



frequency control solutions

# tcxo

## T120

TIGHT STABILITY  
LOW NOISE TCXO

### Product Description

Greenray Industries' T120 TCXO offers low noise and tight stability in a rugged package

### Features

- 22.9 x 17.8mm, ruggedized package
- 3.3 or 5VDC Supply
- Square wave, CMOS output
- Temperature Stability to  $\pm 0.5\text{ppm}$  (-40 to +85°C)
- -160 dBc/Hz Noise Floor
- Extended, long-term stability performance



### Applications

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

Rev. E



ISO 9001  
Quality

**Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055**  
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**T120 SERIES**  
10 MHz to 100 MHz



## Electrical Characteristics

Frequency Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	CMOS	10		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
Total Stability	From nominal over 10 years (including temp stability, load, aging, supply V)			± 5	ppm	
Aging	1 <sup>st</sup> year			± 1	ppm	
Acceleration Sensitivity	(note 1)			2.5	ppb/g	
Frequency vs Supply Voltage V <sub>DD</sub>	For a 5% change			± 0.1	ppm	
Frequency vs Load	For a 5% change			± 0.1	ppm	
Electronic Frequency Control	EFC = 0 to V <sub>DD</sub> Positive slope,		± 6		ppm	
Phase Noise Performance						
Parameter	Frequency Offset (Hz)	10 MHz Typical	100 MHz Typical	Units		
Phase Noise (static) @ 100 MHz nominal Frequency	10	-90	-70	dBc/Hz		
	100	-125	-100	dBc/Hz		
	1k	-145	-125	dBc/Hz		
	10 k	-155	-145	dBc/Hz		
	100 k	-160	-160	dBc/Hz		
DC Supply						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Supply Voltage (V <sub>DD</sub> )		3.0	3.3	3.6	VDC	3.3
		4.75	5.0	5.25	VDC	5.0
Supply Current				30	mA	
RF Output: CMOS Square wave						
Parameter	Conditions	Min	Typical	Max	Units	
Load		13.5	15	16.5	pF	
Level	15 pF load	V <sub>DD</sub> -0.3 "1" level		0.3 "0" level	V	
Rise/Fall Time	15pF load			10	ns	
Symmetry		40	50	60	%	

(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-202	201A	0.6 PSD, 34.02 g RMS, 3min/axis
Shock	MIL-STD-202	213, Cond K	90 g peak, half sine, 5 ms

### Recommendation and General Information

Conditions	
Parameter	Notes
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +90°C
Terminal Finish	Gold plating (RoHS) is standard (E). 63/37 SnPb (non-RoHS) also available
Package Weight	< 3 grams
Soldering Instruction	Hand and reflow soldering
Shipping	Type of package (tray pack)
Marking	Line 1: Greenray logo Line 2: Model Line 3: Frequency Line 4: Serial Number Line 5: Data Code (YYWW)

### Ordering (Example)

<b>T120</b>	-	<b>T16</b>	-	<b>3.3</b>	-	<b>70.0MHz</b>	-	<b>E</b>
Model		Stability		Supply Voltage		Frequency in MHz		Termination finish
		Refer to Electrical Specs Table*		3.3: 3.3 VDC 5.0: 5.0 VDC		From 10 to 100 MHz		Code: Pads finish E: Gold plated (RoHS), Standard PB: SnPb 63/37 (non-RoHS)
		T57 (-40 to +85°C) T16 (-40 to +85°C)						

