NTE826
Integrated Circuit
TV Sound System, 2W

Description:
The NTE826 2W sound IF circuit is designed for television and related applications. The circuit is comprised of 2 independent functions: a sound IF and an audio power amplifier. The sound IF portion of the circuit utilizes circuitry similar to the NTE712. An improved volume control circuit is included, however, so that recovered audio is a linear function of the resistance of the control potentiometer. Audio power amplification is accomplished with circuitry similar to the popular NTE740A audio power amplifier, featuring both short circuit and thermal protection.

Features:
- Minimum Undistorted Output: 2W
- Linear Volume Control: 75dB range
- Fixed Voltage Gain in Audio Amplifier
- Short Circuit and Thermal Protection

Absolute Maximum Ratings:
Supply Voltage (Pin2), \( V_{CC} \) .......................... \( 26V \)
Input Current (Pin6), \( I_{MAX} \) .......................... \( 50mA \)
Input Signal Voltage (Between Pin12 and Pin13) .......................... \( 3V_{p-p} \)
Operating Temperature Range, \( T_{opr} \) .......................... \( 0^\circ \) to \( +70^\circ \)C
Storage Temperature Range, \( T_{stg} \) .......................... \( -65^\circ \) to \( +150^\circ \)C
Maximum Junction Temperature, \( T_{J} \) .......................... \( +150^\circ \)C
Lead Temperature (During Soldering, 10sec), \( T_{L} \) .......................... \( +300^\circ \)C

Electrical Characteristics:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Output</td>
<td>( V_{CC} = 24V, R_L = 16\Omega, ) THD = 10%</td>
<td>–</td>
<td>1.3</td>
<td>–</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>( V_{CC} = 16V, R_L = 8\Omega, ) THD = 10%</td>
<td>–</td>
<td>2.6</td>
<td>–</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>( V_{CC} = 14V, R_L = 8\Omega, ) THD = 10%</td>
<td>–</td>
<td>1.9</td>
<td>–</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>( V_{CC} = 12V, R_L = 8\Omega, ) THD = 10%</td>
<td>–</td>
<td>1.3</td>
<td>–</td>
<td>W</td>
</tr>
</tbody>
</table>
**Electrical Characteristics (Cont’d):**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero Regulating Voltage (Pin6)</td>
<td></td>
<td>10.5</td>
<td>11.5</td>
<td>12.5</td>
<td>V</td>
</tr>
<tr>
<td>Feedthrough Signal (Pin1)</td>
<td>Resistance at Pin7 = 0Ω</td>
<td>–</td>
<td>–</td>
<td>15</td>
<td>mVrms</td>
</tr>
<tr>
<td>Current into Pin6</td>
<td>Voltage at Pin6 = 10V</td>
<td>7.0</td>
<td>10.8</td>
<td>15.0</td>
<td>mA</td>
</tr>
<tr>
<td>AM Rejection</td>
<td>(V_{IN} = 1) to (100) mVrms, (\Delta f = 25) kHz, AM = 30%</td>
<td>40</td>
<td>–</td>
<td>–</td>
<td>dB</td>
</tr>
<tr>
<td>Recovered Audio (Pin8)</td>
<td></td>
<td>350</td>
<td>500</td>
<td>–</td>
<td>mVrms</td>
</tr>
<tr>
<td>Input Limiting Voltage (Pin16 to Pin1)</td>
<td></td>
<td>40</td>
<td>–</td>
<td>60</td>
<td>V/V</td>
</tr>
<tr>
<td>Output Noise, Input Signal Removed (Pin1)</td>
<td>Resistance at Pin7 = 10Ω</td>
<td>–</td>
<td>70</td>
<td>150</td>
<td>mVrms</td>
</tr>
<tr>
<td>Distortion (Pin8)</td>
<td>(\Delta f = 25) kHz, (f_o = 4.5) MHz</td>
<td>–</td>
<td>1.2</td>
<td>2.0</td>
<td>%</td>
</tr>
<tr>
<td>Input Impedance (Pin16)</td>
<td></td>
<td>50</td>
<td>200</td>
<td>–</td>
<td>kΩ</td>
</tr>
<tr>
<td>Current into Pin2 (Zero Audio Output at Pin1)</td>
<td>(V_2 = 24) V</td>
<td>2</td>
<td>5</td>
<td>20</td>
<td>mA</td>
</tr>
</tbody>
</table>

**Pin Connection Diagram**

- Power Amp Output (1)
- Power Amp V+ (2)
- Ripple Bypass (3)
- Heat Sink (4)
- Heat Sink (5)
- IF V+ (6)
- Volume Control (7)
- Detector Output (8)
- IF Output (9)
- Power Audio GND (18)
- Low Level Audio GND (17)
- Power Amp Input (16)
- Heat Sink (15)
- Heat Sink (14)
- IF Input (13)
- IF In Decpl (12)
- IF GND (11)
- Detector Input (10)

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Dimensions:
- .870 (22.1) Max
- .150 (3.8)
- .250 (6.35)
- .800 (20.3)
- .100 (2.54)
- .125 (3.17) Min