LGT500 Series

SOFTWARE COMPENSATED 'ULTRA-LOW-G' TCXO

FEATURES

- As good as 0.005 ppb/g per axis
- Within pull range in 0.1 seconds
- As low as ±5 ppb over temp.
- Up to +/- 1000 ppm pull range
- Aging as low as +/- 100 ppb over 20 years

APPLICATIONS

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

Functional Description

The LGT500 Ultra-Low-G product family, incorporates Esterline Research and Design's patented MSAC compensation architecture over the customer specified operating temperature range. This compensation achieves frequency stability as low as ±5 ppb over the temperature range of -40°C to +105°C. The LGT500 design platform can deliver acceleration sensitivity performance of less than 0.005 ppb/g, translating into minimal phase noise degradation under vibration.

The LGT500 also offers other unique and performance enhancing features. Vastly superior turn-on characteristics as compared to OCXO product offerings, with turn-on stability within +/-100 ppb of final frequency after 1 second of operation. Superior aging options as low as +/-100 ppb over 20 years life also available with the LGT500.

Standard Specifications:

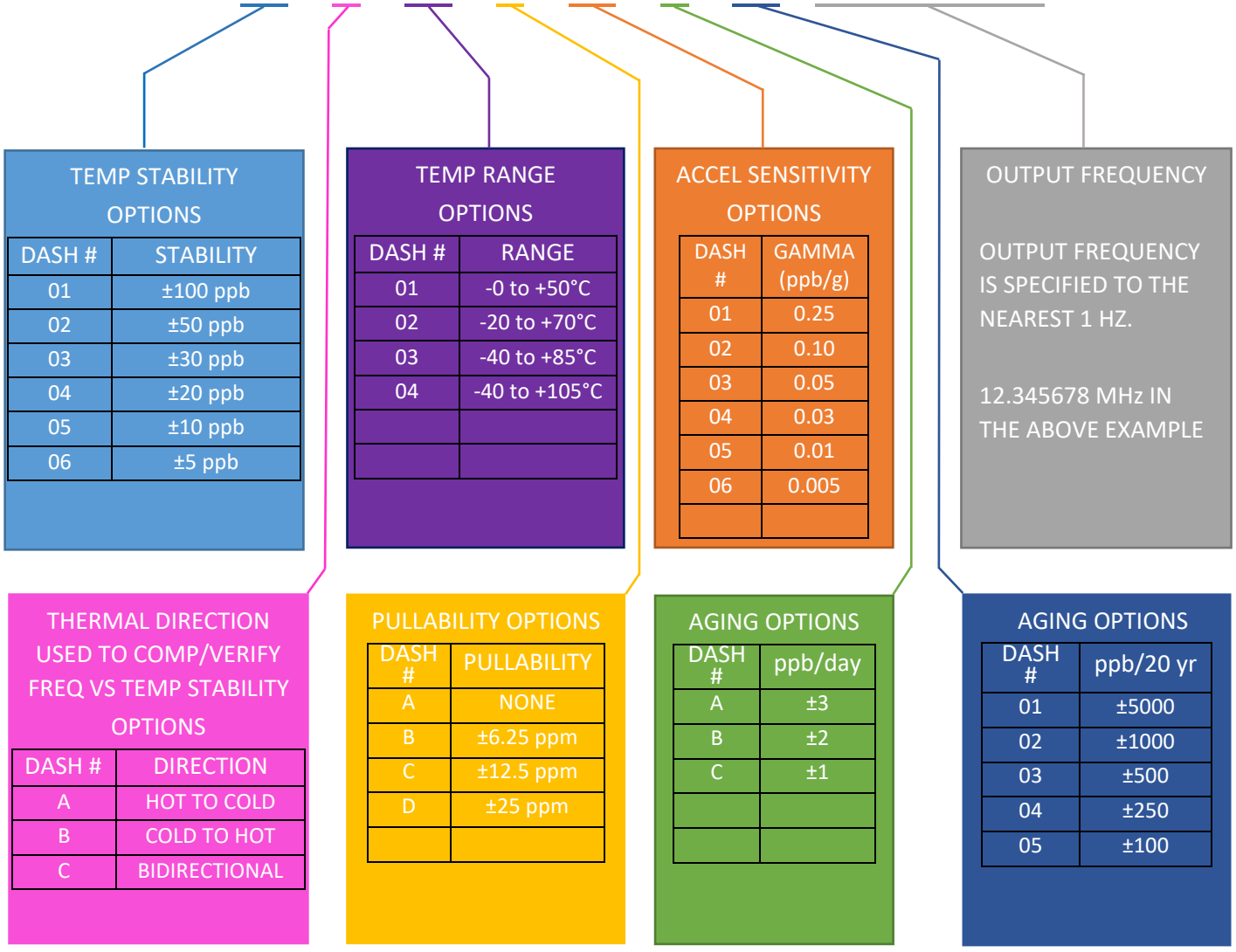
Parameter	Minimum	Typical	Maximum	Units	Notes
Frequency Range	1		60	MHz	
Operational Temperature Range					See Ordering Options
Frequency vs Temperature					See Ordering Options
Calibration Tolerance			±10.0	ppb	At Time of Shipment
Frequency vs Supply			±0.1	ppb	5% change
Frequency vs Load			±0.25	ppb	5% change
Start-Up Time			100	mS	To reach 90 % of Final Amplitude
Aging					See Ordering Options
Supply Voltage	3.135	3.30	3.465	VDC	
Input Current			80	mA	@ 60 MHz output frequency
Output Characteristics					Load = LVCMOS (15 pF)
Output High (VOH)		3.3		V	
Output Low (VOL)		0.1		V	
Duty Cycle	45	50	55	%	
Rise/Fall Time			6	nS	Measured between 10% and 90%
Voltage Control Characteristics					
Control Voltage Range	0.330		2.970	V	See Note 1
Frequency Pullability					See Ordering Options
Input Z		50		kΩ	
Linearity			0.5	%	
Phase Noise Characteristics					Performance at 10 MHz Output
1 Hz		-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

Notes:

1 – VCXO frequency linearity is not guaranteed beyond the specified control voltage limits.

