



frequency control solutions

## Y1600

GOOD PHASE NOISE PERFORMANCE  
RUGGED, COMPACT PACKAGE

# XO

### Product Description

Greenray Industries' Y1600 XO offers good phase noise performance in a compact, rugged package



### Features

- 20.3 x 12.7mm, rugged DIP package
- 5VDC Supply
- Frequency Range: 10MHz to 100MHz
- HCMOS output
- MIL Screening to MIL-PRF-55310 available
- Random Vibration per MIL-STD-202, Method 214
- Shock per MIL-STD-202, Method 213
- RoHS compliant

### Applications

- Telecommunications
- High-shock electronics
- Mobile radio
- Mobile instrumentation
- Airborne communications
- Wireless communications
- Microwave receivers

Rev. D



ISO 9001  
Quality

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## Y1600 SERIES

10 MHz to 100 MHz



### Electrical Characteristics

Frequency Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	HCMOS	10		100	MHz	
Frequency Stability (other stability available)	0°C to +50°C		± 5		ppm	B56
	-20°C to +70°C		± 10		ppm	N106
	-40°C to +85°C		± 15		ppm	T156
Aging	1 <sup>st</sup> year			± 1	ppm	
	10 years (10 MHz)			± 3	ppm	
Acceleration Sensitivity	(note 1)			2.5	ppb/g	
Frequency vs Voltage	For a 5% change			± 0.1	ppm	
Frequency vs Load	For a 10% change			± 0.1	ppm	
Electronic Frequency Control	EFC = 0 to V <sub>DD</sub> -0.5 Positive slope		± 10		ppm	
Phase Noise Performance						
Parameter	Frequency Offset (Hz)	Min	Typical	Max	Units	
Phase Noise (static) @ 10 MHz nominal Frequency	10		-105		dBc/Hz	
	100		-135		dBc/Hz	
	1k		-155		dBc/Hz	
	10 k		-160		dBc/Hz	
	100 k		-162		dBc/Hz	
DC Supply						
Parameter	Conditions	Min	Typical	Max	Units	
Supply Voltage (V <sub>DD</sub> )		4.75	5.0	5.25	Vdc	
Supply Current	10 MHz Freq.			15	mA	
RF Output: CMOS						
Parameter	Conditions	Min	Typical	Max	Units	
Load		10	15		pF	
Level	15 pF load, 5.0V	+4.5 "1" level		+0.2 "0" level	V	
Symmetry		45	50	55	%	

(1) Acceleration Sensitivity is worst axis tested at 90 Hz, 10 g



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### Environmental and Mechanical Specifications

Screenings			
Screening	Standard	Method, Condition	Description
Random Vibration	MIL-STD-202	214, Cond I-A	0.2 PSD, 5.35 rms G
Sine Vibration	MIL-STD-202	204, Cond D	20 g, 20 to 2,000 Hz,
Shock	MIL-STD-202	213, Cond C	100 g, 6 ms half-sine

### Recommendation and General Information

Conditions	
Parameter	Notes
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +85°C
Terminal Finish	Gold plating (RoHS) is standard (E). SnPb 63/37 also available
Package Weight	3 grams
Soldering Instruction	Hand
Shipping	Tray
Marking	Line 1: Greenray logo + Model Line 2: Frequency Line 3: Serial Number + Data Code (YYWW)

### Ordering Example

<b>Y1600</b>	-	<b>N106</b>	-	<b>5.0</b>	-	<b>10.0MHz</b>	-	<b>E</b>
Model		Stability Code		Supply Voltage		Frequency in MHz		Termination finish
		<a href="#">Refer to Electrical Specs Table*</a>		5.0: 5.0VDC		10 to 100 MHz		E: Gold plated (RoHS), Standard PB: SnPb 63/37 (non-RoHS) LF: SnAg 96.5/3.5 (Lead-free)
		B56 (0 to +50°C) N106 (-20 to +70°C) T156 (-40 to +85°C)						

\*other frequency stabilities available, please contact factory.



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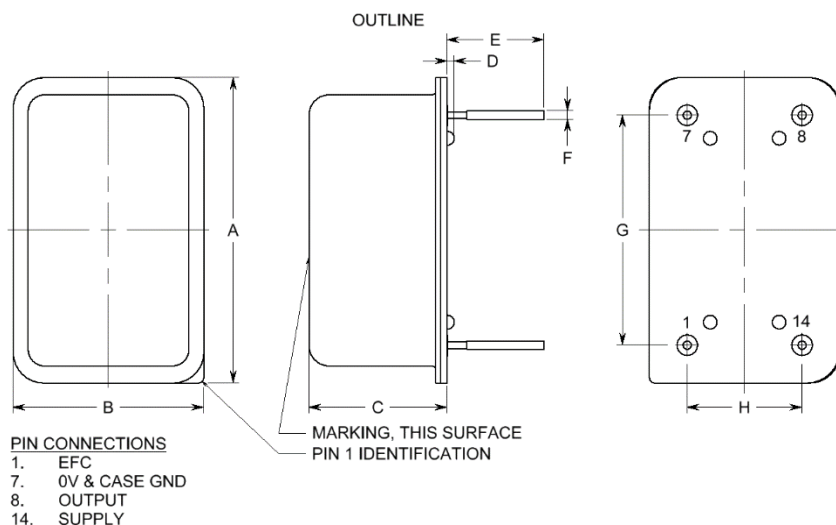
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### Package dimensions and Pad Connections



#### DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
A	0.800	20.32	0.820	20.83
B	0.500	12.70	0.520	13.21
C	NA	NA	0.370	9.40
D	0.031	0.79	0.036	0.91
E	0.220	5.59	0.240	6.10
F	ø0.018	ø0.46	ø0.023	ø0.58
G	0.600	15.24	0.605	15.37
H	0.300	7.62	0.305	7.75