GREENRAY
frequency control solutions

YH1460 OCXO

EXCELLENT TEMPERATURE STABILITY
MINIATURE PACKAGE

Product Description

Greenray Industries' YH1460/1461 Series OCXOs offer tight stability in a compact, 1.0 inch. square package.

Features

- Compact 25.4 mm sq. package
- Low Phase Noise
- Typical phase noise of -140 dBc (@ 100 Hz offset)
- Excellent Stability
- Frequency Range: 10 - 100 MHz
- +3.3, +5.0, +12.0 or +15.0 VDC Supply

Applications

- High acceleration/vibration GPS system
- System reference for airborne
- Ethernet synchronization
- Airborne data router
- Communication system
- RF telemetry systems
- Multiband terminal
- Upconverter

REV: K

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
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www.greenrayindustries.com

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YH1460 SERIES
10 MHz to 100 MHz

OCXO

Electrical Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	@ +25°C	10		100	MHz	(FREQ.)
	Range		Typical ≤ 50 MHz	Typical > 50 MHz		
Frequency Stability	0°C to +50°C		± 10	± 50	ppb	B18, B58
	-10°C to +60°C		± 10	± 70	ppb	G18, G78
	-20°C to +70°C		± 20	± 100	ppb	N28, N17
	-40°C to +85°C		± 20	± 300	ppb	T28, T37
Aging per Year	≤ 50 MHz			± 0.1	ppm	
	> 50 MHz			± 0.5	ppm	
Acceleration Sensitivity	Worst axis tested @ 90 Hz, 10 g			3.0	ppb/g	SG
				2.0	ppb/g	LG
				0.5	ppb/g	ULG (1)
Frequency vs Voltage	For a 5% change			± 5.0	ppb	
Frequency vs Load	For a 10% change			± 5.0	ppb	
Voltage Control (EFC)	0 to Supply, Positive Slope		± 1.0		ppm	
Warm-up Time	Within ± 50 ppb		5		min	

Phase Noise Performance						
Parameter	Frequency Offset (Hz)	Min	Typical ≤ 50 MHz	Typical > 50 MHz	Units	Ordering Code
Static @ 10 MHz Nom. Freq.	10		-125	-90	dBc/Hz	
	100		-145	-120	dBc/Hz	
	1 k		-155	-145	dBc/Hz	
	10 k		-160	-155	dBc/Hz	
	100 k		-160	-160	dBc/Hz	

DC Supply						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Supply Voltage		3.0	3.3	3.6	Vdc	B
		4.75	5.0	5.25	Vdc	E
		11.4	12.0	12.6	Vdc	D
		14.3	15.0	15.7	Vdc	C
Input Power	Warm-up, 5 min			5	W	
	Idle @ +25°C			1.5	W	

RF Output						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
CMOS						YH1461
Level	15 pF Load	0.8 Vdd "1" Level		0.2 Vdd "0" Level	V	
Sinewave						YH1460
Output Power	50 Ω Load	+5	+7	+9	dBm	
	50 Ω Load, 3.3V		+ 4		dBm	
Harmonics				-20	dBc	

(1) Requires 0.6 in high package

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Environmental and Mechanical Specifications				
Test	Standard	Method	Condition	Description
Vibration	MIL-STD-202	204	A	50 g, 20 to 2,000 Hz, swept sine
Shock	MIL-STD-202	213	C	1,500 g, 0.5 ms half-sine

Recommendations and General Information	
Parameter	Notes
Operating Temperature	-40°C to +85°C
Storage Temperature	-45°C to +90°C
Terminal Finish	Sn 100 (Lead-free), SnPb 63/37 (non-RoHS)
Package Weight	8 grams
Package Finish	Stainless Steel and Ni plated Kovar
Soldering Instruction	Hand Solder
Shipping	Tray Pack
Marking	GRI Logo, Model #, Frequency, Serial #, Date Code Addition marking upon request if space is available

