NTE1791
Integrated Circuit
TV Remote Control Amplifier

Description:
The NTE1791 is a silicon monolithic integrated circuit in a 9–Lead SIP type package designed for remote control preamplification of infrared signals. A PIN photo diode can be directly connected to the input terminal.

This device contains a high gain amplifier, a peak detector, and an output waveform shaper which are necessary for a remote control preamplifier and has improved light interference–rejection characteristics by use of a two–stage tuning circuit.

The NTE1791 output polarity is active “LOW”.

Features:
- Good Immunity from Light Interference: Narrow Bandwidth ±1.3kHz Typ.
- Operation Voltage: 6V ±10%
- Low Power Consumption: 2.4mA Typ.
- Peak Detector: The Detector Level is Varied with the Input Signal Level.
- Output Terminal: Open Collector Output. Easy to Interface to Other Devices.

Absolute Maximum Ratings: (TA = +25°C unless otherwise specified)
- Supply Voltage, VCC ................................................................. 8V
- Output Terminal Voltage, VOUT ................................................... 15V
- Power Dissipation, PD ............................................................... 270mW
- Operating Temperature range, Topr ........................................ −20° to +75°C
- Storage Temperature range, Tstg .............................................. −40° to +125°C

Recommended Operating Conditions:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>VCC</td>
<td>4.5</td>
<td>5.0</td>
<td>5.5</td>
<td>V</td>
</tr>
<tr>
<td>Input Frequency</td>
<td>fin</td>
<td>30</td>
<td>–</td>
<td>60</td>
<td>kHz</td>
</tr>
</tbody>
</table>
**Electrical Characteristics:**  \((T_A = +25^\circ C, \ V_{CC} = 5V, f_{in} = 40kHz\) unless otherwise specified)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Test Conditions</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Current</td>
<td>(I_{CC})</td>
<td></td>
<td>1.6</td>
<td>2.4</td>
<td>3.5</td>
<td>mA</td>
</tr>
<tr>
<td>Input Terminal Voltage</td>
<td>(V_{in1})</td>
<td></td>
<td>1.0</td>
<td>1.25</td>
<td>1.45</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>(V_{in2}) (I_{in} = 30\mu A)</td>
<td></td>
<td>2.0</td>
<td>2.35</td>
<td>2.5</td>
<td>V</td>
</tr>
<tr>
<td>1(^{st}) Stage Voltage Gain</td>
<td>(A_{\nu L}) #8 – #4, (\nu_{out} = 500mV_{P-P})</td>
<td>–</td>
<td>66</td>
<td>–</td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>Detector Input</td>
<td>(\nu_{in})</td>
<td></td>
<td>–</td>
<td>50</td>
<td>100</td>
<td>(\mu V_{P-P})</td>
</tr>
<tr>
<td>Input Impedance</td>
<td>(r_{in})</td>
<td></td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>k(\Omega)</td>
</tr>
<tr>
<td>Output Voltage</td>
<td>(V_{OL}) (I_{OL} = 0.5mA, \nu_{in} = 1mV_{P-P})</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>0.5</td>
<td>V</td>
</tr>
<tr>
<td>Output Leakage Current</td>
<td>(I_{OH}) (V_{OH} = 14.4V)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>2</td>
<td>(\mu A)</td>
</tr>
</tbody>
</table>

**Pin Connection Diagram** (Front View)

1. **VCC**
2. Input
3. Peak Hold Detector
4. Carrier Filter
5. GND
6. Bias Filter
7. 1\(^{st}\) Stage Tank
8. 2\(^{nd}\) Stage Tank
9. Output

Dimensions:
- \(.900 (22.86)\) \(\text{Max}\)
- \(.110 (2.79)\)
- \(.226 (5.75)\) \(\text{Max}\)
- \(.125 (3.18)\)
- \(.100 (2.54)\)