

**LC7444****Dual VCO**

## Overview

The LC7444 consists of two independent VCO (voltage controlled oscillator) circuits.

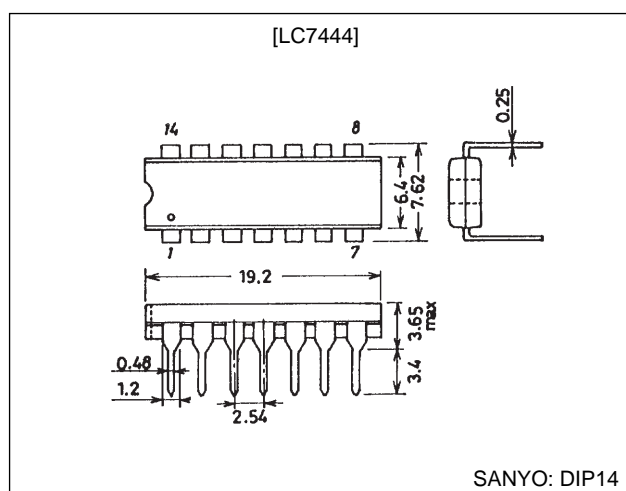
These circuits support VCO operation with only the addition of external resistors that determine the oscillation range.

## Features

- Two independent VCO circuits
- The oscillator frequency range can be set with external resistors.
- Good linearity in the voltage - frequency conversion characteristics
- High-impedance oscillator control voltage input
- CMOS clock output
- Fabricated in a CMOS process for lower power
- Oscillator frequency range: 8 to 32 MHz
- Operating supply voltage: 5 V  $\pm$  10%
- Package: DIP14

## Package Dimensions

unit: mm

**3003A-DIP14**

## Specifications

**Absolute Maximum Ratings at  $T_a = 25 \pm 2^\circ\text{C}$ ,  $V_{SS1} = V_{SS2} = 0\text{ V}$ ,  $V_{DD} = V_{DD1}, V_{DD2}$**

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	$V_{DD\text{ max}}$		-0.3 to +7.0	V
Maximum input voltage	$V_{IN\text{ max}}$		-0.3 to $V_{DD} + 0.3$	V
Maximum output voltage	$V_{OUT\text{ max}}$		-0.3 to $V_{DD} + 0.3$	V
Allowable power dissipation	$P_{d\text{ max}}$		300	mW
Operating temperature	$T_{opr}$		-10 to +70	$^\circ\text{C}$
Storage temperature	$T_{stg}$		-55 to +125	$^\circ\text{C}$

**Allowable Operating Ranges at  $T_a = -10$  to  $+70^\circ\text{C}$ ,  $V_{SS1} = V_{SS2} = 0\text{ V}$ ,  $V_{DD} = V_{DD1}, V_{DD2}$**

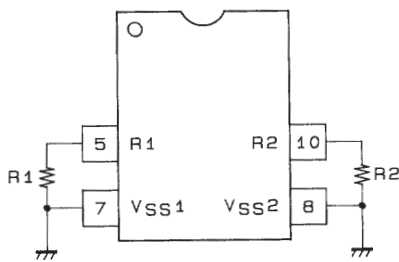
Parameter	Symbol	Conditions	min	typ	max	Unit
Supply voltage	$V_{DD}$		4.5	5.0	5.5	V
Input high level voltage	$V_{IH}$	$\overline{\text{ENA1}}, \overline{\text{ENA2}}$	$0.7 V_{DD}$			V
Input low level voltage	$V_{IL}$	$\overline{\text{ENA1}}, \overline{\text{ENA2}}$			$0.3 V_{DD}$	V
Oscillator range resistors	$R_{rng}$	R1, R2	6.8		13	k $\Omega$

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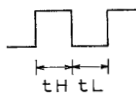
Electrical Characteristics at Ta = 25 ± 2°C, VDD = 5 V ± 10%, VSS1 = VSS2 = 0 V, VDD = VDD1, VDD2