Ordering Example

YH1460 - T 58 - B - SG - 10.0 MHz - LF

Model	Temp. Range	Stability	Supply Voltage	G-Sensitivity	Freq. (MHz)	Term. Finish
YH1460: Sinewave YH1461: CMOS	B: 0 to +50°C D: -30 to +70°C F: 0 to +60°C G: -10 to +60°C H: -10 to +50°C K: 0 to +70°C M: -20 to +60°C N: -20 to +70°C O: -25 to +70°C P: -30 to +80°C Q: -35 to +85°C R: -40 to +60°C S: -40 to +70°C T: -40 to +85°C Y: -20 to +60°C	18: ±0.01ppm 158: ±0.015ppm 28: ±0.02ppm 38: ±0.03ppm 58: ±0.05ppm 78: ±0.07ppm 17: ±0.1ppm 157: ±0.15ppm 27: ±0.2ppm 37: ±0.3ppm	B: 3.3V E: 5.0V C: 15V D: 12V	SG: < 3 ppb/g LG: < 2 ppb/g ULG: < 0.5 ppb/g (Requires 0.6" high package) HG: Customer-specific	10 - 100	LF: SnAg 96.5/3.5(Lead-free) PB: SnPb 63/37 (non-RoHS)

The Order ID (YH1460-T58-B-SG-10.0MHz-LF) is only used to issue the preliminary quote. The Part Number (YH1460-1) for the quoted Electrical Characteristics, Screenings, and other options, will be provided with the Greenray Sales Order.

Other specification options are available, please use the contact information below for more information.

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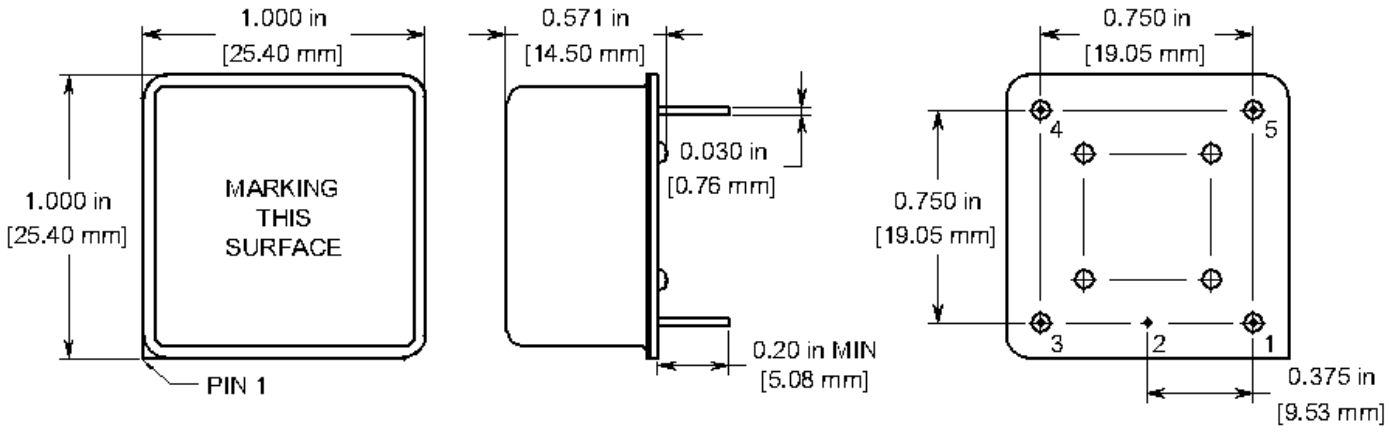
Package Information



PIN CONNECTIONS	
1	CONTROL VOLTAGE (EFC)
2	NO CONNECT (NC)
3	SUPPLY VOLTAGE (Vdd)
4	OUTPUT
5	GND

(NC Pins may have internal connections and should be isolated)

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