Ordering number : EN4305A

CMOS LSI

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

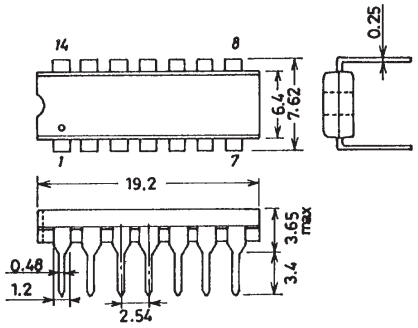
- Two independent VCO circuits
- The oscillator frequency range can be set with external resistors.
- Good linearity in the voltage - frequency conversion characteristics
- High-impedance oscillator control voltage input
- CMOS clock output
- Fabricated in a CMOS process for lower power
- Oscillator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

Package Dimensions

unit: mm

3003A-DIP14

[LC7444]



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Specifications

Absolute Maximum Ratings at Ta = 25 ± 2°C, $V_{SS}1 = V_{SS}2 = 0$ V, $V_{DD} = V_{DD}1, V_{DD}2$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{DD} max		–0.3 to +7.0	V
Maximum input voltage	V_{IN} max		–0.3 to V_{DD} + 0.3	V
Maximum output voltage	V_{OUT} max		–0.3 to V_{DD} + 0.3	V
Allowable power dissipation	Pd max		300	mW
Operating temperature	Topr		–10 to +70	°C
Storage temperature	Tstg		–55 to +125	°C

Allowable Operating Ranges at Ta = –10 to +70°C, $V_{SS}1 = V_{SS}2 = 0$ V, $V_{DD} = V_{DD}1, V_{DD}2$

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

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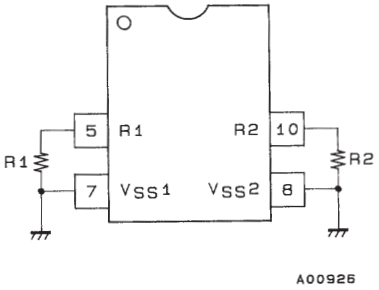
Electrical Characteristics at Ta = 25 ± 2°C, V_{DD} = 5 V ± 10%, $V_{SS}1 = V_{SS}2$ = 0 V, $V_{DD} = V_{DD}1, V_{DD}2$

Parameter	Symbol	Conditions	min	typ	max	Unit
Output high level voltage	V_{OH}	OUT1, OUT2: I_{OH} = –1 mA	V_{DD} – 0.4			V
Output low level voltage	V_{OL}	OUT1, OUT2: I_{OL} = 1 mA			0.4	V
Quiescent current	I_{DDS}	$\overline{ENA1}$, $\overline{ENA2}$ = V_{DD}, FC1, FC2 = V_{SS}		2		mA
Operating current drain	I_{DD}	R1 = R2 = 7.5 kΩ, no output load, oscillator clock = 20 MHz		7		mA
Input leakage current	I_{IH}, I_{IL}		–1		+1	µA
Oscillator clock frequency operating range	fo	R1, R2 = 6.8 kΩ, FC1, FC2 = V_{SS} to V_{DD}*1	16		32	MHz
		R1, R2 = 13 kΩ, FC1, FC2 = V_{SS} to V_{DD}*1	8		16	MHz
Duty	Du	*2		50		%

Note: 1.



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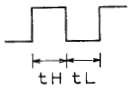
2. Duty: Du

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



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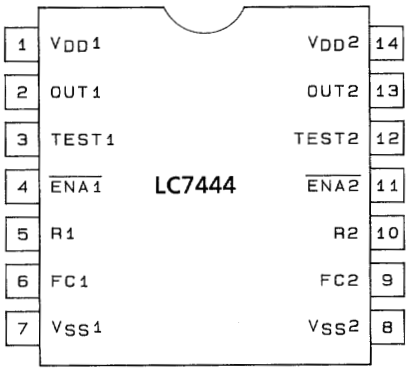
Pin Assignment



Top view

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Pin Functions

Pin No.	Symbol	Function
1	$V_{DD}1$	Power supply
2	OUT1	VCO1 clock output
3	TEST1	Test pin. Must be tied low in normal operation.
4	$\overline{ENA1}$	VCO1 enable input
5	R1	VCO1 oscillator range resistor
6	FC1	VCO1 control voltage input
7	$V_{SS}1$	Ground

Pin No.	Symbol	Function
8	$V_{SS}2$	Ground
9	FC2	VCO2 control voltage input
10	R2	VCO2 oscillator range resistor
11	$\overline{ENA2}$	VCO2 enable input
12	TEST2	Test pin
13	OUT2	VCO2 clock output
14	$V_{DD}2$	Power supply

Sample Application