



frequency control solutions

YH1460

EXCELLENT TEMPERATURE STABILITY
MINIATURE PACKAGE

OCXO

Product Description

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



Features

- Compact 25.4mm sq. package
- Stratum 3E Compliant
- 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. H



ISO 9001
Quality

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AS9100
Aerospace



frequency control solutions

YH1460 SERIES
10 MHz to 100 MHz



Electrical Characteristics

Frequency Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	Sinewave	10		100	MHz	YH1460
	CMOS					YH1461
Frequency Stability typical (other stability available, please contact factory)	Frequency	10 MHz		100 MHz		10 MHz 100 MHz
	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	Frequency < 100 MHz			± 0.1	ppm	
	Frequency ≥ 100 MHz			± 0.5	ppm	
Warm-up Time	Within ± 50 ppb		5		min	
Frequency vs Voltage	For a 5% change			± 5	ppb	
Acceleration Sensitivity	Meas. @ 90 Hz, 10 g, worst Axis			2	ppb / g	SD
				0.5	ppb / g	LG (0.6" high package)
Frequency vs Load	For a 10% change			± 5	ppb	
Electronic Frequency Control	EFC = 0 to V _{DD} Positive slope		± 1		ppm	
Phase Noise Performance						
Parameter	Frequency Frequency Offset (Hz)	10 MHz Typical	100 MHz Typical	Units		
Phase Noise (static)	10	- 125	- 90	dBc/Hz		
	100	- 145	- 120	dBc/Hz		
	1k	- 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 (V _{DD})		3.0	3.3	3.6	VDC	3.3
		4.5	5.0	5.5	VDC	5.0
		11.4	12.0	12.6	VDC	12.0
		14.3	15.0	15.7	VDC	15.0
Supply Current	CMOS			25	mA	
Input Power	Warm-up, 5 min			5	W	
	Idle, at +25°C			1.5	W	
RF Outputs: Sinewave and CMOS						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
CMOS Output						YH1461
Load			15		pF	
Level		V _{DD} -0.5 "1" level		+0.5 "0" level	VDC	
Sinewave Output						YH1460
Load			50		Ω	
Level	50Ω load	+ 5	+ 7	+ 9	dBm	
	50 Ω load, 3.3Vdc		+4		dBm	
Harmonics				- 20	dBc	



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10 MHz to 100 MHz



Environmental and Mechanical Specifications

Screenings			
Screening	Standard	Method, Condition	Description
Vibration	MIL-STD-202	204, Cond A	50 g, 20 to 2,000 Hz, swept sine
Shock	MIL-STD-202	213, Cond C	1,500 g, 0.5 ms half-sine

Recommendations and General Information

Conditions	
Parameter	Notes
Operating Temperature	-40°C to +85°C
Storage Temperature	-45°C to +90°C
Terminal Finish	Gold plated is standard (RoHS). SnPb 63/37 (non-RoHS) is also available
Package Finish	Stainless Steel and Nickel-plated Kovar
Package Weight	8 grams
Soldering Instruction	Hand solder or reflow
Shipping	Tray package
Marking	Line 1: Greenray logo Line 2: Model Line 3: Frequency Line 4: Serial Number + Data Code (YYWW)

Ordering Example

YH1460	-	N28	-	5.0	-	LG	-	10.0MHz	-	E
Model		Stability Code		Input Voltage		g-Sense Code		Frequency in MHz		Termination finish
YH1460 Sinewave YH1461 CMOS		<u>Refer to Electrical Specs Table*</u> B18, B58 (0 to 50°C) G18, G78 (-10 to +60°C) N28, N17 (-20 to +70°C) T28, T37 (-40 to +85°C)		3.3: 3.3 VDC 5.0: 5.0 VDC 12.0: 12.0 VDC 15.0: 15.0 VDC		SD: < 2 ppb/g LG: < 0.5 ppb/g, with 0.6" high package		From 10 to 100 MHz		E: Gold plated (RoHS), Standard PB: SnPb 63/37 (non-RoHS) LF: SnAg 96.5/3.5 (Lead-free)

*other frequency stabilities available, please contact factory



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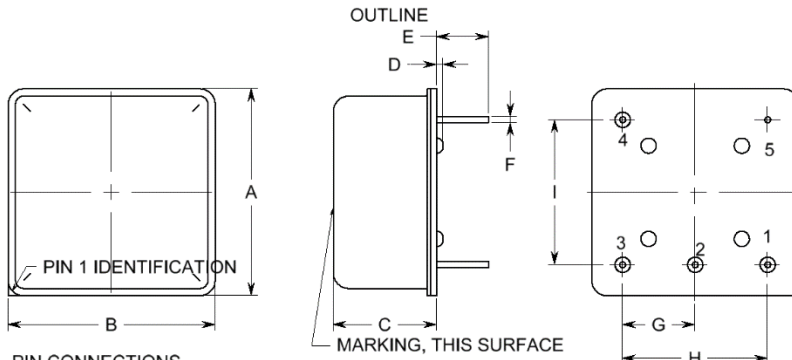
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Package information



PIN CONNECTIONS

1. EFC
2. NC
3. SUPPLY
4. OUTPUT
5. 0V & CASE GND

DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
A	NA	NA	1.030	26.16
B	NA	NA	1.030	26.16
C	NA	NA	0.500	12.70
D	0.026	0.66	NA	NA
E	0.250	6.35	0.270	6.86
F	ø0.030	ø0.76	ø0.032	ø0.81
G	0.350	8.89	0.360	9.14
H	0.700	17.78	0.710	18.03
I	0.700	17.78	0.710	18.03



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