



frequency control solutions

## YH1320

LOW PHASE NOISE  
HCMOS OR SINE WAVE OUTPUT

# OCXO

### Product Description

Greenray Industries' YH1320 Series OCXOs offer very low phase noise and are ideal for base station or test equipment applications.

### Features

- 50.8 mm sq. package
- Frequency Range: 10 - 120 MHz
- Supply Voltage: 12 V and 15 V
- CMOS (YH1320) or Sinewave (YH1321) output
- Low Phase Noise performance from 10 MHz through 120 MHz
- High Shock & Vibration Options available



### 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



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Electrical Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	@ +25°C	10		120	MHz	(FREQ.)
Frequency Stability (Typical)	Range		< 100	≥ 100	MHz	
	0°C to +50°C		± 0.01	± 0.05	ppm	B18, B58
	-10°C to +60°C		± 0.015	± 0.07	ppm	G158, G78
	-20°C to +70°C		± 0.02	± 0.10	ppm	N28, N17
	-40°C to +85°C		± 0.05	± 0.30	ppm	T58, T37
Aging (1 <sup>st</sup> year)	FREQ. < 100 MHz			± 0.1	ppm	
	FREQ. ≥ 100 MHz			± 0.5	ppm	
Frequency vs Voltage	For a 5% change			± 0.005	ppm	
Frequency vs Load	For a 10% change			± 0.005	ppm	
Voltage Control (EFC)	0 to Supply, Positive Slope		± 1.0		ppm	
Warm-up Time	Within ± 0.05 ppm		5		min	
Phase Noise Performance						
Parameter	Frequency Offset (Hz)	Range	< 100	≥ 100	Units	Ordering Code
Static @ 10 MHz Nom. Freq. (Typical) Standard	10		-125	-85	dBc/Hz	STD
	100		-150	-115	dBc/Hz	
	1 k		-160	-145	dBc/Hz	
	10 k		-165	-160	dBc/Hz	
	100 k		-165	-165	dBc/Hz	
Static @ 10 MHz Nom. Freq. (Typical) Ultra-low	10		-128	-90	dBc/Hz	UL
	100		-155	-120	dBc/Hz	
	1 k		-163	-150	dBc/Hz	
	10 k		-168	-165	dBc/Hz	
	100 k		-168	-165	dBc/Hz	
DC Supply						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Supply Voltage		11.4	12.0	12.6	Vdc	D
		14.3	15.0	15.7	Vdc	C
Supply Current				25	mA	
Input Power	Warm-up, 5 min			6	W	
	Idle @ +25°C			2	W	
RF Output						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
CMOS						YH1320
Load			15		pF	
Level		0.8 Vdd “1” Level		0.2 Vdd “0” Level	V	
Sinewave						YH1321
Output Power	50 Ω Load	+ 8	+ 10	+ 12	dBm	
Harmonics				-20	dBc	



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	SnPb 63/37 (non-RoHS)
Package Weight	70 grams
Package Finish	Cold rolled 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									
YH1320	-	T	58	-	STD	-	B	-	10.0 MHz
Model		Temp. Range	Stability		Phase Noise		Supply Voltage		Freq. (MHz)
YH1320: CMOS YH1321: Sinewave		B: 0 to +50°C G: -10 to +60°C N: -20 to +70°C T: -40 to +85°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		STD: Standard UL: Ultra-low		C: 15V D: 12V		10 to 120

The Order ID (YH1320-T58-STD-B-10.0MHz) is only used to issue the preliminary quote. The Part Number (YH1320-1) 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.



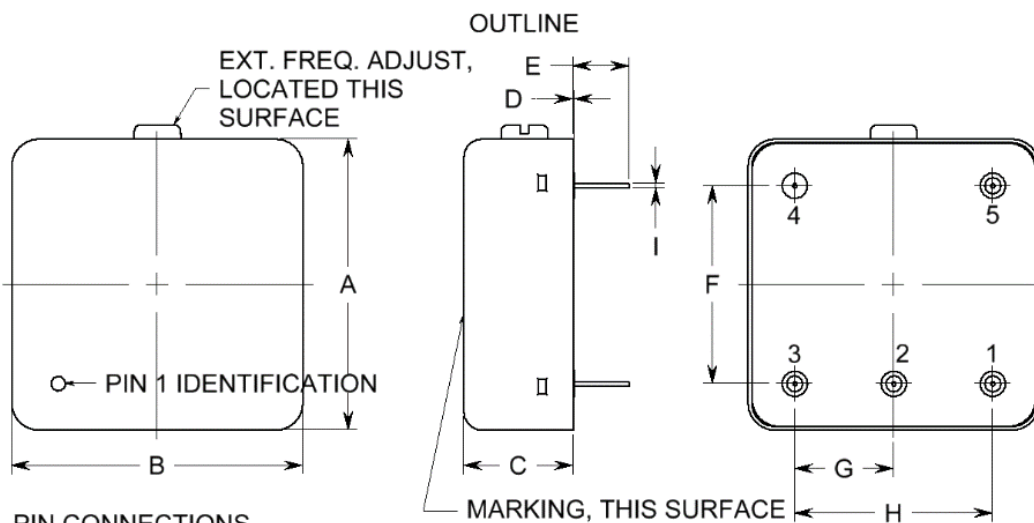
frequency control solutions

## YH1320 SERIES

10 MHz to 120 MHz

# OCXO

### Package Information



#### DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
A	2.000	50.80	2.040	51.82
B	2.000	50.80	2.040	51.82
C	0.750	19.05	0.790	20.07
D	NA	NA	0.030	0.76
E	0.240	6.10	0.28	7.11
F	1.360	34.54	1.375	34.93
G	0.680	17.27	0.695	17.65
H	1.360	34.54	1.375	34.93
I	0.030	0.76	0.033	0.84

#### PIN CONNECTIONS

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



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