NTE1254
Integrated Circuit
Phase–Lock Loop (PLL) Frequency Synthesizer for CB

Features:
- Programmable Divider – Divided by 3 to 255
- 10–Bit Divider
- Phase Detector
- Reference Oscillation Circuit
- On–Chip Filter Amplifier
- Code Converter
- Only two or three crystals required for CB radio AM frequency selection
- Unlocked signals are detected at instant stop “IS” terminal
- Two type program mode can be selected to change input mode level
  - M: Low level  Binary code input enables, divided by 3 to 255
  - M: High level  BCD code enables that the data at P₁ to P₆ port is offset 90 by code converter
- Internal active filter amplifier has a long holding time due to very high input impedance characteristics of the CMOS–this is to obtain very good spurious response.
- Output signal of the “I” can be used to stop the spurious radiation when the channel selector makes misprogramming such as rotary switch’s lose contact.
- High speed and low power consumption due to CMOS
- Single power supply and fully TTL compatible: \( V_{DD} = 5 \pm 0.5 \text{ Volts} \)
- Operating Temperature: \( T_A = -30^\circ \text{ to } 65^\circ \text{C} \)
- Pull down resistors installed in program and mode switch inputs

Absolute Maximum Ratings:
Supply Voltage ................................................................. −0.3 to +6.0V
Input Voltage ................................................................. −0.3 to +6.0V
Operating Temperature Range, \( T_{opr} \) ................................................. −35° to +75°C
Storage Temperature Range, \( T_{stg} \) ................................................. −55° to +125°C
### Electrical Characteristics:  \( T_A = -35^\circ\text{C} \) to \(+75^\circ\text{C}\) 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>Power Supply</td>
<td>(V_{DD})</td>
<td></td>
<td>4.5</td>
<td>5.0</td>
<td>5.5</td>
<td>V</td>
</tr>
<tr>
<td>Total Current</td>
<td>(I_{DD}) (f = 0)</td>
<td></td>
<td>–</td>
<td>–</td>
<td>10</td>
<td>mA</td>
</tr>
<tr>
<td>High Level Input Voltage</td>
<td>(V_{IH}) All Inputs</td>
<td></td>
<td>0.8(V_{DD})</td>
<td>–</td>
<td>(V_{DD})</td>
<td>V</td>
</tr>
<tr>
<td>Low Level Input Voltage</td>
<td>(V_{IL}) All Inputs</td>
<td></td>
<td>–0.3</td>
<td>–</td>
<td>0.2(V_{DD})</td>
<td>V</td>
</tr>
<tr>
<td>High Level Output Voltage</td>
<td>(V_{OH}) All Outputs Except (D_2, I_O = -0.3)mA, (V_{DD} = 4.5)V</td>
<td>(I_O = -0.15)mA, (V_{DD} = 4.5)V</td>
<td>0.85(V_{DD})</td>
<td>–</td>
<td>(V_{DD})</td>
<td>V</td>
</tr>
<tr>
<td>Low Level Output Voltage</td>
<td>(V_{OL}) All Inputs, (I_O = 0.5)mA, (V_{DD} = 4.5)V</td>
<td>–0.3</td>
<td>–</td>
<td>0.15(V_{DD})</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Leakage Current</td>
<td>(I_L) EO (Floating), Al (T_A = +25^\circ\text{C})</td>
<td>–</td>
<td>1.0</td>
<td>–</td>
<td>nA</td>
<td></td>
</tr>
<tr>
<td>Input Capacitance</td>
<td>(C_i) PI, FD, FP, (X_1, V_i = 0)</td>
<td>–</td>
<td>–</td>
<td>10</td>
<td>pF</td>
<td></td>
</tr>
<tr>
<td>Maximum Frequency Response</td>
<td>(f_{d_{max}}) (X_1 – X_2,) Divider</td>
<td>–</td>
<td>11</td>
<td>–</td>
<td>MHz</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(f_{p_{max}}) Programmable Divider</td>
<td>–</td>
<td>2</td>
<td>–</td>
<td>MHz</td>
<td></td>
</tr>
</tbody>
</table>

### Pin Connection Diagram

![Pin Connection Diagram](image-url)