

## NTE1677 Integrated Circuit Frequency Synthesizer for TV/CATV

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

|                                        |                                     |
|----------------------------------------|-------------------------------------|
| Supply Voltage, $V_{CC}$               | 6.5V                                |
| Logic Input Voltage, $V_{IN1}$         | $-0.3\text{V}$ to $V_{CC}$          |
| ELC Input Voltage, $V_{IN2}$           | $2.0V_{P-P}$                        |
| Power Dissipation, $P_D$               | 1.4W                                |
| Derate Above $25^\circ\text{C}$        | $11.2\text{mW}/^\circ\text{C}$      |
| Operating Temperature Range, $T_{opr}$ | $-20^\circ$ to $+75^\circ\text{C}$  |
| Storage Temperature Range, $T_{stg}$   | $-55^\circ$ to $+150^\circ\text{C}$ |

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$ ,  $V_{CC} = 5\text{V}$  unless otherwise specified)

| Parameter                        | Symbol   | Test Conditions                  | Min  | Typ | Max  | Unit          |
|----------------------------------|----------|----------------------------------|------|-----|------|---------------|
| Supply Voltage                   | $V_{CC}$ |                                  | 4.5  | 5.0 | 5.5  | V             |
| Supply Current                   | $I_{CC}$ |                                  | —    | 9.0 | —    | mA            |
| DC Voltage<br>Pin12              | $V_{12}$ |                                  | —    | 3.0 | —    | V             |
| Pin13                            | $V_{13}$ |                                  | —    | 3.0 | —    | V             |
| Input Current, High Level        | $I_{IH}$ | $V_{IN} = 5\text{V}$             | —    | 180 | 300  | $\mu\text{A}$ |
| Output Voltage<br>High Level     | $V_{OH}$ |                                  | 3.8  | —   | —    | V             |
| Low Level                        | $V_{OL}$ |                                  | —    | —   | 0.5  | V             |
| Input Voltage<br>High Level      | $V_{IH}$ |                                  | 3.0  | —   | —    | V             |
| Low level                        | $V_{IL}$ |                                  | —    | —   | 0.8  | V             |
| P/D Leak Current<br>High Level   | $I_L$    | $V_{OUT} = 4.0\text{V}$          | —200 | 0   | +200 | $\mu\text{A}$ |
| Low Level                        |          | $V_{OUT} = 0.8\text{V}$          | —200 | 0   | +200 | $\mu\text{A}$ |
| P/D Output Current<br>High Level | $I_{OH}$ | $V_{OUT} = 2.0\text{V}$          | —0.6 | —10 | —    | mA            |
| Low level                        | $I_{OL}$ |                                  | 0.6  | 6.0 | —    | mA            |
| RF Input Sensitivity             | $V_{IN}$ | $f_{IN} = 0.1$ to $1\text{GHz}$  | —27  | —   | +3   | dBm           |
|                                  |          | $f_{IN} = 80$ to $100\text{MHz}$ | —24  | —   | +3   | dBm           |

**Electrical Characteristics (Cont'd):** ( $T_A = +25^{\circ}\text{C}$ ,  $V_{CC} = 5\text{V}$  unless otherwise specified)

| Parameter         | Symbol   | Test Conditions | Min | Typ | Max | Unit          |
|-------------------|----------|-----------------|-----|-----|-----|---------------|
| Setup Time        | $T_S$    |                 | 2   | –   | 0   | $\mu\text{s}$ |
| Clock Width       | $T_C$    |                 | 2   | –   | –   | $\mu\text{s}$ |
| Data Hold Time    | $T_H$    |                 | 2   | –   | –   | $\mu\text{s}$ |
| Enable Hold Time  | $T_{SL}$ |                 | 2   | –   | –   | $\mu\text{s}$ |
| Enable Setup Time | $T_L$    |                 | 2   | –   | –   | $\mu\text{s}$ |

