

CLOCK OSCILLATORS

"LPO" series

Logic: C M O S
Wave Form: Square wave



MERCURY
Since 1973

Product Summary

Package Code	Frequency Range	Assembly Technique	Package Size (mm) [inches]
Thru-Hole Types			
LPO14	1 Hz ~ 160 kHz Limited standard frequencies only	4 pin DIL full size	12.8 x 20.2 x 5.88 [0.504 x 0.795 x 0.231]
LPO8		4 pin DIL half size	12.8 x 12.8 x 5.88 [0.504 x 0.504 x 0.231]
Surface Mount Type			
LPO42	1 Hz ~ 160 kHz Limited standard frequencies only	4 pad leadless	9.6 x 11.4 x 2.5 [0.0.378 x 0.449 x 0.098]
LPO44		4 pad leadless	9.6 x 11.4 x 4.7 [0.0.378 x 0.449 x 0.185]



LPO (Low Power Oscillator), such as 32.768 KHz, provides time base for real time clocks. Its low current consumption (only 14 uA for model 3LPO model 7) makes it ideal for battery-operated devices such as data logging and portable test equipments.

General Specifications $F_{osc} = 32.768 \text{ KHz}$, $T_A = +25^\circ\text{C}$, Load = 10 pF,

Model Code	4		7	
	Input Voltage (V_{DD})	+3.3 V D.C. $\pm 5\%$	+5.0 V D.C. $\pm 10\%$	+3.3 V D.C. $\pm 5\%$
	+3.0V to +15V is also available		+2.0V to +7.0V is also available	
Output Logic	C M O S			
Frequency Range	1 Hz to 160 kHz		20 kHz to 160 kHz	
Calibration Tolerance (at +25°C)	$\pm 10 \text{ ppm}$: Tolerance code is "P"; $\pm 50 \text{ ppm}$: Tolerance code is "B"		$\pm 25 \text{ ppm}$: Tolerance code is "A" $\pm 100 \text{ ppm}$: Tolerance code is "C"	
Frequency Stability vs operating temperature	See chart below.			
Current Consumption (10pF load)	26 uA typical	45 uA typical	14 uA max.	18 uA max.
	Current consumption measured with load			
Output Voltage HIGH "1"	2.97 V min.	4.5 V min.	2.97 V min.	4.0 V min.
Output Voltage LOW "0"	0.33 V max.	0.4 V max.	0.33 V max.	0.4 V max.
Rise and Fall Time ($10\% \leftrightarrow 90\% V_{DD}$)	0.5 u sec typ.; 1 u sec. max.		25 n sec typ.; 45 n sec. max.	
Start-up voltage	+1.90 V D.C.		+1.6 V D.C.	
Option on pin 1	No connection. No option available		Output is high impedance when LOW	
Fanout	2 CMOS gates			
Duty Cycle	50% $\pm 5\%$ typical; 50% $\pm 10\%$ max.			
Start-up Time	450 m sec. max.			
Storage Temperature	-50°C to +100°C			
Aging at +25°C	5 ppm per year max.			

Please contact Mercury Sales Dept. for frequency other than 32.768 kHz.

MERCURY www.mecxtal.com

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For kHz range clock oscillators with ± 25 , ± 50 or ± 100 ppm frequency stability and current consumption in the mA (milli amps) range, please refer to the "H" series.

Part Number Format and Example

Voltage code
3 or 5 etc

Package Code
LPO14 or LPO8

Frequency Tolerance
Code: P, A, B or C

Model Code
4 or 7

Pin 1 option
"T" or blank

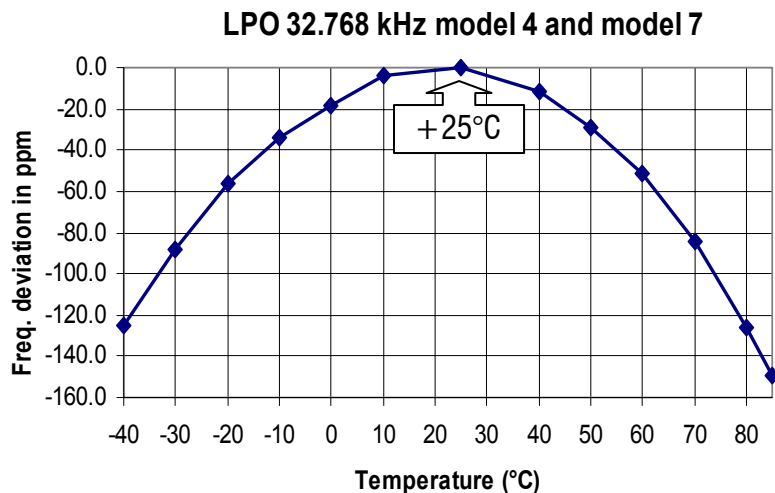
Frequency

Example: 5LP014-C4-32.768K
represents +5.0V, LPO 32.768 kHz model 4, full size 4 pin DIP, ± 100 ppm calibration tolerance.

"K" suffix for kHz
"H" suffix for Hertz

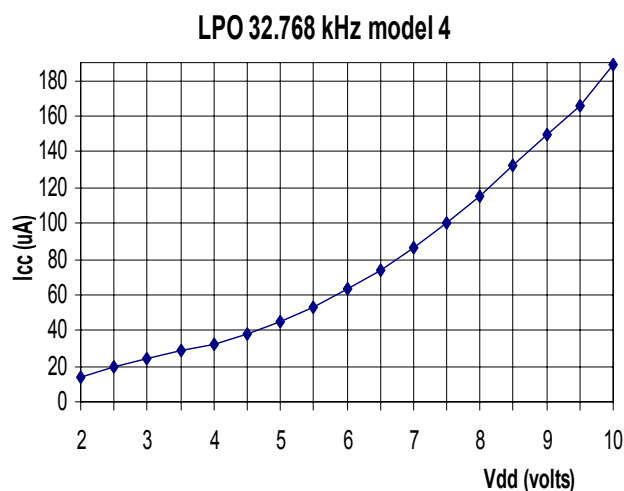
Typical Frequency Stability vs Temperature Curve

(Referenced to +25°C)

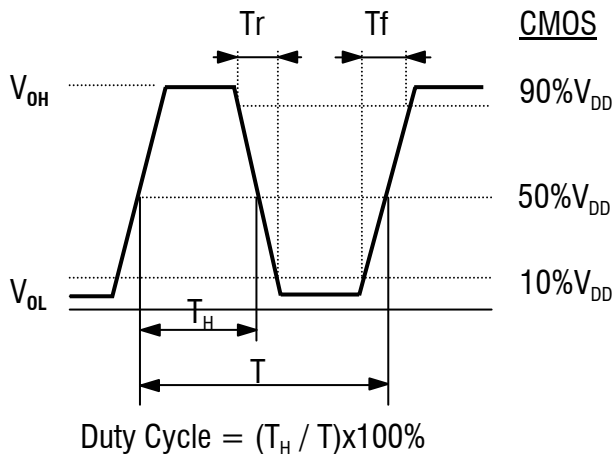


Current Consumption (I_{CC}) vs Supply Voltage

(V_{DD}). Measured with 10 pF load



Output Wave Form



LPO 32.768 kHz model 7

