

LGH300 Series

Software Compensated, Ultra-Low-G OCXO

Key Features

- As good as 0.01 ppb/g per axis
- Within pull range in 0.1 seconds
- As low as ± 0.25 ppb over temp.
- Up to ± 1000 ppm pull range
- Aging as low as ± 50 ppb over 10 years



Common Applications

- GPS/GNSS
- Naval Vessels
- Commercial and Military Aircraft
- Smart Munitions
- Ground Vehicles
- Industrial Construction Equipment
- Autonomous Agricultural Vehicles



Functional Description

The LGH300 Ultra-Low-G product family, incorporates Esterline Research and Design's patented MSAC compensation architecture within an ovenized oscillator temperature control system. This compensation achieves frequency stability performance of less than ± 0.25 ppb over the temperature range of -40°C to $+105^{\circ}\text{C}$. The LGH300 design platform can deliver acceleration sensitivity performance of less than 0.01 ppb/g, translating into minimal phase noise degradation under vibration.

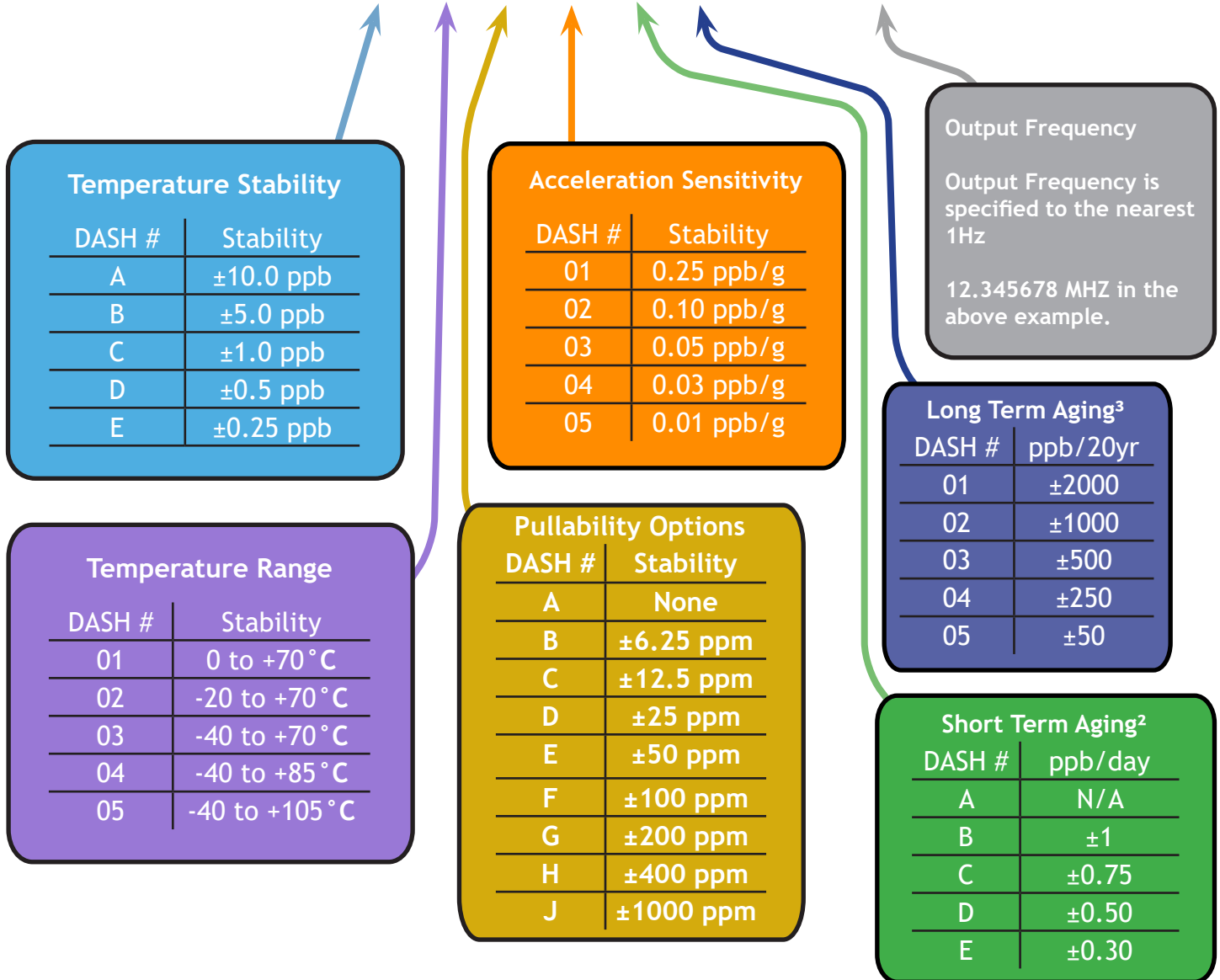
The LGH300 also offers other unique and performance enhancing features. Vastly superior turn-on characteristics as compared to traditional OCXO product offerings, with turn-on stability within ± 100 ppb of final frequency after 1 second of operation are achieved. Wide pull ranges up to ± 1000 ppm, and superior aging options as low as ± 50 ppb over 10 years life are also ordering options.