Ordering Information and Part Number Formatting:

LGT500 - 01 – A – 01 – A – 01 – A – 01 - 12M345678



TEMP STABILITY OPTIONS

DASH #	STABILITY
01	±100 ppb
02	±50 ppb
03	±30 ppb
04	±20 ppb
05	±10 ppb
06	±5 ppb

TEMP RANGE OPTIONS

DASH #	RANGE
01	-0 to +50°C
02	-20 to +70°C
03	-40 to +85°C
04	-40 to +105°C

ACCEL SENSITIVITY OPTIONS

DASH #	GAMMA (ppb/g)
01	0.25
02	0.10
03	0.05
04	0.03
05	0.01
06	0.005

OUTPUT FREQUENCY

OUTPUT FREQUENCY IS SPECIFIED TO THE NEAREST 1 HZ.

12.345678 MHz IN THE ABOVE EXAMPLE

THERMAL DIRECTION USED TO COMP/VERIFY FREQ VS TEMP STABILITY OPTIONS

DASH #	DIRECTION
A	HOT TO COLD
B	COLD TO HOT
C	BIDIRECTIONAL

PULLABILITY OPTIONS

DASH #	PULLABILITY
A	NONE
B	±6.25 ppm
C	±12.5 ppm
D	±25 ppm

AGING OPTIONS

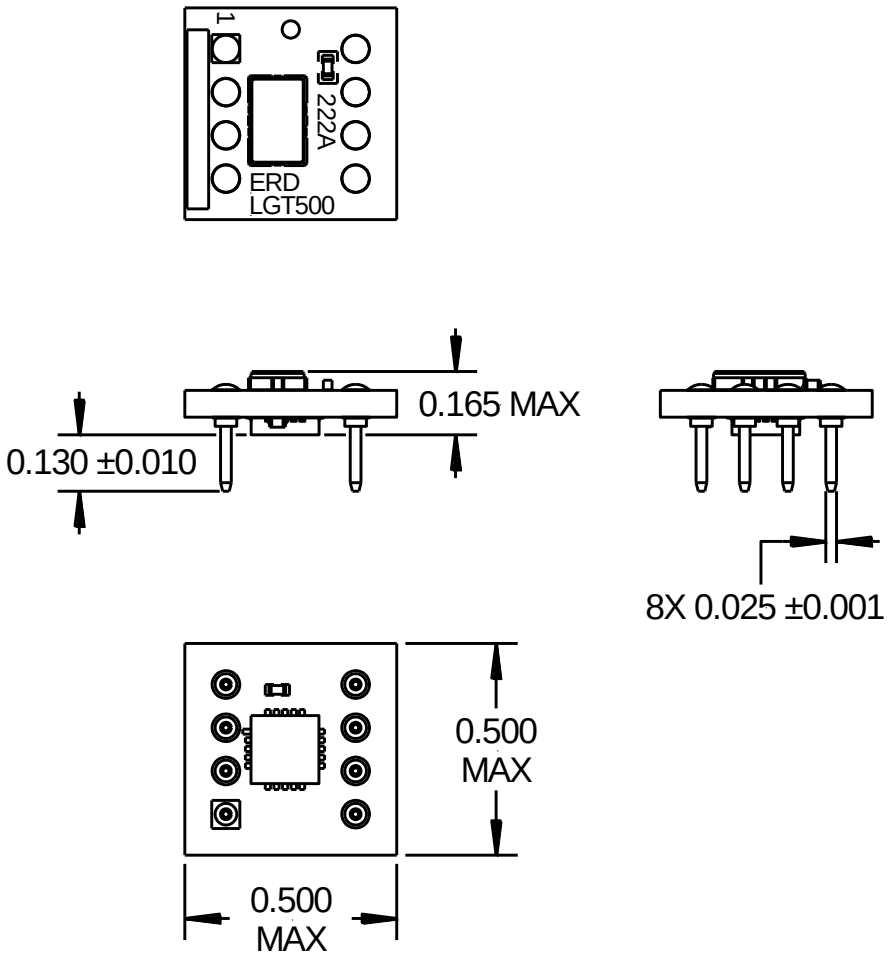
DASH #	ppb/day
A	±3
B	±2
C	±1

AGING OPTIONS

DASH #	ppb/20 yr
01	±5000
02	±1000
03	±500
04	±250
05	±100

*Note: Need an option not shown? Call or email Esterline Research and Design for help with your unique needs.

Mechanical Dimensions:



PINOUT	
PIN #	FUNCTION
1	EFC
2	ERD INTERNAL
3	N/C or EFC Lock
4	Ground

PINOUT	
PIN #	FUNCTION
5	RF OUT
6	N/C
7	N/C
8	Vcc