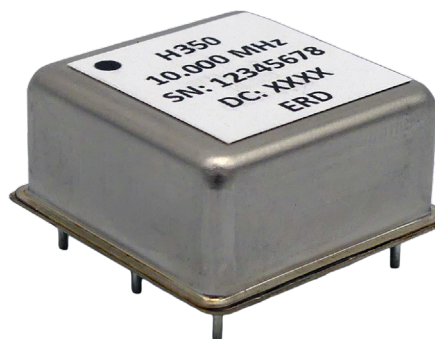


H350 Series

Highly-Stable OCXOs

Key Features

- Standard 10 MHz Frequency
- 25.8 mm x 25.8 mm x 12.8 mm
- +/- 3 ppb over industrial temp
- 5.0V supply
- 4.0V Ref. Voltage Out
- Sine wave output



Common Applications

- SDH/SONET
- Cellular base stations
- Test Instrumentation
- Synthesizers
- SATCOM terminals



Functional Description

The H350 10MHz OXCO represents an industry-standard frequency reference source with a volume production record of high reliability for a wide range of RF applications. Due to this large-scale production, the H350 presents a cost-effective solution to many customer requirements while providing industry-leading performance.

With temperature stability as good as ± 3 ppb over the range of -40°C to $+85^{\circ}\text{C}$, the H350 outperforms many competitor parts in the same package size. The H350 comes in a 25.8 mm x 25.8 mm x 12.8 mm package, lending itself to applications with tight footprint requirements.

An optional reference voltage output gives the user a stable, ovenized voltage reference to derive their control voltage (EFC) from. This will result in less skew over temperature than using contemporary methods of EFC generation.

Standard Specifications:

Parameter	Minimum	Typical	Maximum	Units	Notes
Frequency	10.0			MHz	Other frequencies may be available upon request
Operational Temperature Range					See ordering options.
Frequency vs. Temperature ²					See ordering options.
Calibration Tolerance ³	-100		+100	ppb	At time of shipment.
Frequency vs. Supply	-0.5		+0.5	ppb	5% Change
Frequency vs Load	-0.5		+0.5	ppb	5% Change
Warmup Time			10	Minutes	Within ± 10 ppb of 60-minute frequency at 25°C
Aging ⁴					See ordering options.
Supply Voltage (VIN)	4.75	5.00	5.25	Volts	"Typical" column refers to nominal.
Power Consumption					
Steady State at 25°C			1.3	Watts	Measured in still air.
Turn-on Power			4	Watts	Measured in still air.
Allan Deviation			5.0 E-11		Tau = 1s F = 10 MHz

Output Characteristics:

Parameter	Minimum	Typical	Maximum	Units	Notes
Sine Output Option					Load = 50 Ω
Output Power High ("1")	+6	+8	+10	dBm	
Harmonics			-30	dBc	
Spurious			-60	dBc	

Phase Noise Characteristics:

Parameter	Minimum	Typical	Maximum	Units
1 Hz Offset		-95	-90	dBc/Hz
10 Hz Offset		-125	-120	dBc/Hz
100 Hz Offset		-140	-135	dBc/Hz
1 KHz Offset		-148	-145	dBc/Hz
10 KHz Offset		-152	-150	dBc/Hz

Electrical Frequency Control:

Parameter	Minimum	Typical	Maximum	Units	Notes
Tuning Range ⁶			-0.5	ppm	EFC @ Min Voltage
	0.5			ppm	EFC @ Max Voltage
Control Voltage (EFC)	0		5.0	V	See ordering options.
	0		4.0	V	See ordering options.
Slope	Positive				
Center Voltage ⁸	50% Maximum Control Voltage (EFC)			V	
Linearity	-10		10	%	
Input Impedance	100			K Ω	

Reference Voltage:

