



frequency control solutions

tcxo

T121

**TIGHT STABILITY
LOW ACCELERATION SENSITIVITY
RUGGED PACKAGE**

Product Description

Greenray Industries' T121 TCXO is a super stable frequency reference for high shock and high vibration environments.



Features

- Available from 50MHz to 100MHz
- Rugged 17.3mm sq. package
- +5 VDC Supply
- Sinewave output
- Temperature Stability to ± 0.5 ppm (-40 to +85°C)
- Low Power consumption
- Vibration sensitivity of 0.7 ppb/g or better
- Ideal for Wireless and Mobile applications

Applications

- Telecommunications
- Mobile radio
- Mobile instrumentation
- Airborne communications
- Wireless communications
- Microwave receiver

Rev. D



ISO 9001
Quality

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
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AS9100
Aerospace



frequency control solutions

T121 SERIES
50 MHz to 100 MHz



Electrical Characteristics

Frequency Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	Sinewave	50		100	MHz	
Frequency Stability (other stability available, please contact factory)	-40°C to +85°C		± 0.5		ppm	T57
	-40°C to +85°C		± 1		ppm	T16
	-55°C to +95°C		± 3		ppm	V36
Total Stability	From nominal over 10 years (including temp stability, load, aging, supply V)			± 5	ppm	
Aging	1 st year			± 1	ppm	
Acceleration Sensitivity	(note 1)			0.7	ppb/g	
Frequency vs Voltage	For a 5% change			± 0.1	ppm	
Frequency vs Load	For a 5% change			± 0.1	ppm	
Electronic Frequency Control	EFC = 0 to V _{DD} Positive slope,		± 7		ppm	
Phase Noise Performance						
Parameter	Frequency Offset (Hz)	Min	Typical	Max	Units	
Phase Noise (static) @ 100 MHz nominal Frequency	10		-75		dBc/Hz	
	100		-102		dBc/Hz	
	1k		-125		dBc/Hz	
	10 k		-140		dBc/Hz	
	100 k		-145		dBc/Hz	
DC Supply						
Parameter	Conditions	Min	Typical	Max	Units	
Supply Voltage (V _{DD})		4.75	5.0	5.25	VDC	
Supply Current				25	mA	
RF Output: Sinewave						
Parameter	Conditions	Min	Typical	Max	Units	
Harmonic & Subs				- 40	dBc	
Load			50		Ω	
Level	50Ω load	+ 1	+ 3	+ 5	dBm	

(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
Vibration	MIL-STD-202F	214, II.H	0.6 PSD, 34.02 g RMS, 3min/axis
Shock	MIL-STD-202F	213	90 g peak, half sine, 5 ms

Recommendation and General Information

Conditions	
Parameter	Notes
Operating Temperature	-55°C to +95°C
Storage Temperature	-55°C to +105°C
Terminal Finish	Gold plated is standard. SnPb 63/37 (non-RoHS) and SnAg (RoHS) are available
Package Weight	< 3 grams
Soldering Instruction	Hand or reflow soldering
Shipping	Tray pack
Marking	Line 1: Greenray logo + Model Line 2: Frequency Line 3: Serial Number Line 4: Data Code (YYWW)

Ordering Example

T121	-	V36	-	100.0MHz	-	E
Model		Stability		Frequency in MHz		Termination finish
		Refer to Electrical Specs Table*		From 50 to 100 MHz		Code: Pads finish
		T57 (-40 to +85°C)				E: Gold plated (RoHS), standard
		T16 (-40 to +85°C)				PB: SnPb 63/37 (non-RoHS)
		V36 (-55 to +95°C)				LF: SnAg 96.5/3.5 (Lead-free)

*other frequency stabilities available, please contact factory



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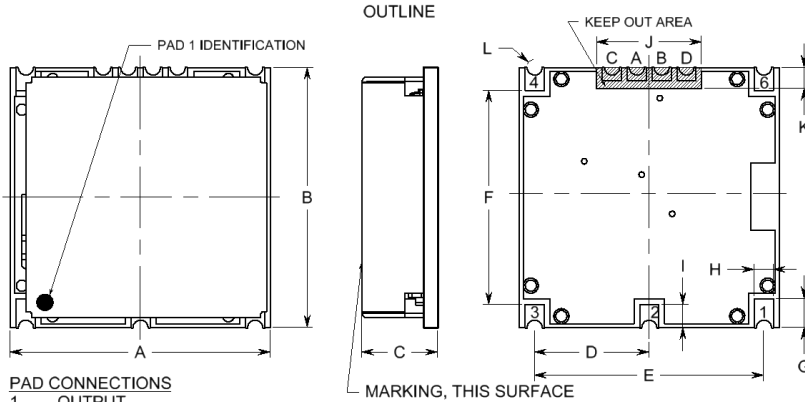


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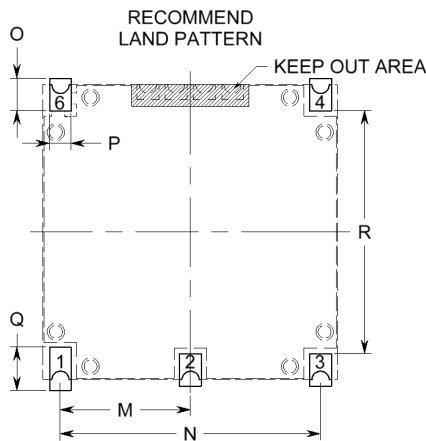
Package dimensions and Pad Connections



- PAD CONNECTIONS**
1. OUTPUT
 2. NC
 3. SUPPLY
 4. NC
 6. 0V & CASE GND
- A. DIO (INTERNAL USE ONLY)
 B. CS (INTERNAL USE ONLY)
 C. SCLK (INTERNAL USE ONLY)
 D. ENABLE (INTERNAL USE ONLY)

PART DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
A	0.680	17.27	0.690	17.53
B	0.680	17.27	0.690	17.53
C	0.200	5.08	0.210	5.33
D	0.300	7.62	0.310	7.87
E	0.600	15.24	0.610	15.49
F	0.560	14.22	0.570	14.48
G	0.075	1.91	0.085	2.16
H	0.050	1.27	0.060	1.52
I	0.060	1.52	0.070	1.78
J	0.275	6.99	0.285	7.24
K	0.060	1.52	0.070	1.78
L	R0.020	R0.51	NA	NA



LAND PATTERN DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
M	0.300	7.62	NA	NA
N	0.600	15.24	NA	NA
O	0.075	1.91	NA	NA
P	0.050	1.27	NA	NA
Q	0.100	2.54	NA	NA
R	0.560	14.22	NA	NA



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