



frequency control solutions

tcxo

T1282

RADIATION TOLERANT
LOW PHASE NOISE
VIBRATION COMPENSATED

Product Description

Greenray Industries' T1282 TCXO offers ultra low acceleration sensitivity for reliable phase noise performance in high vibration and shock sensitive applications. Precision Thermistor network provides temperature compensation insensitive to radiation. Under high shock and vibration conditions the T1282 offers superior phase noise performance and features a rugged, go-anywhere package.



Features

- 50 krad (Si) total ionizing dose
- Excellent phase noise performance under high shock/high vibration conditions
- Rugged package for high reliability; ideally suited for mobile applications
- g-Sensitivity down to a typical 0.07 ppg
- Frequency: 40 – 100 MHz
- EFC for precise tuning or phase locking apps
- 17.3 mm sq. package
- +3.3 or 5 Vdc Supply
- CMOS output

Applications

- High orbit transponders
- Low orbit satellites (nano/micro satellites)
- RF telemetry systems
- Multiband terminal
- Upconverter

Rev. C



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T1282 SERIES
40 MHz to 100 MHz



Electrical Characteristics

Frequency Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency		40		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 (note 2)
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 SUP. Positive slope		± 5		ppm	
Phase Noise Performance						
Parameter	Frequency Offset (Hz)	Min	Typical	Max	Units	Ordering Code
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	Ordering Code
Supply Voltage		4.75	5.0	5.25	VDC	5.0
		3.0	3.3	3.6	VDC	3.3
Supply Current				30	mA	
RF Output: CMOS Square wave						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
CMOS						
Symmetry		40	50	60	%	
Rise/Fall Time				10	ns	
Load			15		pF	
Level	15pF load	SUP.-0.2 "1" level		+0.2 "0" level	V	

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

(2) ULG sensitivity not available above 65 MHz



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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 Line 2: Model Line 3: Frequency Line 4: Serial Number + Data Code (YYWW) Line 5: Lot ID

Ordering Example

T1282	-	T56	-	3.3	-	LG	-	100.0MHz	-	E
Model		Stability Code		Supply Voltage		G-Sensitivity Code		Frequency in MHz		Termination finish
		<u>Refer to Electrical Specs Table*</u> 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 40 to 100 MHz		E: Gold plated, ENIG

*Other frequency stabilities available, please contact factory.



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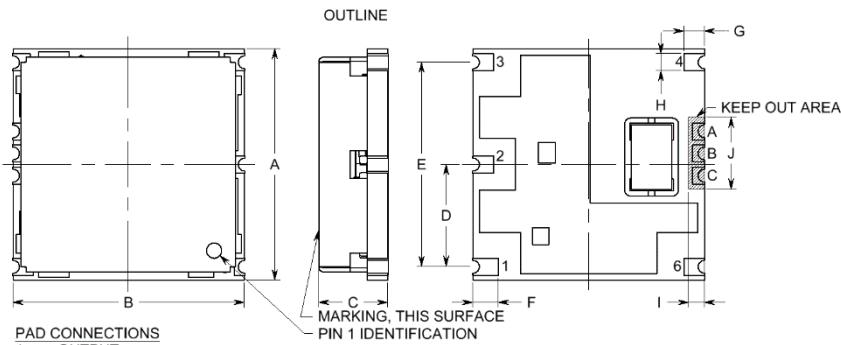


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Package dimensions and Pad Connections

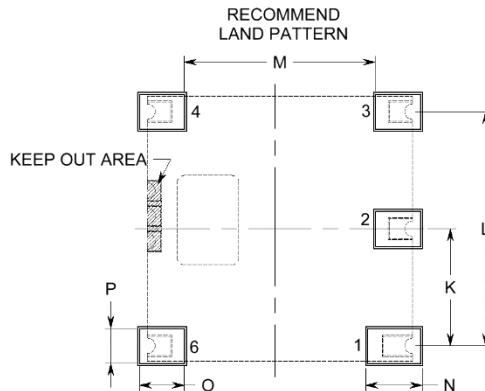


- PAD CONNECTIONS**
1. OUTPUT
 2. NC
 3. SUPPLY
 4. EFC/NC
 6. 0V & CASE GND
- A. SCLK (INTERNAL USE ONLY)
B. DIO (INTERNAL USE ONLY)
C. CS (INTERNAL USE ONLY)

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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