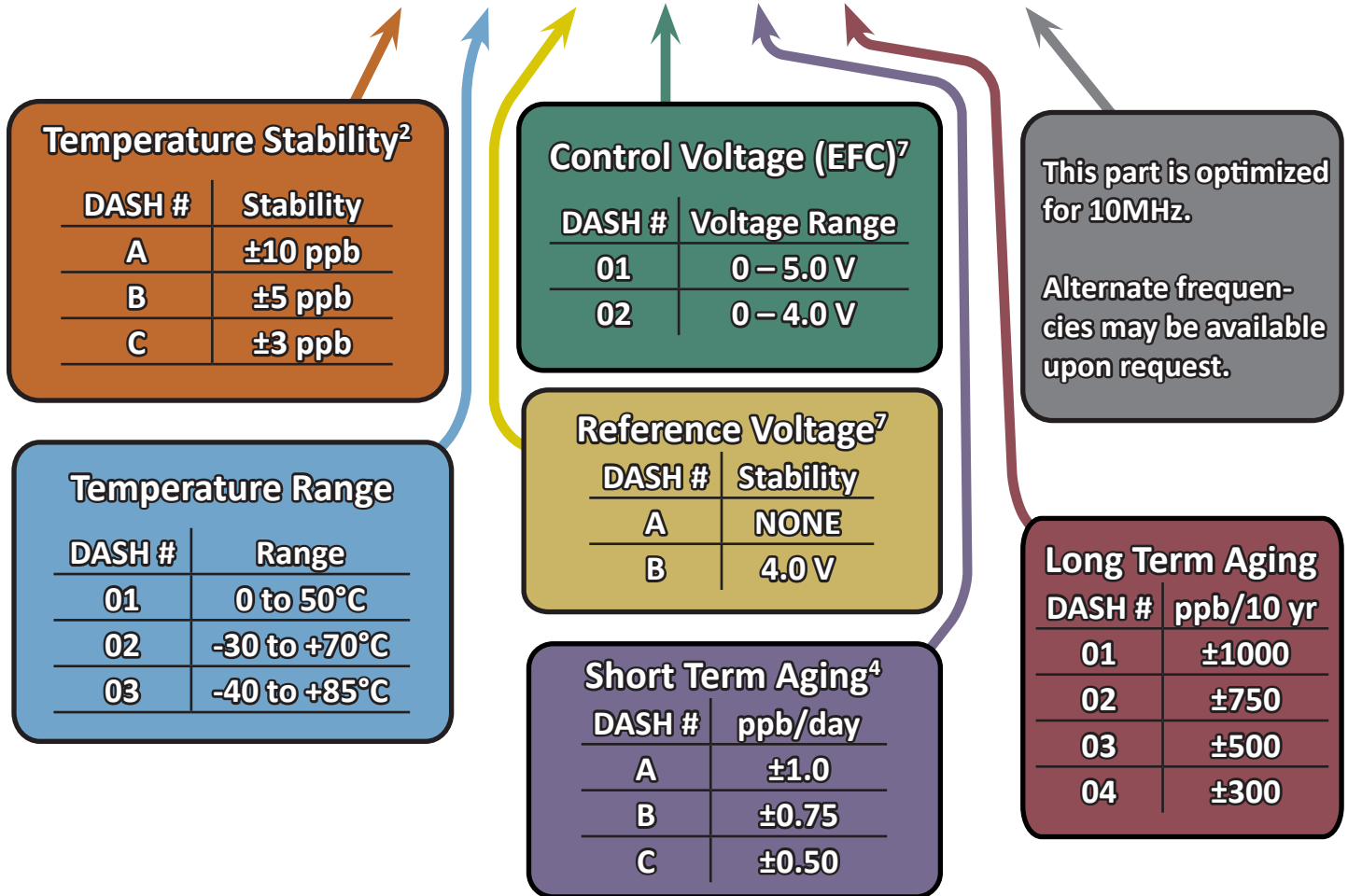
Parameter	Minimum	Typical	Maximum	Units	Notes
Voltage	3.8	4	4.2	V	Over selected temp range.
Load	9			K Ω	See ordering options.