Parameter	Symbol	Conditions	min	typ	max	Unit
Output high level voltage	VOH	OUT1, OUT2: IOH = -1 mA	VDD - 0.4			V
Output low level voltage	VOL	OUT1, OUT2: IOL = 1 mA			0.4	V
Quiescent current	IDDS	ENA1, ENA2 = VDD, FC1, FC2 = VSS		2		mA
Operating current drain	IDD	R1 = R2 = 7.5 kΩ, no output load, oscillator clock = 20 MHz		7		mA
Input leakage current	IIH, IIL		-1		+1	μA
Oscillator clock frequency operating range	fo	R1, R2 = 6.8 kΩ, FC1, FC2 = VSS to VDD *1	16		32	MHz
		R1, R2 = 13 kΩ, FC1, FC2 = VSS to VDD *1	8		16	MHz
Duty	Du	*2		50		%

Note: 1.



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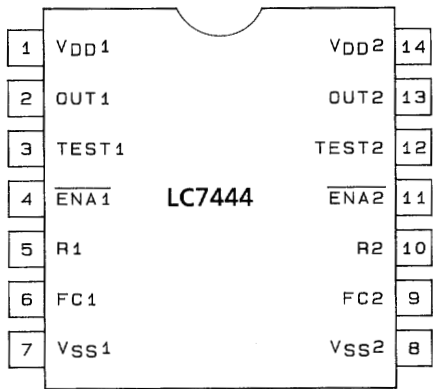


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2. Duty: Du

$$Du = \frac{tH}{tH + tL} \times 100$$

Pin Assignment



Top view

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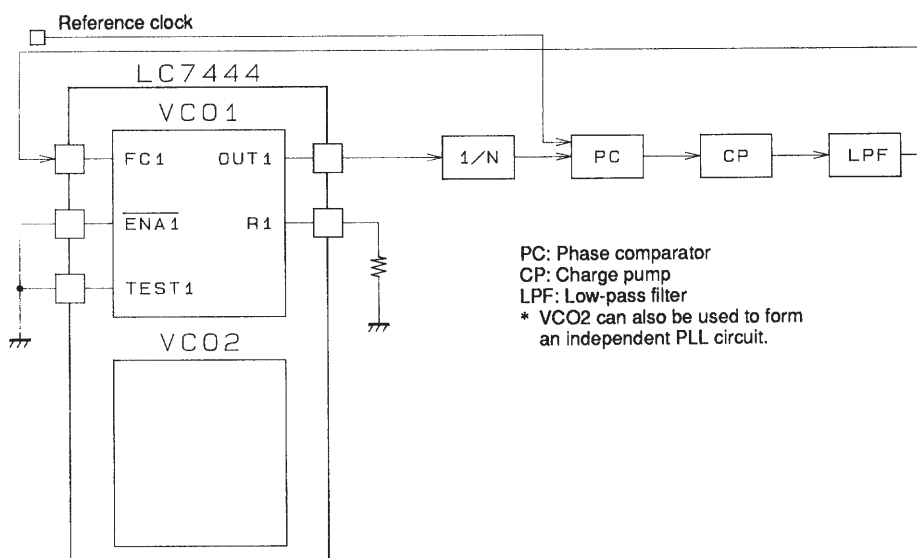
## LC7444

### Pin Functions

Pin No.	Symbol	Function
1	V <sub>DD1</sub>	Power supply
2	OUT1	VCO1 clock output
3	TEST1	Test pin. Must be tied low in normal operation.
4	ENA1	VCO1 enable input
5	R1	VCO1 oscillator range resistor
6	FC1	VCO1 control voltage input
7	V <sub>SS1</sub>	Ground

Pin No.	Symbol	Function
8	V <sub>SS2</sub>	Ground
9	FC2	VCO2 control voltage input
10	R2	VCO2 oscillator range resistor
11	ENA2	VCO2 enable input
12	TEST2	Test pin
13	OUT2	VCO2 clock output
14	V <sub>DD2</sub>	Power supply

### Sample Application



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