier
- Low-frequency boost function (auto-loudness effect)
- Output suppression function (PVSS)
- Two-channel radio input switch (pre-mute switch)
- Power mute switch

Package Dimension

![Package Dimension Diagram]

Specifications

Maximum Ratings at Ta = 25°C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Ratings</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum supply voltage</td>
<td>VCC max</td>
<td></td>
<td>4.5</td>
<td>V</td>
</tr>
<tr>
<td>Allowable power dissipation</td>
<td>Pd max</td>
<td></td>
<td>375</td>
<td>mW</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>Topr</td>
<td></td>
<td>-20 to +75</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Tstg</td>
<td></td>
<td>-40 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

Operating Conditions at Ta = 25°C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Ratings</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended supply voltage</td>
<td>VCC</td>
<td></td>
<td>3.0</td>
<td>V</td>
</tr>
<tr>
<td>Operating voltage range</td>
<td>VCC op</td>
<td></td>
<td>1.8 to 3.6</td>
<td>V</td>
</tr>
</tbody>
</table>
### Operating Characteristics at Ta = 25°C, VCC = 3.0 V, fi = 1 kHz, 0.775 V = 0 dBm

\( R_L = 10 \, \text{k}\Omega \) (preamplifier), \( R_L = 30 \, \text{k}\Omega \) (low boost), \( R_L = 16 \, \Omega \) (power amplifier)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>Ratings</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>[PRE + L·BOOST + PVSS + POWER]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quiescent current</td>
<td>ICCO1</td>
<td>Rg = 2.2 k(\Omega), low boost off, PVSS off</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>ICCO2</td>
<td>Rg = 2.2 k(\Omega), low boost on, PVSS on</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>Voltage gain (closed loop)</td>
<td>VG1</td>
<td>V0 = -5 dBm</td>
<td>62.5</td>
<td>64.5</td>
</tr>
<tr>
<td>Voltage gain (open loop)</td>
<td>V0</td>
<td>-5 dBm</td>
<td>70</td>
<td>83</td>
</tr>
<tr>
<td>Output power</td>
<td>PO</td>
<td>THD = 10%</td>
<td>23</td>
<td>34</td>
</tr>
<tr>
<td>Voltage gain (closed loop)</td>
<td>VG3</td>
<td>V0 = -5 dBm</td>
<td>27</td>
<td>29</td>
</tr>
<tr>
<td>Total harmonic distortion</td>
<td>THD2</td>
<td>PO = 1 mW</td>
<td>0.4</td>
<td>1.0</td>
</tr>
<tr>
<td>Interchannel crosstalk</td>
<td>CT2</td>
<td>V0 = -5 dBm, RV = 0 (\Omega)</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>Ripple rejection</td>
<td>RV2</td>
<td>RV = 0 (\Omega), V0 = -20 dBm, fr = 100 Hz</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>DC offset voltage</td>
<td>VODC OFF</td>
<td>Between pin 8 and pins 4 to 6</td>
<td>-90</td>
<td>+90 mV</td>
</tr>
<tr>
<td><strong>[L·BOOST]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage gain</td>
<td>VG4</td>
<td>VN = -30 dBm, boost: on/off</td>
<td>-2.3</td>
<td>-3.8</td>
</tr>
<tr>
<td>Boost</td>
<td>BST1</td>
<td>VN = -30 dBm, f = 100 Hz, boost: on</td>
<td>11.2</td>
<td>14.7</td>
</tr>
<tr>
<td></td>
<td>BST2</td>
<td>VN = -30 dBm, f = 10 Hz, boost: on</td>
<td>7.0</td>
<td>8.5</td>
</tr>
<tr>
<td>Maximum output voltage</td>
<td>VODX2</td>
<td>THD = 1%, boost: on</td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td>Total harmonic distortion</td>
<td>THD3</td>
<td>V0 = 0.1 V, boost: on</td>
<td>0.04</td>
<td>0.5</td>
</tr>
<tr>
<td>Interchannel crosstalk</td>
<td>CT3</td>
<td>V0 = -20 dBm, Rg = 0, boost: on</td>
<td>25</td>
<td>32</td>
</tr>
<tr>
<td>Ripple rejection</td>
<td>RV3</td>
<td>RV = 0, fR = 100 Hz, VR = -20 dBm, VCC = 1.8 V, boost: on</td>
<td>45</td>
<td>53</td>
</tr>
<tr>
<td><strong>[L·BOOST + PVSS + POWER]</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVSS voltage</td>
<td>VNC2</td>
<td>VN = -40 dBm, PVSS2</td>
<td>-40</td>
<td>-37</td>
</tr>
<tr>
<td>Voltage gain</td>
<td>VG5</td>
<td>VN = -40 dBm, f = 1 kHz, boost: on/off</td>
<td>22.0</td>
<td>24.5</td>
</tr>
<tr>
<td>Low boost output voltage</td>
<td>VN1</td>
<td>VN = -43 dBm, f = 100 Hz, boost: on</td>
<td>0.13</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td>VN2</td>
<td>VN = -28 dBm, f = 100 Hz, boost: on</td>
<td>0.25</td>
<td>0.4</td>
</tr>
<tr>
<td>Low boost total harmonic distortion</td>
<td>THD1</td>
<td>VN = -40 dBm, f = 100 Hz, boost: on</td>
<td>0.5</td>
<td>1.2</td>
</tr>
<tr>
<td>PVSS voltage</td>
<td>VNC3</td>
<td>VN = -40 dBm, PVSS2</td>
<td>-40</td>
<td>-37</td>
</tr>
<tr>
<td>PVSS width</td>
<td>WPVSS</td>
<td>Input increment between the point where operation starts and the point where the output is +4 dB from there. PVSS: on</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>PVSS total harmonic distortion</td>
<td>THD2</td>
<td>VN = -40 dBm, PVSS2</td>
<td>0.5</td>
<td>1.2</td>
</tr>
<tr>
<td>PVSS start input</td>
<td>VOPIN</td>
<td>PVSS2</td>
<td>-67</td>
<td>-63</td>
</tr>
</tbody>
</table>

Note: The amount of boost for a 1-kHz signal.
Sample Application Circuit

[Diagram of LA4582CM with various components and connections, including resistors and capacitors labeled with values like 4700Ω and 0.1μF.]

Unit (Resistance: Ω, Capacitance: F)
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