ECG®
Semiconductors

ECG829
Electronic Attenuator

Features
• Designed for use in:
  DC operated volume control
  Compression and expansion amplifier
  applications
• Controlled by DC voltage or external variable resistor
• Silicon monolithic integrated circuit

Maximum Ratings (TA = +25°C unless otherwise noted.)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply Voltage</td>
<td>20</td>
<td>Vdc</td>
</tr>
<tr>
<td>Power Dissipation @ TA = 26°C</td>
<td>1.2</td>
<td>Watt</td>
</tr>
<tr>
<td>Derate above TA = 25°C</td>
<td>10</td>
<td>mW/°C</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>0 to +75</td>
<td>°C</td>
</tr>
</tbody>
</table>

Electrical Characteristics (e_m = 100mV (RMS), f = 1.0kHz, R1 = 0, VCC = 16Vdc, TA = +25°C unless otherwise noted.)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Power Supply Voltage</td>
<td>9.0</td>
<td>18</td>
<td>Vdc</td>
<td></td>
</tr>
<tr>
<td>Control Terminal Sink Current (e_m = 0)</td>
<td>2.0</td>
<td>mAdc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Input Voltage</td>
<td>0.5</td>
<td>V(RMS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage Gain</td>
<td>11</td>
<td>13</td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>Attenuation Range (R_C = 33kΩ)</td>
<td>70</td>
<td>90</td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>Total Harmonic Distortion (Pin 2 Gnd) (e_m = 100mV(RMS), e_o = A_o x e_m)</td>
<td>0.6</td>
<td>1.0</td>
<td>%</td>
<td></td>
</tr>
</tbody>
</table>
Test Circuit

Circuit Schematic

Application

Typical DC "Remote" Volume Control
Typical Electrical Characteristics (V_{cc} = 18Vdc, T_A = +125°C unless otherwise noted.)

- **Attenuation versus DC Control Voltage**
  - 0-dB Reference = 12 dB Gain
  - T = 1.0 kHz

- **Attenuation versus Control Resistor**
  - 0-dB Reference = 12 dB Gain
  - R = 10 kΩ
  - R = from pin 2 to ground

- **Frequency Response**
  - Frequency: 50-150 kHz

- **Output Voltage Swing**
  - Supply Voltage (Volts): 12

- **Total Harmonic Distortion**
  - 0-dB Reference = 12 dB Gain
  - T = 1.0 kHz
  - R = 10 kΩ
  - Distortion (dB)