



frequency control solutions

texo

## T1247

DUAL COMPENSATION  
TIGHT STABILITY

### Product Description

Greenray Industries' T1247 TCXO offers OCXO-like frequency vs. temperature stability performance in a smaller, rugged package. In addition, the T1247 performs over a wide temperature range with low power consumption.



### Features

- 4-pin full DIP package
- 3.3 or 5 VDC supply
- CMOS output
- Temperature Stability to  $\pm 0.03$  ppm
- Extended, long-term stability performance

### Applications

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

Rev. B



ISO 9001  
Quality

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**T1247 SERIES**  
10 MHz to 50 MHz



## Electrical Characteristics

Frequency Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	CMOS Squarewave	10		50	MHz	
Frequency Stability (other stability available)	-20°C to +70°C		± 30		ppb	N38
	-40°C to +85°C		± 50		ppb	T58
Aging	1 <sup>st</sup> year, after 14 days of operation			± 1	ppm	
Acceleration Sensitivity	(note 1)			2.5	ppb/g	SD
				0.7	ppb/g	LG
Frequency vs Voltage	For a 5% change			± 0.3	ppm	
Electronic Frequency Control	EFC = 0 to V <sub>DD</sub> Positive slope		± 7		ppm	
Warm-up time	Within ± 1 ppm			10	msec	
Phase Noise Performance						
Parameter	Frequency Offset (Hz)	Min	Typical	Max	Units	Ordering Code
Phase Noise (static) @ 10 MHz nominal Frequency	10		-90		dBc/Hz	
	100		-120		dBc/Hz	
	1k		-140		dBc/Hz	
	10 k		-150		dBc/Hz	
	100 k		-155		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				35	mA	
RF Outputs CMOS						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
<b>CMOS Output</b>						
Load	CMOS		15		pF	
Level	15 pF load, 3.3V	+2.8		+0.2	V	
		"1" level		"0" level		
Level	15 pF load, 5.0V	+4.5		+0.2	V	
		"1" level		"0" level		
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
Random Vibration	MIL-STD-202	214, Cond I-J	1 PSD, 37.80 rms G
Sine Vibration	MIL-STD-202	204, Cond D	20 g, 20 to 2,000 Hz,
Shock	MIL-STD-202	213, Cond F	1,500 g, 0.5 ms half-sine

## Recommendation and General Information

Conditions	
Parameter	Notes
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +95°C
Terminal Finish	Gold is standard. SnPb (non-RoHS) and AgCu (RoHS) are available
Package Weight	3 grams
Soldering Instruction	Solder by hand
Shipping	Tray package
Marking	Line 1: Greenray logo + Model Line 2: Frequency Line 3: Serial number + Data code (YYWW)

## Ordering Example

<b>T1247</b>	-	<b>T58</b>	-	<b>3.3</b>	-	<b>LG</b>	-	<b>10.0MHz</b>	-	<b>E</b>
Model		Stability Code		Supply Voltage		G-Sensitivity Code		Frequency in MHz		Termination finish
		<a href="#">Refer to Electrical Specs Table*</a> N38 (-20 to +70°C) T58 (-40 to +85°C)		3.3: 3.3V 5.0: 5.0V		SD: < 2.5 ppb/g LG: < 0.7 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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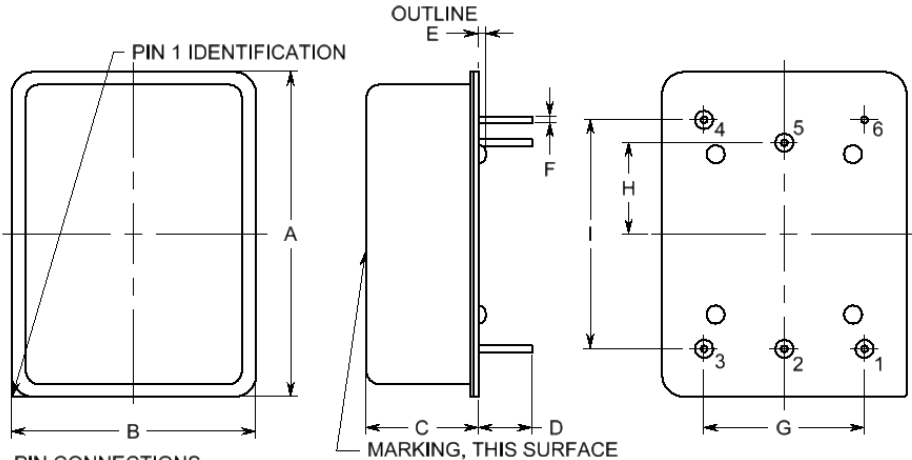


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## Package dimensions and Pad Connections



### PART DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
A	1.420	36.10	1.430	36.32
B	1.060	26.92	1.070	27.18
C	0.490	12.45	0.500	12.70
D	0.230	5.84	0.240	6.10
E	0.026	0.66	0.032	0.81
F	Ø0.032	Ø0.081	Ø0.034	Ø0.86
G	0.700	17.78	0.710	18.03
H	0.400	10.16	0.410	10.41
I	1.000	25.40	1.010	25.65

#### PIN CONNECTIONS

1. EFC (GND THRU 10 kΩ resistor when EFC is disabled)
2. EFC ENABLED (SEE BELOW)\*
3. SUPPLY
4. OUTPUT
5. NC/0V (INTERNAL USE ONLY)
6. 0V & CASE GND

#### \*PIN 2 FUNCTION

3 to 4.5V INPUT:-EXTERNAL EFC IS ENABLED;  
(STABILITY WILL DEPEND ON EXTERNAL REF. OR VOLTAGE)

0V/GND INPUT:-COMPENSATED/FREE RUN MODE,  
NOTE: INTERNAL PULL DOWN



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