

156.25 MHz Ultra-Low Jitter Oscillator Plus-PPM Margining MEMS Oscillator (LVDS)

4HF15625074

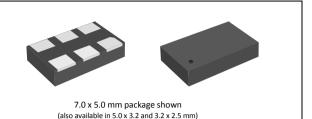
ADVANCE DATASHEET

Features

Nominal Frequency: 156.25 MHz (LVDS) Any Freq Tuning (±1000 ppm): 156.0938 to 156.4063 MHz

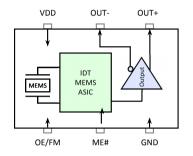
RMS phase jitter: 0.15 ps typical • Frequency Stability: ±25 / ±50 ppm Standard Packages: 7050 / 5032 / 3225

■ Internal MEMS Resonator No external XTAL or XO required



The 4HF156250Z4 is an ultra-low Phase Jitter (100 fs) oscillator capable of up to ± 1000 ppm of real time frequency margining in one ppm steps. It is ideal for applications requiring extremely low jitter and/or Plus-PPM clocking. Any frequency from 156.0938 to 156.4063 MHz can be generated in real time without any external XTAL or XO.

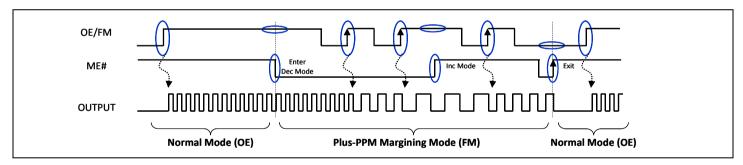
Block Diagram



Pin Description

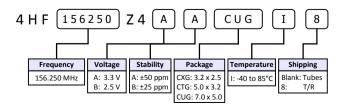
Pin#	Name	Description				
1*	OE	Output Enable				
1	FM	Frequency Margining (decrement/increment)				
2*	ME#	Margining Enable				
3	GND	Ground				
4	OUT+	Output				
5	OUT-	Output (Complementary)				
6	VDD	Power Supply Voltage				
* Pulled high internally						

Plus-PPM Margining & Real Time Frequency Tuning (± 1000 ppm)



Part Ordering Information

Package	Voltage (V)	Ordering Code				
(mm)		± 50 ppm	± 25 ppm			
7.0 x 5.0	3.3	4HF156250Z4AACUGI	4HF156250Z4ABCUGI			
	2.5	4HF156250Z4BACUGI	4HF156250Z4BBCUGI			
5.0 x 3.2	3.3	4HF156250Z4AACTGI	4HF156250Z4ABCTGI			
	2.5	4HF156250Z4BACTGI	4HF156250Z4BBCTGI			
3.2 x 2.5	2.5	4HF156250Z4BACXGI 4HF156250Z4BBCXGI				
* Factory minimum order quantity: 500pcs (T/R)						



Typical Phase Jitter

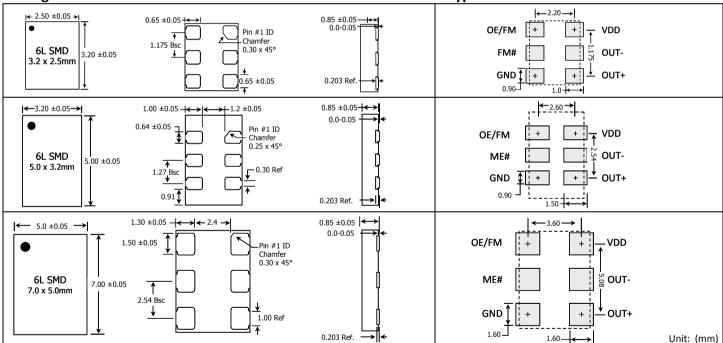


Specification

Parameter	Spe	2.5 V Specifications		3.3 V Specifications		Units	Conditions	
	Min	Тур	Max	Min	Тур	Max		
Supply Voltage (V _{DD})	2.375	2.50	2.625	2.97	3.30	3.63	V	
Output Frequency		156.25			156.25		MHz	
Frequency Stability	- 50		+ 50	- 50		+ 50	ppm	Includes supply voltage and temperature variation (-40 to 85°C), reflow drift, and aging.
Supply Current		100			105		mA	No load
Enable/Disable Time			1			1	us	Guaranteed by design
Input HIGH/LOW level	0. 7V _{DD}		$0.3V_{DD}$	0. 7V _{DD}		$0.3V_{DD}$	V	At OE pin
Output LOW level		1.05			1.05		V	
Output HIGH level		1.40			1.40		V	
Amplitude (V _A)		0.35			0.35		V	Single Ended output swing (Pk-Pk)
Mid Level (V _M)		1.22			1.22		V	
Rise/Fall Time (T _R)		280			300		ps	Maximum; 20/80% of V_A ; Output load (CL) = 2pF; Guaranteed by Char.
Symmetry (SYM)	48	50	52	48	50	52	%	Worst case; measured at 50% of waveform
Phase Jitter		0.15			0.15		ps	1.875MHz to 20MHz, RMS; Measured Differentially (IEEE802.3-2005)
		0.29			0.29		ps	12k to 20MHz, RMS; Measured Differentially
Period Jitter		3.7			3.7		ps	RMS
Cycle-to-Cycle Jitter		25			25		ps	1,000 cycles, Peak
Start-up Time		10			10		ms	Output valid time after power up, 25°C
Aging		± 5			± 5		ppm	25°C, 10 years

Package Outline and Dimensions

Typical PCB Land Pattern





Sales

800-345-7015 (inside USA) +1 408-284-8200 (outside USA) **Technical Support**

MEMS_Support@idt.com www.idt.com/go/MEMS

DISCLAIMER Integrated Device Technology, Inc. (IDT) and its subsidiaries reserve the right to modify the products and/or specifications described herein at any time and at IDT's sole discretion. All information in this document, including descriptions of product features and performance, is subject to change without notice. Performance specifications and the operating parameters of the described products are determined in the independent state and are not guaranteed to perform the same way when installed in customer products. The information contained herein is provided without representation or warranty of any kind, whether express or implied, including, but not limited to, the suitability of IDT's products for any particular purpose, an implied warranty of merchantability, or non-infringement of the intellectual property rights of others. This document is presented only as a guide and does not convey any license under intellectual property rights of IDT or any third parties. IDT's products are not intended for use in life support systems or similar devices where the failure or malfunction of an IDT product can be reasonably expected to significantly affect the health or safety of users. Anyone using an IDT product in such a manner does so at their own risk, absent an express, written agreement by IDT.

Integrated Device Technology, IDT and the IDT logo are registered trademarks of IDT. Other trademarks and service marks used herein, including protected names, logos and designs, are the property of IDT or their respective third party owners.

Copyright 2010, 2011, 2012, 2013. All rights reserved.