



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 25.4 mm 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. J



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Electrical Characteristics

Frequency Characteristics								
Parameter	Conditions	Min	Typical		Max	Units	Ordering Code	
Nominal Frequency		10			100	MHz		
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 SUP. Positive slope		± 1			ppm		
Phase Noise Performance								
Parameter	Frequency Offset (Hz)	Typical		Typical		Units	Ordering Code	
		10 MHz		100 MHz				
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		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					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							YH1461	
Load			15			pF		
Level		SUP.-0.5 "1" level			+0.5 "0" level	VDC		
Sine							YH1460	
Load			50			Ω		
Level	50Ω load	+ 5	+ 7		+ 9	dBm		
	50 Ω load, 3.3Vdc		+4			dBm		
Harmonics					- 20	dBc		



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

*Other frequency stabilities available, please contact factory



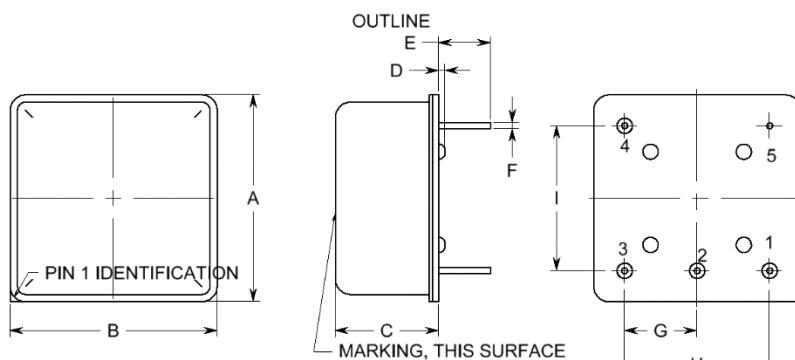
frequency control solutions

YH1460 SERIES

10 MHz to 100 MHz

OCXO

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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