\*other frequency stabilities available, please contact factory



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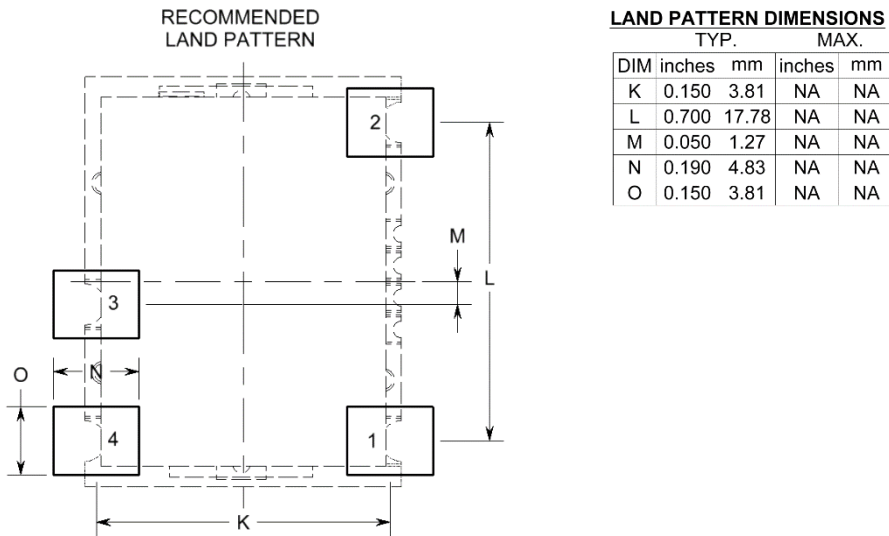
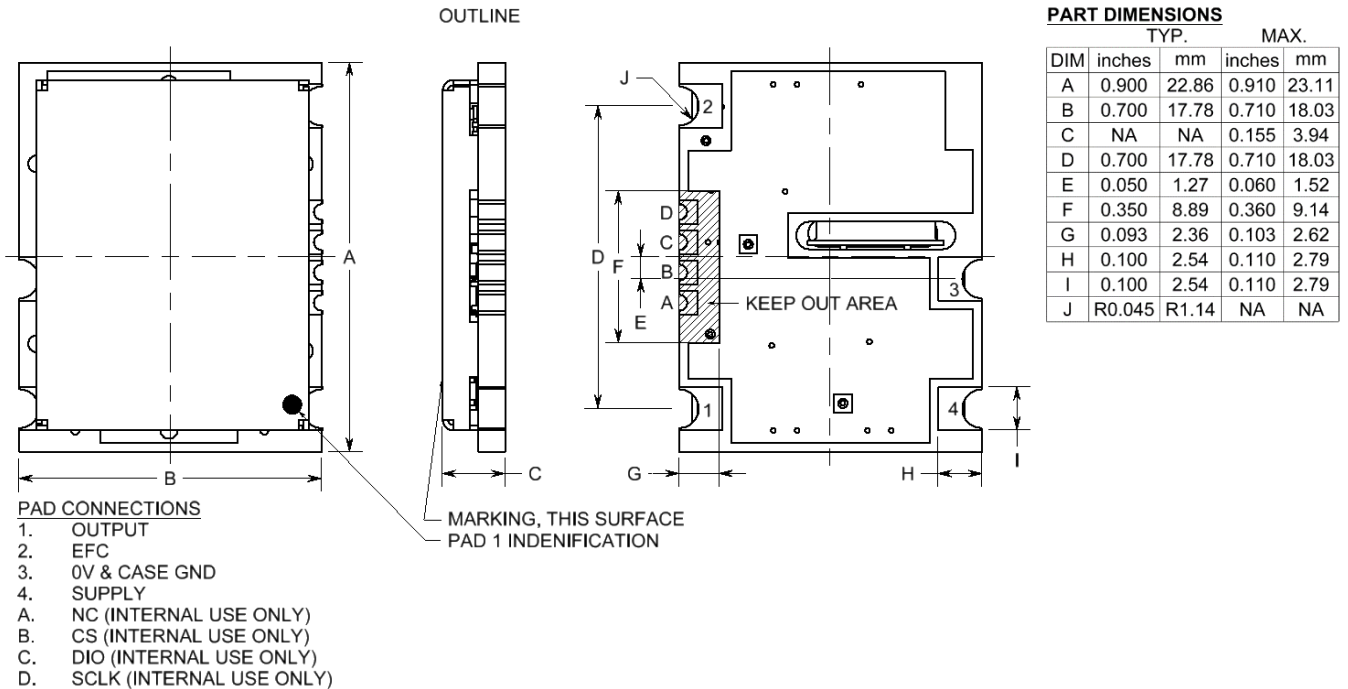


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## Package dimensions and Pad Connections



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