**NTE1855**  
Integrated Circuit  
Vertical Deflection Output Circuit  
W/Driver Circuit for TV Monitor

**Description:**  
The NTE1855 is an integrated circuit in a 13–Lead SIP type package that contains the vertical deflection output circuit with a driver for small–aperture (maximum deflection current 1.8A<sub>p–p</sub>) color/B & W TV, monitor/display use. This device has such features as greatly reduced number of external parts and low power dissipation. Since both DC feedback and AC feedback can be provided inside the IC, it is easy to design the vertical deflection circuit.

**Features:**  
- Low Power Dissipation due to On–Chip Pump–Up Circuit  
- On–Chip 50/60Hz Vertical Size Control Circuit  
- On–Chip Driver Circuit  
- Vertical Output Circuit  
- On–Chip Thermal Protection Circuit  
- Minimum Number of External Parts Required

**Absolute Maximum Ratings:**  
(\(T_A = +25^\circ C\) unless otherwise specified)  
- Driver Power Supply Voltage, \(+V_{CC1\max}\) ................................................................. 15V  
- Pump–Up Power Supply Voltage, \(+V_{CC7\max}\) ................................................................. 30V  
- Output Power Supply Voltage, \(+V_{CC12\max}\) ................................................................. 62V  
- Deflection Output Current, \(I_{DEF}\) ................................................................. \(-1.5 to +1.5A_{p–O}\)  
- Allowable Power Dissipation (With Infinite Heat Sink), \(P_{D\max}\) ........................................ 8W  
- Operating Temperature Range, \(T_{opr}\) ................................................................. \(-20^\circ C \text{ to } +85^\circ C\)  
- Storage Temperature Range, \(T_{stg}\) ................................................................. \(-40^\circ C \text{ to } +150^\circ C\)  
- Thermal Resistance, Junction–to–Case, \(R_{tnJC}\) ......................................................... 4°C/W

**Operating Supply Voltage Conditions:**  
(\(T_A = +25^\circ C\) unless otherwise specified)  
- Driver Supply Voltage, \(+V_{CC1}\) ................................................................. 8V to 14V  
- Pump–Up Supply Voltage, \(+V_{CC7}\) ................................................................. 10V to 27V

**Recommended Operating Conditions:**  
(\(T_A = +25^\circ C\) unless otherwise specified)  
- Driver Supply Voltage, \(+V_{CC1}\) ................................................................. 12V  
- Pump–Up Supply Voltage \(+V_{CC7}\) ................................................................. 24V  
- Deflection Output Current, \(I_{11p–p}\) ................................................................. up to 1.8A<sub>p–p</sub>
**Electrical Characteristics:** (\(T_A = +25^\circ C, +V_{CC1} = 12V, +V_{CC7} = 24V\) 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>Driver Power Supply Quiescent Current</td>
<td>(I_{CC1})</td>
<td>1.8 2.8 3.8</td>
<td>mA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trigger Input Threshold Voltage</td>
<td>(V_2)</td>
<td>2.8 3.1 3.4</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical Size Control Pin Voltage</td>
<td>(V_3)</td>
<td>5.9 6.1 6.3</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ramp Waveform Shape Start Voltage</td>
<td>(V_{Ramp})</td>
<td>4.7 5.0 5.3</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump–Up Charge Saturation Voltage</td>
<td>(V_{S8-10})</td>
<td>– – 1.5</td>
<td>V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump–Up Discharge Saturation Voltage</td>
<td>(V_{S7-8})</td>
<td>(I = 900mA)</td>
<td>–</td>
<td>–</td>
<td>3.0</td>
<td>V</td>
</tr>
<tr>
<td>Deflection Output Saturation Voltage, Lower</td>
<td>(V_{S11-10})</td>
<td>(I = 900mA)</td>
<td>–</td>
<td>–</td>
<td>1.2</td>
<td>V</td>
</tr>
<tr>
<td>Deflection Output Saturation Voltage, Upper</td>
<td>(V_{S12-11})</td>
<td>(I = 900mA)</td>
<td>–</td>
<td>–</td>
<td>3.2</td>
<td>V</td>
</tr>
<tr>
<td>Idling Current</td>
<td></td>
<td>8 18 32</td>
<td>mA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage Gain</td>
<td>(G_{VO})</td>
<td>(f = 1kHz)</td>
<td>–</td>
<td>59</td>
<td>–</td>
<td>dB</td>
</tr>
</tbody>
</table>

**Pin Connection Diagram**

(Front View)

1. **Ripple Filter**
2. **Power Supply for Vertical Output**
3. **Vertical Trigger Input**
4. **Vertical Height Control**
5. **Vertical Size Control Signal Input**
6. **AC/DC Feedback Input to Vertical Output Section**
7. **\(V_{CC7}\)**
8. **Pump–Up Output**
9. **OSC Blocking**
10. **GND**
11. **Vertical Output**
12. **Power Supply for Vertical Output**
13. **Ripple Filter**
14. **Pin Connection Diagram**

\(R_{in} = +25^\circ C, +V_{CC1} = 12V, +V_{CC7} = 24V\) unless otherwise specified