GREENRAY
frequency control solutions

YH1440

OCXO

MINIATURE SMT PACKAGE
STRATUM 3 COMPLIANT

Product Description

Greenray Industries' YH1440/1441 Series OCXOs offer excellent performance in a compact, SMT package.

Features

- 25.4 x 22.1mm SMT package
- Phase noise floor of -160 dBc
- Frequency Range: 10 - 100 MHz
- CMOS (YH1440) or Sinewave (Model 1441) Output
- Stratum 3 Compliant
- Ideal for Test & Measurement, Instrumentation application

Applications

- Ground radar
- Air traffic control system
- Emergency wireless communications transceiver
- Clock reference for analyzers or synthesizers
- Ethernet synchronization
- Communication system
- Ground station RF telemetry systems
- Multiband terminal
- Upconverter

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
TEL: 717-766-0223 FAX: 717-790-9509 e-mail: sales@greenrayindustries.com
www.greenrayindustries.com

Electrical Characteristics

Frequency Characteristics						
Parameter	**Conditions**	**Min**	**Typical**	**Max**	**Units**	**Ordering Code**
Nominal Frequency	CMOS Sinewave	10		100	MHz	YH1440 YH1441
Frequency Stability (other stability available, please contact factory)	0°C to +50°C		± 100		ppb	B17
	-10°C to +60°C		± 150		ppb	G157
	-20°C to +70°C		± 200		ppb	N27
	-40°C to +70°C		± 500		ppb	S57
Aging	Per day, after 30 days		± 2		ppb	
Warm-up Time	Within ± 50 ppb		5		min	
Frequency vs Voltage	For a 5% change			± 3	ppb	
Frequency vs Load	For a 10% change			± 5	ppb	
Electronic Frequency Control	EFC = 0 to V_{DD}, Positive slope		± 5		ppm	
Phase Noise Performance						
Parameter	**Frequency Offset (Hz)**	**Min**	**Typical**	**Max**	**Units**	
Phase Noise (static) @ 100 MHz nominal Frequency	10		-80		dBc/Hz	
	100		-110		dBc/Hz	
	1k		-140		dBc/Hz	
	10 k		-155		dBc/Hz	
	100 k		-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
		4.75	5.0	5.25	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			2	W	
RF Outputs available: CMOS and Sinewave						
Parameter	**Conditions**	**Min**	**Typical**	**Max**	**Units**	**Ordering Code**
CMOS Output						YH1440
Load			15		pF	
Level		Vcc-0.2 "1" level		+0.2 "0" level	VDC	
Symmetry		40	50	60	%	
Sinewave Output						YH1441
Load			50		Ω	
Level	50Ω load	0			dBm	
Harmonics				- 20	dBc	

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
TEL: 717-766-0223 FAX: 717-790-9509 e-mail: sales@greenrayindustries.com
www.greenrayindustries.com

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 +70°C
Storage Temperature	-45°C to +75°C
Terminal Finish	Gold plated is standard. SnPb 63/37 is available
Package Finish	Stainless Steel and Nickel-plated Kovar
Package Weight	8 grams
Soldering Instruction	Hand solder or reflow soldering
Shipping	Tray pack
Marking	Line 1: Greenray logo Line 2: Model Line 3: Frequency Line 4: Serial Number + Data Code (YYWW)

Ordering Example

YH1440	-	N27	-	5.0	-	100.0MHz	-	E
Model		Stability Code		Input Voltage		Frequency in MHz		Termination finish
YH1440 CMOS YH1441 Sinewave		Refer to Electrical Specs Table* B17 (0°C to 50°C) G157 (-10°C to +60°C) N27 (-20°C to +70°C) S57 (-40°C to +70°C)		3.3: 3.3 VDC 5.0: 5.0 VDC 12.0: 12.0 VDC 15.0: 15.0 VDC		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

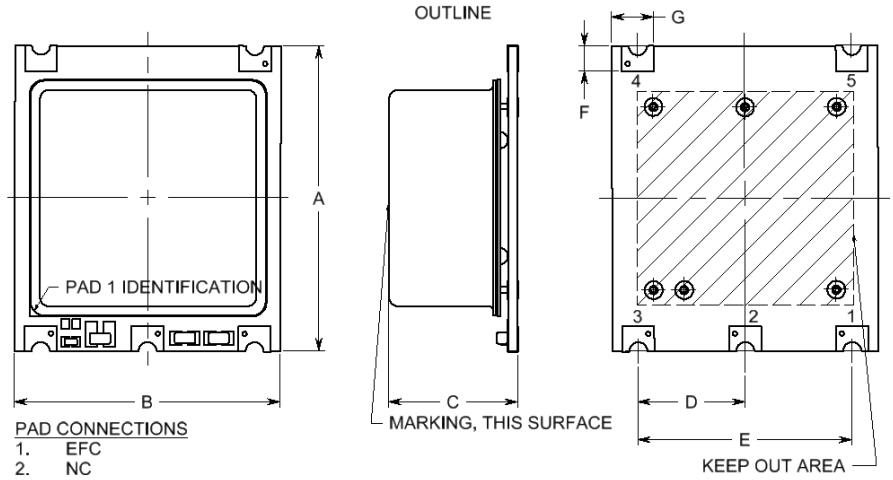
Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
TEL: 717-766-0223 FAX: 717-790-9509 e-mail: sales@greenrayindustries.com
www.greenrayindustries.com

frequency control solutions

YH1440 SERIES
10 MHz to 100 MHz

OCXO

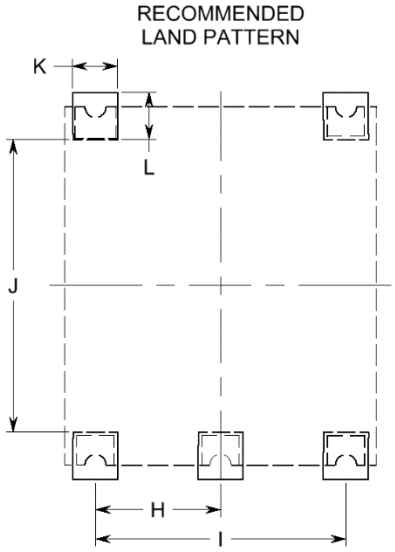
Package dimensions and Pad Connections



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

PART DIMENSIONS

	TYP.		MAX.	
DIM	inches	mm	inches	mm
A	1.000	25.40	1.020	25.91
B	0.870	22.10	0.890	22.61
C	NA	NA	0.450	11.40
D	0.350	8.90	0.360	9.14
E	0.700	17.78	0.710	18.03
F	0.082	2.08	NA	NA
G	0.105	2.67	NA	NA



LAND PATTERN DIMENSIONS

	TYP.		MAX.	
DIM	inches	mm	inches	mm
H	0.350	8.90	NA	NA
I	0.700	17.78	NA	NA
J	0.817	20.75	NA	NA
K	0.126	3.20	NA	NA
L	0.132	3.35	NA	NA

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
TEL: 717-766-0223 FAX: 717-790-9509 e-mail: sales@greenrayindustries.com
www.greenrayindustries.com

ISO 9001 Quality

AS9100 Aerospace