NTE700
Integrated Circuit
TV Chroma System

Description:
The NTE700 is a monolithic integrated circuit in a 16–Lead DIP type package that performs the functions of subcarrier regeneration, ACC and APC detection, and tint control in color television receivers. It is designed to function compatibly with the NTE743 TV Chroma Amplifier/Demodulator in a 2–package chroma system.

The NTE700 is a TV Chroma System equivalent to the NTE982 except that the typical supply voltage is +12V and no internal shunt regulator is incorporated.

Features:
- Voltage–Controlled Oscillator
- Keyed APC and ACC Detectors
- DC Hue Control
- Operates From +12V

Absolute Maximum Ratings:
- DC Supply Voltage ................................................................. 15V
- Device Dissipation (Up to \( T_A = +55^\circ C \)) .................................. 630mW
- Derate Linearly Above +55\(^\circ\)C ........................................... 6.6mW/\(^\circ\)C
- Operating Ambient Temperature Range ................................... –40\(^\circ\) to +85\(^\circ\)C
- Storage Temperature Range ..................................................... –65\(^\circ\) to +150\(^\circ\)C
- Lead Temperature (During Soldering, 1/16" from case, 10sec max) .. +265\(^\circ\)C

Electrical Characteristics: \( T_A = +25\(^\circ\)C, V_+ = 12V \) 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_+ )</td>
<td></td>
<td>12</td>
<td>–</td>
<td>24</td>
<td>mA</td>
</tr>
<tr>
<td>Oscillator Current</td>
<td>( I_2 )</td>
<td></td>
<td>4.25</td>
<td>–</td>
<td>8.55</td>
<td>mA</td>
</tr>
<tr>
<td>ACC Output Balance</td>
<td></td>
<td>Measure Pin15 to Pin16</td>
<td>–330</td>
<td>–</td>
<td>300</td>
<td>mV</td>
</tr>
<tr>
<td>APC Output Balance</td>
<td></td>
<td>Measure Pin11 to Pin12</td>
<td>–450</td>
<td>–</td>
<td>450</td>
<td>mV</td>
</tr>
<tr>
<td>Oscillator Balance</td>
<td></td>
<td>Measure Pin7 to Pin8</td>
<td>–330</td>
<td>–</td>
<td>330</td>
<td>mV</td>
</tr>
</tbody>
</table>
Electrical Characteristics (Cont’d): \((T_A = +25°C, \, V_+ = 12V\) unless otherwise specified)

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<tbody>
<tr>
<td>Oscillator Center Frequency</td>
<td>(f_{O})</td>
<td>Set R for (f_O = 3.579545 ±5Hz)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Hz</td>
</tr>
<tr>
<td>Oscillator Frequency Deviation</td>
<td>(f_{O1})</td>
<td>(V_+ = 12V \pm 1V)</td>
<td>–</td>
<td>–</td>
<td>175</td>
<td>Hz</td>
</tr>
<tr>
<td>Oscillator Pull-In Range, High Side</td>
<td>Osc. must pull-in and lock to (e_{IN}) at: (f_{IN} = 3.579745MHz)</td>
<td>200</td>
<td>–</td>
<td>–</td>
<td>Hz</td>
<td></td>
</tr>
<tr>
<td>Oscillator Pull-In Range, Low Side</td>
<td>Osc. must pull-in and lock to (e_{IN}) at: (f_{IN} = 3.579345MHz)</td>
<td>–200</td>
<td>–</td>
<td>–</td>
<td>Hz</td>
<td></td>
</tr>
<tr>
<td>Dynamic ACC</td>
<td>Measure Pin15 to Pin16, Record value (V1)</td>
<td>–75</td>
<td>–</td>
<td>75</td>
<td>mV</td>
<td></td>
</tr>
<tr>
<td>ACC Control</td>
<td>Measure Pin15 to Pin16, (f_{IN} = 3.579545MHz)</td>
<td>Record Value (V2)</td>
<td>mV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\Delta)ACC Control</td>
<td>Limits for (\Delta)ACC Control = (V_2 - V_1)</td>
<td>120</td>
<td>–</td>
<td>250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dynamic APC</td>
<td>Tap of R to GND</td>
<td>1</td>
<td>–</td>
<td>12</td>
<td>V</td>
<td></td>
</tr>
</tbody>
</table>

Pin Connection Diagram

Hue Control | 1 | 16 | ACC Output
 OSC Output | 2 | 15 | ACC Output
 OSC Output | 3 | 14 | ACC Input
 Horiz Key Pulse Input | 4 | 13 | APC Input
 GND | 5 | | |
 OSC Input | 6 | 12 | APC Output
 OSC Feedback Loop | 7 | 11 | APC Output
 OSC Feedback Loop | 8 | 10 | V (+)

Pin Connection Diagram

- Hue Control
- OSC Output
- OSC Output
- Horiz Key Pulse Input
- GND
- OSC Input
- OSC Feedback Loop
- OSC Feedback Loop

Pin Dimensions:
- \(.700 (17.78)\) Min
- \(.099 (2.54)\) Min
- \(.100 (2.54)\) Min
- \(.870 (22.0)\) Max
- \(.260 (6.6)\) Max
- \(.200 (5.08)\) Max