

NTE1536 Integrated Circuit CB Transceiver PLL Frequency Synthesizer

Description:

The NTE1536 is a CMOS LSI device for the 27MHz Citizen's Band Transceiver.

Function:

The NTE1536 composes a Phase Lock Loop (PLL) frequency synthesizer system with only one crystal for an AM CB transceiver.

Features:

- Only one crystal is required for AM CB transceiver.
- Two types of intermediate frequency can be selected:
 $IF_1 = 10.695\text{MHz}$
 $IF_2 = 9.785\text{MHz}$
- Two types of lock monitor outputs:
 $\overline{LM}$: When PLL is locked/unlocked, $\overline{LM}$ is high/low level.
 LM : When PLL is locked/unlocked, LM is low/high level.
- The amplifier for low pass filter.
- The amplifier for programmable counter input.
- The detecting circuit for the mis-programming.
- BCD code input to the programmable counter.
- The buffer output for the reference oscillator.
- The output for the half frequency of the reference oscillator.
- The reference frequency oscillation amplifier (with feedback resistance).

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

Maximum Supply Voltage, $V_{DD\text{max}}$	-0.3 to +9.0V
Input Voltage, V_{IN}	-0.3 to $V_{DD}+0.3\text{V}$
Output Voltage, V_{OUT} (Unload)	-0.3 to $V_{DD}+0.3\text{V}$
Operating Temperature Range, T_{opg}	-30° to $+70^\circ\text{C}$
Storage Temperature Range, T_{stg}	-40° to $+125^\circ\text{C}$

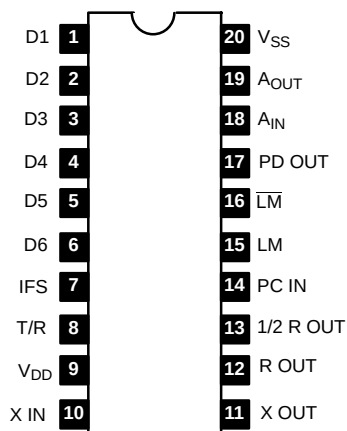
Available Operation Conditions: ($T_A = +25^{\circ}\text{C}$, $V_{DD} = 7\text{V} \pm 1\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Supply Voltage	V_{DD}		6.0	7.0	8.0	V
High Level Input Voltage	V_{IH}		$V_{DD}-1.5$	–	–	V
Low Level Input Voltage	V_{IL}		–	–	1.5	V
Input Amplitude	$V_{IN} (1)$	10.25MHz, Duty 50±10% Sine Wave	3.0	–	$0.9V_{DD}$	Vp–p
	$V_{IN} (2)$	3.5MHz, Duty 50±10% Sine Wave	0.7	–	$0.66V_{DD}$	Vp–p
Input Frequency	$f_{IN} (1)$	3.0Vp–p, Duty 50±10% Sine Wave	–	–	10.25	MHz
	$f_{IN} (2)$	0.7Vp–p, Duty 50±10% Sine Wave	–	–	3.5	MHz

Electrical Characteristics: ($T_A = +25^{\circ}\text{C}$, $V_{DD} = 7\text{V} \pm 1\text{V}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Feedback Resistance	$R_f (1)$		–	7.0	–	$\text{M}\Omega$
	$R_f (2)$		–	3.0	–	$\text{M}\Omega$
Pull–Down Resistance	RP		–	28	–	$\text{k}\Omega$
Input Floating Voltage	V_{IF}	Pin Opened	–	1.0	–	V
3 State Off Leak Current	$I_{OFF} (1)$	$V_O = V_{DD}/2$	–	1.0	–	nA
Output Off Leak Current	$I_{OFF} (2)$	$V_O = V_{DD}$	–	–	3.0	μA
	$I_{OFF} (3)$	$V_O = V_{SS}$	–	–	3.0	μA
Input Current	I_{IN}	$V_I = V_{DD}$, $V_I = V_{SS}$	–	1.0	–	nA
Filter Amp Gain	VG	$R_f = 1\text{M}\Omega$, $f_{IN} = 10\text{kHz}$, $R_g = 600\Omega$	–	28	–	dB
Low Level Output Voltage	V_{OL}	$I_O = 2\text{mA}$	–	–	0.9	V
High Level Output Voltage	V_{OH}	$I_O = 5\text{mA}$	$V_{DD}-0.9$	–	–	V
Dissipation Current	I_{DD}	$f_{IN} (1) = 10.24\text{MHz}$, $f_{IN} (2) = 3.5\text{MHz}$, $N = 182$	–	–	20	mA

Pin Connection Diagram



Pin Functions

D1 – D6	Program Input (BCD)	1/2 R OUT	1/2 Freq of Ref Osc
D1: LSB, D6: MSB		PC IN	Programmable Divider Input
IFS	10.695/9.785MHz Sw	LM	Lock Monitor Output
T/R	TX/RX Sw	LM	Lock Monitor Output
V_{DD}	Supply Voltage	PD OUT	Phase Detector Output
X IN	Crystal Oscillator	A_{IN}	Filter Amp Input
X OUT	Crystal Oscillator	A_{OUT}	Filter Amp Output
R OUT	Buffer Output of Ref Osc	V_{SS}	GND

