NTE1475
Integrated Circuit
CMOS, Phase–Locked Loop (PLL) Frequency Synthesizer for CB

Features:
- Built–in high speed programmable divider for direct PLL system
- PLL out–of–lock output available to inhibit transmittion.
- Instantaneous call capability of channel 9 and 19.
- Built–in detecting circuit of mis–program
- Built–in amplifier for crystal oscillator
- Built–in amplifier for active low–pass filter.
- BCD code channel selection. (Pull–down resistors included)

Absolute Maximum Ratings: (T_A = +25°C unless otherwie specified)

Maximum Supply Voltage, V_{DD}max . . . . −0.3 to +8.0V

Maximum Input Voltage, V_{IN}max . . . . −0.3 to V_{DD} +0.3V

Maximum Output Voltage ($\overline{MC}$, $\overline{LM}$, A_{OUT}, Output Off), $V_{OUT(1)}$ . . . . −0.3 to +10.0V

Maximum Output Voltage (PD_{OUT}, Output Off), $V_{OUT(2)}$ . . . . −0.3 to V_{DD} + 0.3V

Maximum Output Current ($\overline{MC}$, $\overline{LM}$), $I_{OUT\,(1)}$ . . . . 0 to 15mA

Maximum Output Current (A_{OUT}), $I_{OUT\,(2)}$ . . . . 0 to 2.5mA

Allowable Power Dissipation, $P_D$max (T_A = +70°C) 300mW

Operating Temperature Range, T_{opg} . . . . −30° to +70°C

Storage Temperature Range, T_{stg} . . . . −40° to +125°C

Allowable Operating Ranges: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{DD}	T_A = −30° to +70°C	5.0	6.0	7.0	V
Output Voltage	V_{OUT}	$\overline{MC}$, $\overline{LM}$, A_{OUT}, Output Off	0	–	9.0	V
Input Amplitude	$V_{IN\,(1)}$	X_{IN}, $f_{IN\,(1)}$ = 10.25MH$_Z$, Note 1	1.0	–	0.9V_{DD}	$V_{p–p}$
	$V_{IN\,(2)}$	P_{IN}, $f_{IN\,(2)}$ = 20MH$_Z$, Note 1	1.0	–	0.9V_{DD}	$V_{p–p}$
Input Frequency	$f_{IN\,(1)}$	X_{IN}, $V_{IN\,(1)}$ = 1.0$V_{p–p}$, Note 1	1.0	–	10.25	MH$_Z$
	$f_{IN\,(2)}$	P_{IN}, $V_{IN\,(2)}$ = 1.0$V_{p–p}$, Note 1	1.0	–	20	MH$_Z$
Input "H" Level Voltage	V_{IH}	D1 to D6, $\overline{T}$/R, CH9, CH19	V_{DD}−0.8	–	–	V
Input "L" Level Voltage	V_{IL}	D1 to D6, $\overline{T}$/R, CH9, CH19	–	–	0.8	V

Note 1. Sinusoidal wave, capacitive coupling, T_A = −30° to +70°C

Electrical Characteristics: (T$_A$ = +25°C, V$_{DD}$ = 5V to 7V unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input "H" Level Current	I$_{IH (1)}$	X$_{IN}$, P$_{IN}$, V$_{IN}$ = V$_{DD}$	–	–	8.0	μA
Input "L" Level Current	I$_{IL (1)}$	X$_{IN}$, P$_{IN}$, V$_{IN}$ = V$_{SS}$	–	–	8.0	μA
Feedback Resistance	R$_F$	X$_{IN}$, P$_{IN}$	–	3.0	–	MΩ
Input Threshold Voltage	V$_{th}$	X$_{IN}$, P$_{IN}$	–	1/2 V$_{DD}$	–	V
Input "H" Level Current	I$_{IH (2)}$	D1 to D6, CH9, CH19, V$_{IN}$ = V$_{DD}$	60	180	500	μA
Input Floating Voltage	V$_{IF (1)}$	D1 to D6, CH9, CH19, Input pins open	–	–	0.2	V
Input "L" Level Current	I$_{IL (2)}$	$\overline{T}$/R, V$_{IN}$ = V$_{SS}$	40	140	400	μA
Input Floating Voltage	V$_{IF (2)}$	$\overline{T}$/R, Input pin open	V$_{DD}$–0.2	–	–	V
Input "H" Level Current	I$_{IH (3)}$	A$_{IN}$, V$_{IN}$ = V$_{DD}$	–	0.01	–	nA
Input "L" Level Current	I$_{IL (3)}$	A$_{IN}$, V$_{IN}$ = V$_{SS}$	–	0.01	–	nA
"H" Level 3–State Leak Current	I$_{OFFH}$	PD$_{OUT}$, V$_{OUT}$ = V$_{DD}$	–	0.01	–	nA
"L" Level 3–State Leak Current	I$_{OFFL}$	PD$_{OUT}$, V$_{OUT}$ = V$_{SS}$	–	0.01	–	nA
Output "H" Level Voltage	V$_{OH (1)}$	PD$_{OUT}$, I$_{OUT}$ = 0.3mA	V$_{DD}$–1.0	–	–	V
Output "L" Level Voltage	V$_{OL (1)}$	PD$_{OUT}$, I$_{OUT}$ = 0.3mA	–	–	1.0	V
Output "H" Level Voltage	V$_{OH (2)}$	X$_{OUT}$, I$_{OUT}$ = 0.5mA	–	V$_{DD}$–0.35	–	V
Output "L" Level Voltage	V$_{OL (2)}$	X$_{OUT}$, I$_{OUT}$ = 0.5mA	–	0.35	–	V
Output "L" Level Voltage	V$_{OL (3)}$	A$_{OUT}$, I$_{OUT}$ = 0.5mA	–	–	0.3	V
Output Off Leak Current	I$_{OFF (1)}$	A$_{OUT}$, V$_{OUT}$ = 9V	–	–	3.0	μA
Output "L" Level Voltage	V$_{OL (4)}$	$\overline{MC}$, $\overline{LM}$, I$_{OUT}$ = 15mA	–	–	1.1	V
Output Off Leak Current	I$_{OFF (2)}$	$\overline{MC}$, $\overline{LM}$, V$_{OUT}$ = 9V	–	–	5.0	μA
Current Dissipation	I$_{DD}$	f$_{IN (1)}$ = 10.25MH$_Z$, f$_{IN (2)}$ = 20MH$_Z$, V$_{IN (1)}$ = V$_{IN (2)}$ = 1.0V$_{p-p}$, A$_{IN}$ = V$_{SS}$, D1 = V$_{DD}$, Other pins open, Number of frequency	–	10	20	mA

Pin Connection Diagram

Pin	Signal		Pin	Signal
1	D1		20	$\overline{T}/R$
2	D2		19	P_{IN}
3	D3		18	V_{DD}
4	D4		17	A_{OUT}
5	D5		16	A_{IN}
6	D6		15	PD_{OUT}
7	TEST		14	$\overline{LM}$
8	CH19		13	V_{SS}
9	CH9		12	X_{OUT}
10	$\overline{MC}$		11	X_{IN}

.339
(8.6)

1.063 (27.0) Max

.400 (10.16)

.200 (5.08)
Max

.100 (2.54)

.100 (2.54) Min