Standard Specifications:

Parameter	Minimum	Typical	Maximum	Units	Notes
Frequency Range	1		60	MHz	
Operational Temperature Range					See Ordering Options.
Frequency vs. Temperature					Measured from hot to cold @ 1°C/ min
Calibration Tolerance			±50.0	ppb	At time of shipment.
Frequency vs. Supply			±0.1	ppb	5% Change
Frequency vs Load			±0.25	ppb	5% Change
Startup Time			100	mS	To reach 90 % of Final Amplitude and ±150 ppb of 30-Minute Frequency.
Warmup Time			5	Minutes	±10 ppb of 30-Minute frequency @ 25°C
Aging					See Ordering Options.
Supply Voltage	4.75	5.00	5.25	Volts	
Input Power			5.25	Watts	During Warmup
			2.00	Watts	Steady State at +25°C
Output Characteristics					Load = LVCMOS (15 pF)
Output Level High (Voh)		3.3		Volts	
Output Low (Vol)		0.1		Volts	
Duty Cycle	45	50	55	%	
Rise/Fall Time			6	ns	Measured between 10% and 90%
Oven Ready (Pin 6)					Open Collector – 10K ext pull-up to +5V
Oven not stabilized	2.4			Volts	
Oven Stabilized			0.5	Volts	
Digital Frequency Control					
Communication Protocol					2-pin Serial
Command Syntax					See APN#: LGH300 – CP Rev: -
Pullability					See Ordering Options.
Linearity			1	%	
Phase Noise Characteristics					Displayed phase noise at 10MHz.
1 Hz Offset		-80	-74	dBc/Hz	
10 Hz Offset		-108	-102	dBc/Hz	
100 Hz Offset		-127	-123	dBc/Hz	
1 KHz Offset		-148	-145	dBc/Hz	
10 KHz Offset		-154	-150	dBc/Hz	
100 KHz Offset		-154	-150	dBc/Hz	
Environmental Specifications					
Shock per MIL-STD-202			Survive		Method 213, Condition C
Vibration per MIL-STD-202			Survive		Method 204, Condition A

Ordering Information:

LGH300-A-01-A-01-A-01-12M345678

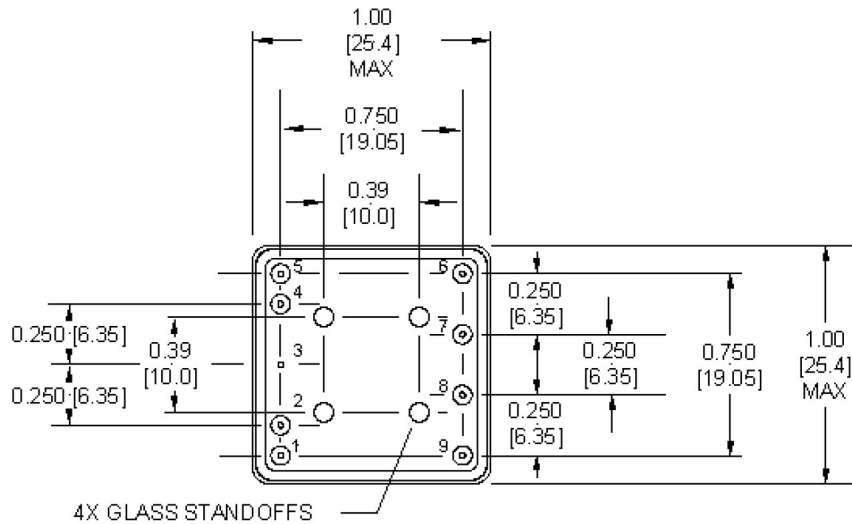


Notes:

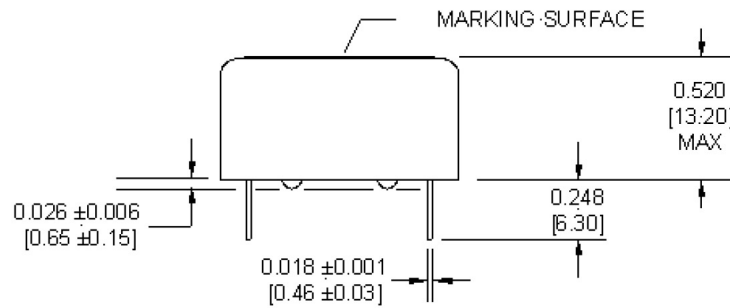
- 1.) Not all combinations of options are available. Consult factory for additional guidance.
- 2.) Daily rate is measured after 30 days of continuous operation at 85 °C.
- 3.) Long term aging is measured after 7 days of continuous operation at 85 °C.

Mechanical Dimensions:

Bottom View:



Side View:



NOTES:

- 1 - DIMENSIONAL UNITS: in [mm]
- 2 - TOLERANCE: ±0.004 [±0.1 mm]
- 3 - PIN MARKINGS DO NOT APPEAR ON THE DEVICE
- 4 - PINS LABELED "N/C" SHOULD BE LEFT FLOATING

PIN FUNCTIONS	
Pin #	Function
1	RF Output
2	NC/Serial Out
3	GROUND
4	NC/Serial In
5	NC
6	Oven Ready
7	NC
8	NC
9	Supply Voltage