Environmental Characteristics:

Environmental Phenomenon	Response
Operating Temperature ⁵	-40 °C to +85 °C
Storage Temperature	-55 °C to +105 °C
Vibration (non-operating)	MIL-STD-202, Method 201 0.06" Total p-p, 10 to 55 Hz
Shock (non-operating)	MIL STD 202, Method 213, Test Condition J: 30g, 11ms, half sine
Humidity	MIL-STD-202, Method 103 Test Condition A 95% RH @ +40 °C, non-condensing, 240 hours

Ordering Information:¹

H350-A-01-A-01-A-01-10M00

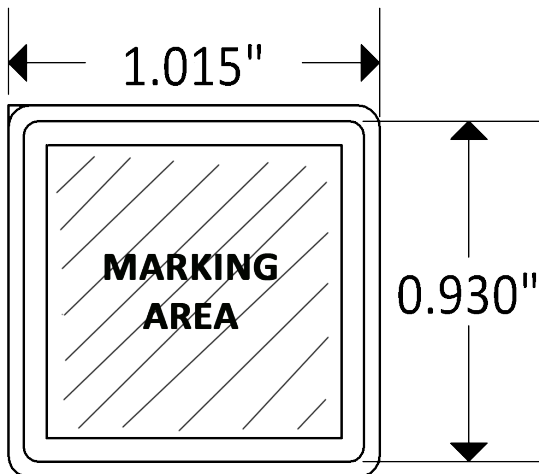


Notes:

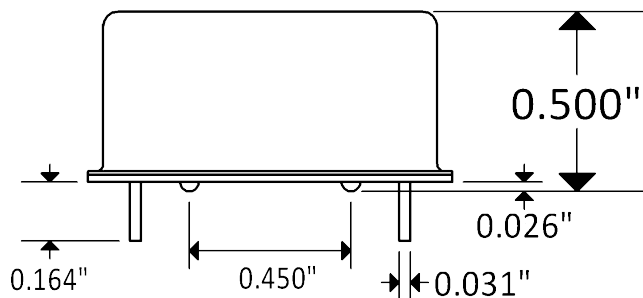
- 1.) Not all combinations of options are available. Consult factory for additional guidance.
- 2.) Temperature stability is referenced to 25°C.
- 3.) At 25±1°C, After 15±1 continuous minutes on power, at center EFC voltage ±1mV.
- 4.) After 30 days.
- 5.) Unit will maintain output over this range. Performance not guaranteed if operating outside range chosen in part number builder.
- 6.) Referenced to frequency at nominal center EFC Voltage
- 7.) If reference voltage option A is selected, option 01 must be selected for control voltage. If reference voltage option B is selected, option 02 must be selected for control voltage.
- 8.) If pin 3 is not connected, EFC is internally held at center voltage.
- 9.) The information contained herein is subject to change at any time without notice.

Mechanical Specifications:

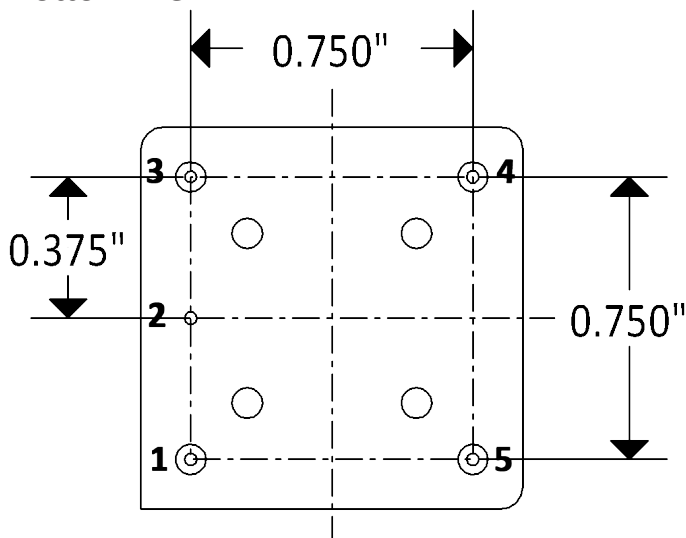
Top View:



Side View:



Bottom View:



Dimension Notes:

TOP: Can inset (930 thou) and (1.015 thou MAX) are square.

SIDE: Max seated height (500 thou) includes 4X glass standoffs on bottom of package. They are centered and spaced 450 thou apart.

TOLERANCES ARE ± 0.010 "

PIN FUNCTIONS

Pin #	Function
1	RF OUT
2	GND
3	EFC / N.C.
4	V _{REF} / N.C.
5	Supply Voltage (VIN)

For best signal integrity, do not run traces beneath the part, and ensure the area under the board is ground plane.