Description:
The NTE815 is an integrated circuit in an 8–Lead DIP type package containing low–level horizontal sections including phase detector, oscillator and pre–driver–a device designed for use in all types of television receivers.

Features:
- Internal Shunt Regulator
- Preset Hold Control Capability
- ±300Hz Typical Pull–In
- Linear Balanced Phase Detector
- Variable Output Duty Cycle for Driving Tube or Transistor
- Low Thermal Frequency Drift
- Small Static Phase Error
- Adjustable dc Loop Gain

Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)
Supply Current .......................................................... 40mA
Output Voltage, V_O .................................................. 40V
Output Current, I_O ................................................... 30mA
Sync Input Voltage (Pin 3) ........................................... 5V_(p–p)
Flyback Input Voltage (Pin 4) ................................. 5V_(p–p)
Power Dissipation (Package limitation), P_D .................. 625mW
Derate above 25° ...................................................... 5.0mW/°C
Operating Ambient Temperature Range, T_A .................. 0° to +75°C
Storage Temperature Range, T_stg ............................ −65° to +150°C
**Electrical Characteristics:** \((T_A = +25^\circ C\) unless otherwise specified\)

<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>Regulated Voltage (Pin6)</td>
<td></td>
<td>8.0</td>
<td>8.4</td>
<td>8.8</td>
<td>V</td>
</tr>
<tr>
<td>Supply Current (Pin6)</td>
<td></td>
<td>–</td>
<td>20</td>
<td>–</td>
<td>mA</td>
</tr>
<tr>
<td>Collector–Emitter Saturation Voltage (Output Transistor) (I_C = 20mA, ) Pin1</td>
<td></td>
<td>–</td>
<td>0.30</td>
<td>0.35</td>
<td>V</td>
</tr>
<tr>
<td>Voltage (Pin4)</td>
<td></td>
<td>–</td>
<td>2.0</td>
<td>–</td>
<td>V</td>
</tr>
<tr>
<td>Oscillator Pull–In Range</td>
<td></td>
<td>–</td>
<td>±300</td>
<td>–</td>
<td>Hz</td>
</tr>
<tr>
<td>Oscillator Hold–In Range</td>
<td></td>
<td>–</td>
<td>±900</td>
<td>–</td>
<td>Hz</td>
</tr>
<tr>
<td>Static Phase Error (\Delta f = 300Hz)</td>
<td></td>
<td>–</td>
<td>0.5</td>
<td>–</td>
<td>(\mu s)</td>
</tr>
<tr>
<td>Free–Running Frequency Supply Dependence</td>
<td></td>
<td>–</td>
<td>±3.0</td>
<td>–</td>
<td>Hz/V</td>
</tr>
<tr>
<td>Phase Detector Leakage (Pin5)</td>
<td></td>
<td>–</td>
<td>–</td>
<td>±1.0</td>
<td>(\mu A)</td>
</tr>
<tr>
<td>Sync Input Voltage (Pin3)</td>
<td></td>
<td>2.0</td>
<td>–</td>
<td>5.0</td>
<td>(V_{P-P})</td>
</tr>
<tr>
<td>Sawtooth Input Voltage (Pin4)</td>
<td></td>
<td>1.0</td>
<td>–</td>
<td>3.0</td>
<td>(V_{P-P})</td>
</tr>
</tbody>
</table>

**Pin Connection Diagram**

```
Output  1
GND     2
Sync Input  3
(+) Horizontal Input  4

8  Mark Space Ratio
7  OSC Timing
6  \(V_{CC}\)
5  Det Output
```

```
8  5
7  6
1  4

.260 (6.6)

8  5

.390 (9.9) Max

.155 (3.93)

.145 (3.68)

.300 (7.62)

.300 (7.62)

.100 (2.54)
```