125.00 MHz Ultra-Low Jitter Oscillator

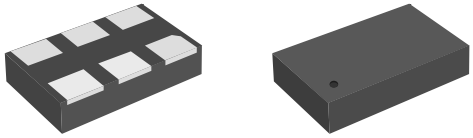
Plus-PPM Margining MEMS Oscillator (LVPECL)

4HF125000Z3

ADVANCE DATASHEET

Features

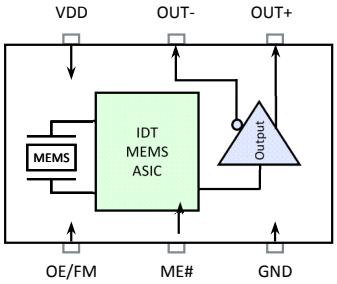
- Nominal Frequency: 125.00 MHz (LVPECL)
- Any Freq Tuning (±1000 ppm): 124.875 to 125.125 MHz
- RMS phase jitter: 0.1 ps typical
- Frequency Stability: ±25 / ±50 ppm
- Standard Packages: 7050 / 5032 / 3225
- Internal MEMS Resonator No external XTAL or XO required



7.0 x 5.0 mm package shown
(also available in 5.0 x 3.2 and 3.2 x 2.5 mm)

The **4HF125000Z3** 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 124.875 to 125.125 MHz can be generated in real time without any external XTAL or XO.

Block Diagram

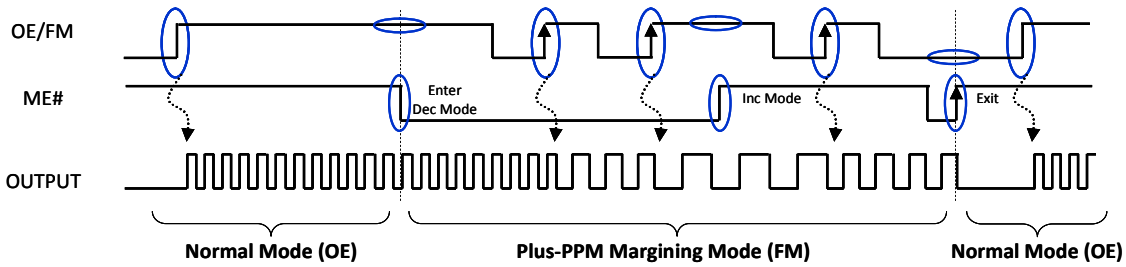


Pin Description

Pin #	Name	Description
1*	OE	Output Enable
	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

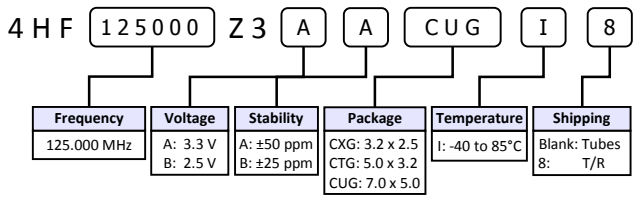
Plus-PPM Margining & Real Time Frequency Tuning (± 1000 ppm)



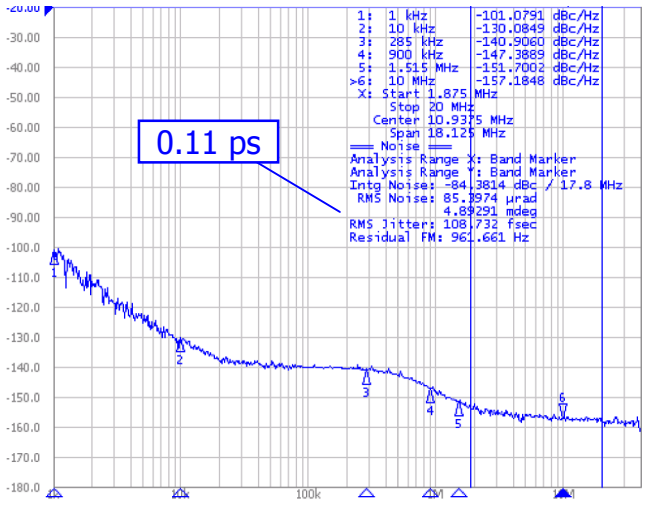
Part Ordering Information

Package (mm)	Voltage (V)	Ordering Code	
		± 50 ppm	± 25 ppm
7.0 x 5.0	3.3	4HF125000Z3AACUGI	4HF125000Z3ABCUGI
	2.5	4HF125000Z3BACUGI	4HF125000Z3BBCUGI
5.0 x 3.2	3.3	4HF125000Z3AACTGI	4HF125000Z3ABCTGI
	2.5	4HF125000Z3BACTGI	4HF125000Z3BBCTGI
3.2 x 2.5	2.5	4HF125000Z3BACXGI	4HF125000Z3BBCXGI

