



frequency control solutions

tcxo

T1241

LOW PHASE NOISE
VIBRATION COMPENSATED

Product Description

Greenray Industries' T1241 TCXO offers ultra low acceleration sensitivity for reliable phase noise performance in high vibration and shock sensitive applications. Under high shock and vibration conditions the T1241 offers superior phase noise performance and features a rugged, go-anywhere package.



Features

- Excellent phase noise performance under high shock/high vibration conditions
- Rugged package for high reliability; ideally suited for mobile applications.
- g-Sensitivity down to <0.07 ppb/g applied acceleration force
- Frequency: 50 - 100MHz
- EFC for precise tuning or phase locking apps
- 17.3mm sq. package
- +3.3 or 5VDC Supply
- Squarewave CMOS output

Applications

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

Rev. E



ISO 9100
Quality

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T1241 SERIES
50 MHz to 100 MHz

Electrical Characteristics

Frequency Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	CMOS Square Wave	50		100	MHz	
Frequency Stability (other stability available, please contact factory)	-20°C to +70°C		± 3		ppm	N36
	-40°C to +85°C		± 5		ppm	T56
Aging	1 st year			± 1	ppm	
Acceleration Sensitivity	(note 1)			0.8	ppb/g	SD
				0.3	ppb/g	LG
				0.07	ppb/g	ULG
Frequency vs Voltage	For a 5% change			± 0.3	ppm	
Frequency vs Load	For a 5% change			± 0.1	ppm	
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) @ 10 MHz nominal Frequency	10		-80		dBc/Hz	
	100		-110		dBc/Hz	
	1k		-135		dBc/Hz	
	10 k		-150		dBc/Hz	
	100 k		-160		dBc/Hz	
DC Supply						
Parameter	Conditions	Min	Typical	Max	Units	
Supply Voltage (V _{DD})		4.75	5.0	5.25	VDC	
		3.0	3.3	3.6	VDC	
Supply Current				30	mA	
RF Output: CMOS Square wave						
Parameter	Conditions	Min	Typical	Max	Units	
Symmetry		40	50	60	%	
Rise/Fall Time				10	ns	
Load			15		pF	
Level	15pF load	V _{DD} -0.2 "1" level		+0.2 "0" level	V	

(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, I.F	0.3 PSD, 20.71 g RMS, 3min/axis
Shock	MIL-STD-202F	213, K	30 g peak, sawtooth, 11 ms

Recommendation and General Information

Conditions	
Parameter	Notes
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +105°C
Terminal Finish	ENIG
Package Weight	3 grams
Soldering Instruction	Reflow
Shipping	Tray pack and Tape & Reel
Marking	Line 1: Greenray logo + Model Line 2: Frequency Line 3: Serial Number Line 4: Data Code (YYWW)

Ordering Example

T1241	-	T56	-	3.3	-	LG	-	100.0MHz	-	E
Model		Stability Code		Supply Voltage		G-Sensitivity Code		Frequency in MHz		Termination finish
		Refer to Electrical Specs Table* N36 (-20 to +70°C) T56 (-40 to +85°C)		3.3: 3.3V 5.0: 5.0V		SD: ≤ 0.8 ppb/g LG: ≤ 0.3 ppb/g ULG: ≤ 0.07 ppb/g HG: Customer-specific		From 50 to 100 MHz		E: Gold plated, ENIG

*other frequency stabilities available, please contact factory.



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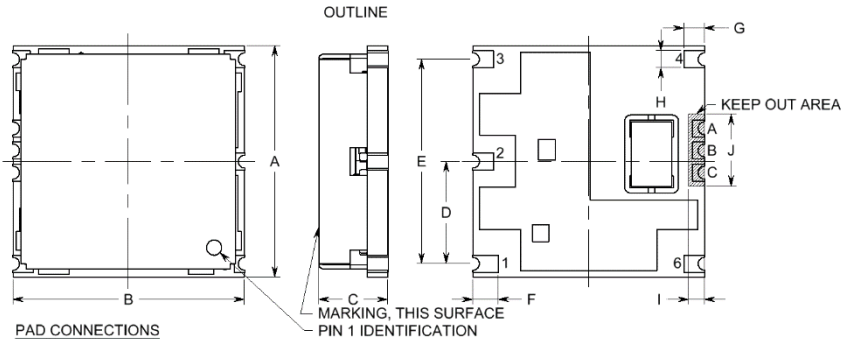


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Package dimensions and Pad Connections



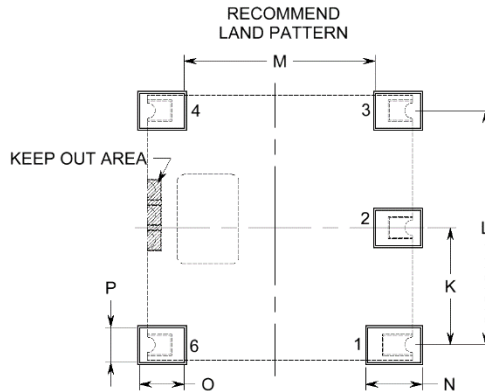
PAD CONNECTIONS

1. OUTPUT
2. NC
3. SUPPLY
4. EFC/NC
6. 0V & CASE GND
- A. SCLK (INTERNAL USE ONLY)
- B. DIO (INTERNAL USE ONLY)
- C. CS (INTERNAL USE ONLY)

PART DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
A	0.680	17.27	0.695	17.63
B	0.680	17.27	0.695	17.63
C	0.200	5.08	0.215	5.46
D	0.300	7.62	0.315	8.00
E	0.600	15.24	0.615	15.62
F	0.075	1.91	NA	NA
G	0.060	1.52	NA	NA
H	0.050	1.27	NA	NA
I	0.045	1.14	NA	NA
J	0.212	5.38	0.227	5.77

Recommended Land Pattern



LAND PATTERN DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
K	0.300	7.62	NA	NA
L	0.600	15.24	NA	NA
M	0.490	12.45	NA	NA
N	0.145	3.68	NA	NA
O	0.115	2.92	NA	NA
P	0.090	2.29	NA	NA



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