NTE7185
Integrated Circuit
Vertical Deflection Booster for
Monitors and High Performance TVs

Description:
The NTE7185 was designed for use in monitors and high performance televisions. This device can handle flyback voltage up to 70V. More than this it is possible to have a flyback voltage which is more than the double of the supply (Pin2). This allows to decrease the power consumption or to decrease the flyback time for a given supply voltage.

Features:
- Power Amplifier
- Thermal Protection
- Output Current up to 3.0AP
- Flyback Voltage up to 70V (On Pin5)
- Suitable for DC Coupling Application
- External Flyback Supply

Absolute Maximum Ratings:
Supply Voltage (Pin2, Note 1), V_S ................................................................. 40V
Flyback Peak Voltage (Pin6, Note 1) ............................................................... 75V
Amplifier Input Voltage (Pin thru Pin7, Note 1) V_1, V_7 ................................−0.3V + V_S
Maximum Output Peak Current (Note 2), I_o ................................................. 2.5A
Maximum Sink Current (t < 1ms), I_3 ......................................................... 2.5A
Maximum Source Current (t < 1ms), I_3 ......................................................... 2.5A
ESD Susceptibility, V_ESD
  Tool Model (Note 3) ................................................................. 300V
  Human Model (Note 4) ................................................................. 2kV
Voltage Difference between Flyback Supply and Supply Voltage, V_3 – V_2 ........ 50V
Minimum Voltage (Note 1), V_3, V_5, V_6 ......................................................... −0.4V
Operating Ambient Temperature Range, T_\text{oper} ........................................ −20°C to +75°C
Storage Temperature Range, T_\text{stg} ......................................................... −40°C to +150°C
Junction Temperature, T_J ................................................................. +150°C
Maximum Thermal Resistance, Junction–to–Case, R_{\text{thJC}} ......................... 3°C/W
Temperature for Thermal Shutdown, T_t ......................................................... 150°C
Hysteresis on T_t, ΔT_t ................................................................. 10°C
Recommended Maximum Junction Temperature, T_{\text{jr}} ..................................... 120°C

Note 1. Versus Pin4.
Note 2. The output current can reach 4A peak for 10µs (up to 120Hz).
Note 3. Equivalent to discharging a 200pF capacitor through a 0Ω series resistor.
Note 4. Equivalent to discharging a 150pF capacitor through a 1.5Ω series resistor.
### Electrical Characteristics:  \((V_S = 35V, T_A = 25^\circ C, \text{unless otherwise specified})\)

<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>Operating Supply Voltage Range</td>
<td>(V_S)</td>
<td></td>
<td>10</td>
<td>–</td>
<td>35</td>
<td>V</td>
</tr>
<tr>
<td>Operating Flyback Supply Voltage</td>
<td>(V_{3M})</td>
<td>(V_S)</td>
<td>–</td>
<td>70</td>
<td>–</td>
<td>V</td>
</tr>
<tr>
<td>Quiescent Current (Pin2)</td>
<td>(I_2)</td>
<td>(I_3 = 0, I_5 = 0)</td>
<td>–</td>
<td>10</td>
<td>20</td>
<td>mA</td>
</tr>
<tr>
<td>Quiescent Current (Pin6)</td>
<td>(I_6)</td>
<td>(I_3 = 0, I_5 = 0)</td>
<td>–</td>
<td>25</td>
<td>35</td>
<td>mA</td>
</tr>
<tr>
<td>Max. Scanning Peak Output Current</td>
<td>(I_0)</td>
<td></td>
<td>–</td>
<td>–</td>
<td>1.5</td>
<td>A</td>
</tr>
<tr>
<td>Amplifier Bias Current</td>
<td>(I_1)</td>
<td>(V_1 = 20V, V_7 = 21V)</td>
<td>–</td>
<td>–0.4</td>
<td>–2</td>
<td>µA</td>
</tr>
<tr>
<td>Amplifier Bias Current</td>
<td>(I_7)</td>
<td>(V_1 = 21V, V_7 = 20V)</td>
<td>–</td>
<td>–0.4</td>
<td>–2</td>
<td>µA</td>
</tr>
<tr>
<td>Offset Voltage</td>
<td>(V_{10})</td>
<td></td>
<td>–</td>
<td>0</td>
<td>7</td>
<td>mV</td>
</tr>
<tr>
<td>Offset Drift versus Temperature</td>
<td>(\Delta V_{10}/dt)</td>
<td></td>
<td>–</td>
<td>–10</td>
<td>–</td>
<td>µV/°C</td>
</tr>
<tr>
<td>Voltage Gain</td>
<td>(GV)</td>
<td></td>
<td>80</td>
<td>–</td>
<td>–</td>
<td>dB</td>
</tr>
<tr>
<td>Output Saturation Voltage to GND (Pin4)</td>
<td>(V_{5L})</td>
<td>(I_5 = 1.5A)</td>
<td>–</td>
<td>1.0</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>Output Saturation Voltage to Supply (Pin6)</td>
<td>(V_{5H})</td>
<td>(I_5 = –1.5A)</td>
<td>–</td>
<td>1.7</td>
<td>2.5</td>
<td>V</td>
</tr>
<tr>
<td>Diode Forward Voltage between Pin5 &amp; Pin6</td>
<td>(V_{D5-6})</td>
<td>(I_5 = 1.5A)</td>
<td>–</td>
<td>1.5</td>
<td>2.1</td>
<td>V</td>
</tr>
<tr>
<td>Diode Forward Voltage between Pin3 &amp; Pin6</td>
<td>(V_{D3-6})</td>
<td>(I_3 = 1.5A)</td>
<td>–</td>
<td>2.3</td>
<td>3</td>
<td>V</td>
</tr>
<tr>
<td>Voltage Drop between Pin3 &amp; Pin6 (2nd part of flyback)</td>
<td>(V_{3-6})</td>
<td>(I_3 = –1.5A)</td>
<td>–</td>
<td>4</td>
<td>5</td>
<td>V</td>
</tr>
</tbody>
</table>

### Pin Connection Diagram  
(Front View)

```
T   A  B
7    6   5
Non-Inverting Input  Output Stage Supply  Output
4   3
GND  Flyback Supply
2 Supply Voltage
1 Inverting Input
```