* Factory minimum order quantity: 500pcs (T/R)



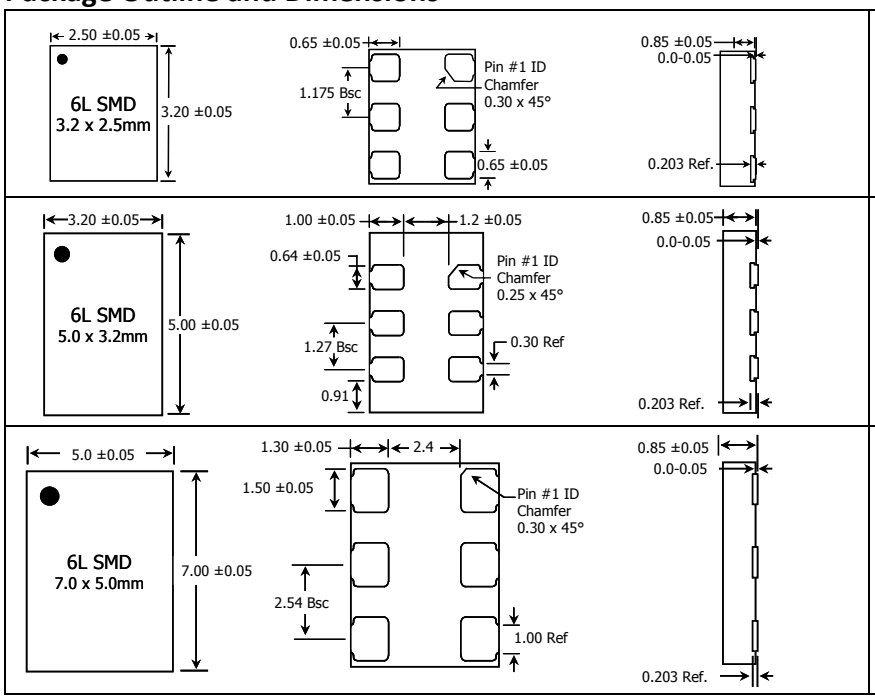
Typical Phase Jitter



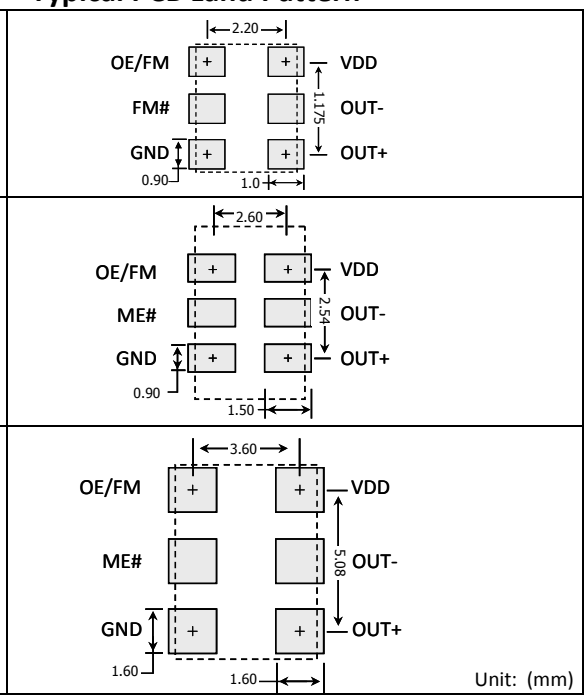
Specification

Parameter	2.5 V Specifications			3.3 V Specifications			Units	Conditions
	Min	Typ	Max	Min	Typ	Max		
Supply Voltage (V_{DD})	2.375	2.50	2.625	2.97	3.30	3.63	V	
Output Frequency		125.00			125.00		MHz	
Frequency Stability	- 50		+ 50	- 50		+ 50	ppm	Includes supply voltage and temperature variation (-40 to 85°C), reflow drift, and aging.
Supply Current		90			95		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		0.8	V_{DD} -1.8		1.5	V_{DD} -1.8	V	
Output HIGH level	V_{DD} -1.0	1.6		V_{DD} -1.1	2.3		V	
Amplitude (V_A)		0.75			0.75		V	Single Ended output swing (Pk-Pk)
Mid Level (V_M)		V_{DD} -1.3			V_{DD} -1.3		V	
Rise/Fall Time (T_R)			300		250		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		0.11			0.11		ps	1.875MHz to 20MHz, RMS; Measured Differentially (IEEE802.3-2005)
		0.25			0.25		ps	12k to 20MHz, RMS; Measured Differentially
Period Jitter		2.5			2.5		ps	RMS
Cycle-to-Cycle Jitter		20			20		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



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