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## NTE1534 Integrated Circuit CMOS, Phase Lock Loop (PLL) Frequency Synthesizer for AM/FM Radio

**Description:**

The NTE1534 is a CMOS PLL frequency synthesizer in a 16-Lead DIP type package designed for FM-AM radios. This device contains a reference counter, programmable counter, and phase comparator circuits.

**Absolute Maximum Ratings:** ( $V_{SS} = 0$ ,  $T_A = +25^\circ\text{C}$  unless otherwise specified)

Supply Voltage, $V_{DD}$ .....	-0.3 to +10V
Input Voltage, $V_I$ .....	-0.3 to $V_{DD}+0.3\text{V}$
Output Voltage, $V_O$ .....	-0.3 to $V_{DD}+0.3\text{V}$
Power Dissipation, $P_D$ .....	50mW
Operating Temperature Range, $T_{opr}$ .....	$-20^\circ$ to $+70^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+100^\circ\text{C}$

**Operating Conditions:** ( $V_{SS} = 0$ ,  $T_A = -20^\circ$  to  $+70^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	$V_{DD}$		5.5	6.0	6.5	V

**Electrical Characteristics:** ( $T_A = -20^\circ$  to  $+70^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current	$I_{DD}$	$V_{DD} = 5\text{V}$ , $T_A = +25^\circ\text{C}$	-	3	5	mA
Total Power Dissipation	$P_{tot}$	$V_{DD} = 5\text{V}$ , $T_A = +25^\circ\text{C}$	-	15	25	mW
<b>P0 to P3, C0 to C2, LD</b>						
Input Voltage Level, "H"	$V_{IH}$	$V_{DD} = 5\text{V}$	2.4	-	$V_{DD}$	V
Input Voltage Level, "L"	$V_{IL}$		$V_{SS}$	-	0.8	V
Input Current	$I_{I(1)}$	$V_I = V_{SS}$ to $V_{DD}$	-	-	$\pm 10$	$\mu\text{A}$
<b>PI</b>						
Input Voltage	$V_I$		1.0	-	-	$V_{P-P}$
Input Current	$I_{I(2)}$	$V_I = 0$	$\pm 1$	$\pm 5$	$\pm 25$	$V_{P-P}$
Input Frequency	$f_i$	$V_{DD} = 5.5\text{V}$ to $6.5\text{V}$	6	-	-	MHZ

**Electrical Characteristics (Cont'd):** ( $T_A = -20^\circ$  to  $+70^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OSC 1, OSC 2</b>						
Oscillator Frequency	$f_{OSC}$		–	11.52	–	MHz
<b>PD</b>						
Output Current Level, "H"	$I_{OH}$	$V_{DD} = 5V, V_O = 3V$	–0.8	–	–	mA
Output Current Level, "L"	$I_{OL}$	$V_{DD} = 5V, V_O = 2V$	0.8	–	–	mA
Output Current (Open)	$I_O$	$V_{DD} = 5V, V_O = V_{SS}$ to $V_{DD}$	–	–	$\pm 10$	$\mu\text{A}$
<b>CPO, QO</b>						
Output Voltage Level, "H"	$V_{OH}$	$V_{DD} = 5V, I_{OH} = -100\mu\text{A}$	4.0	–	–	V
Output Voltage Level, "L"	$V_{OL}$	$V_{DD} = 5V, I_{OL} = 100\mu\text{A}$	–	–	0.4	V
<b>Capacitance</b>						
Input Capacitance	$C_I$	$V_I = 2V$	–	5	–	pF
Output Capacitance	$C_O$	$V_O = 2V$	–	7	–	pF

**Pin Connection Diagram**

