GREENRAY
frequency control solutions

T1243

tcxo

ULTRA-LOW ACCELERATION SENSITIVITY
LOW PHASE NOISE

Product Description

Greenray Industries' T1243 TCXO delivers ultra-low acceleration sensitivity and low phase noise performance.

Features

- g-Sensitivity down to <0.07 x ppb/g applied acceleration force
- Frequency range from 10 MHz to 50 MHz
- 22.9 x 17.8mm package
- EFC for precise tuning or phase locking apps
- +3.3 or 5VDC Supply
- Square wave CMOS output
- Excellent phase noise performance under high shock/high vibration conditions
- Rugged package, ideally suited for demanding mobile communications applications

Applications

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

Rev. D

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
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ISO 9001 Quality

AS9100 Aerospace

Electrical Characteristics

Frequency Characteristics						
Parameter	**Conditions**	**Min**	**Typical**	**Max**	**Units**	**Ordering Code**
Nominal Frequency	+25°C	10		50	MHz	
Frequency Stability (other stability available)	-20°C to +70°C		± 1		ppm	N16
	-40°C to +85°C		± 2		ppm	T26
Aging	1st year, after 14 days of operation			± 1	ppm	
Acceleration Sensitivity	(note 1)			0.7	ppb/g	SD
				0.07	ppb/g	LG
Frequency vs Voltage	For a 5% change			± 1	ppm	
Frequency vs Load	For a 10% change			± 0.1	ppm	
Electronic Frequency Control	EFC = 0 to V_{DD} Positive slope		± 7		ppm	
Warm-up time	Within ± 1 ppm			10	msec	
Phase Noise Performance						
Parameter	**Frequency Offset (Hz)**	**Min**	**Typical**	**Max**	**Units**	
Phase Noise (static) @ 10 MHz nominal Frequency	10		-100		dBc/Hz	
	100		-127		dBc/Hz	
	1k		-150		dBc/Hz	
	10 k		-160		dBc/Hz	
	100 k		-165		dBc/Hz	
	Floor		-168		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
Supply Current				30	mA	
RF Output: CMOS						
Parameter	**Conditions**	**Min**	**Typical**	**Max**	**Units**	
Load	CMOS		15		pF	
Level	15 pF load, 3.3V	+2.8 "1" level		+0.2 "0" level	V	
	15 pF load, 5.0V	+4.5 "1" level		+0.2 "0" level	V	
Symmetry	CMOS	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-883	2007, Cond A	50 g, 20 to 2,000 Hz, swept sine
Shock	MIL-STD-883	2002, Cond B	1,500 g, 0.5 ms half-sine

Recommendation and General Information

Conditions	
Parameter	**Notes**
Operating Temperature	-40°C to +85°C
Storage Temperature	-45°C to +90°C
Terminal Finish	ENIG std. SnPb 63/37 (non-RoHS) available
Package Weight	3 grams
Soldering Instruction	Reflow
Shipping	Tray pack and Tape & Reel
Marking	Line 1: Greenray logo Line 2: Model Line 3: Frequency Line 4: Serial Number Line 5: Data code (YYWW)

Ordering Example

T1243	-	**N16**	-	**3.3**	-	**LG**	-	**50.0MHz**	-	**E**
Model		Stability Code		Supply Voltage		G-Sensitivity Code		Frequency in MHz		Termination finish
		Refer to Electrical Specs Table* N16 (-20 to +70°C) T26 (-40 to +85°C)		3.3: 3.3V 5.0: 5.0V		SD: < 0.7 ppb/g LG: < 0.07 ppb/g HG: Customer-specific		From 10 to 50 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

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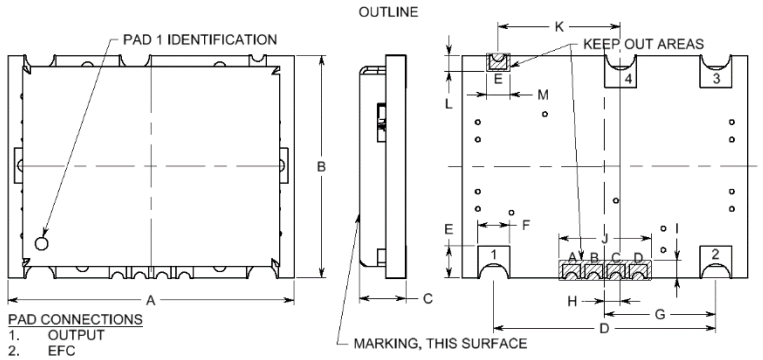
Package dimensions and Pad Connections

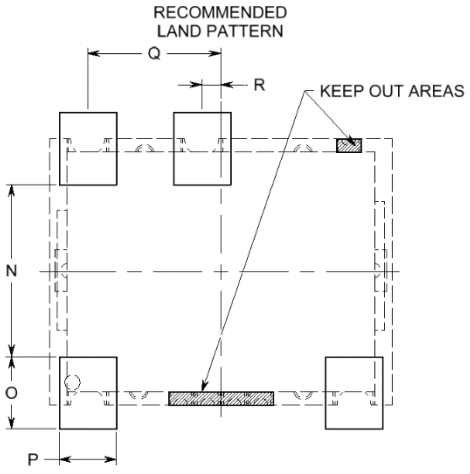


PAD CONNECTIONS
1. OUTPUT
2. EFC
3. 0V & CASE GND
4. SUPPLY
A. OE (INTERNAL USE ONLY)
B. SCLK (INTERNAL USE ONLY)
C. DIO (INTERNAL USE ONLY)
D. CS (INTERNAL USE ONLY)
E. PNF (INTERNAL USE ONLY)

PART DIMENSIONS

	TYP.		MAX.	
DIM	inches	mm	inches	mm
A	0.900	22.86	0.915	23.24
B	0.700	17.78	0.715	18.16
C	NA	NA	0.250	6.35
D	0.700	17.78	0.715	18.16
E	0.100	2.54	NA	NA
F	0.100	2.54	NA	NA
G	0.350	8.89	0.365	9.27
H	0.050	1.27	NA	NA
I	0.054	1.37	NA	NA
J	0.290	7.38	0.305	7.75
K	0.385	9.78	0.400	10.16
L	0.051	1.30	NA	NA
M	0.074	1.87	NA	NA

Recommended Land Pattern



LAND PATTERN DIMENSIONS

	TYP.		MAX.	
DIM	inches	mm	inches	mm
N	0.452	11.48	0.467	11.86
O	0.200	5.08	0.215	5.46
P	0.150	3.81	0.165	4.19
Q	0.350	8.89	0.365	9.27
R	0.050	1.27	0.065	1.65

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