



frequency control solutions

texo

T1354

RADIATION TOLERANT
ULTRA-LOW ACCELERATION SENSITIVITY

Product Description

Greenray Industries' T1354 TCXO offers excellent performance in high shock and vibration environments in a rugged, radiation tolerant package.

Features

- 100 krad (Si) total ionizing dose
- Rugged, radiation tolerant 20.3 x 12.7mm package
- Frequency: 10 to 100 MHz
- Stability: ± 1.0 ppm (-20°C to +70°C)
- Ultra-low acceleration sensitivity < 0.07 ppb/g
- 3.3 VDC and 5 VDC supply
- Clipped sine output



Applications

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

Rev. B



ISO 9001
Quality

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
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T1354 SERIES
10 MHz to 100 MHz



Electrical Characteristics

Electrical Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	+25°C	10		100	MHz	
Frequency Stability	-20°C to +70°C		± 1		ppm	N16
	-40°C to +85°C		± 5		ppm	T56
	-55°C to +125°C		± 7		ppm	X76
Aging	1 st year			± 1	ppm	
Acceleration Sensitivity	(Note 1)			0.7	ppb/g	SD
Frequency vs Voltage	For a 2% change			0.3	ppm	
Electronic Frequency Control	EFC = V _{DD} to 0 Negative slope		± 7		ppm	
Short Term	For a 1 sec tau			1	ppb	
Phase Noise Performance						
Parameter	Frequency Offset (Hz)	Min	Typical	Max	Units	
Phase Noise (static) @ 10 MHz Nominal Frequency	10		-90		dBc/Hz	
	100		-120		dBc/Hz	
	1k		-145		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 _{DD})	± 5%	3.0	3.3	3.6	VDC	3.3
	± 5%	4.75	5.0	5.25	VDC	5.0
Supply Current				35	mA	
RF Output: Clipped sine						
Parameter	Conditions	Min	Typical	Max	Units	
Load			10 pF // 10k Ω			
Level		+1.5			Vpp	

(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

Recommendations and General Information

Conditions	
Parameter	Notes
Operating Temperature	-55°C to +125°C
Storage Temperature	-65°C to +125°C
Radiation	Unit shall continue to operate during exposure to 100 krad (Si)
Terminal Finish	Lead Free or SnPb
Package Finish	Stainless Steel and Nickel-plated Kovar
Package Weight	3 grams
Soldering Instruction	Hand solder only
Shipping	Tray pack
Marking	Line 1: Greenray logo Line 2: Model Line 3: Frequency Line 4: Serial Number + Date Code (YYWW)

Ordering Example

T1354	-	T56	-	3.3	-	LG	-	10.0MHz	-	E
Model		Stability Code		Supply Voltage		G-Sensitivity Code		Frequency in MHz		Termination finish
		Refer to Electrical Specs Table* N16 (-20°C to +70°C) T56 (-40°C to +85°C) X76 (-55°C to +125°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 100 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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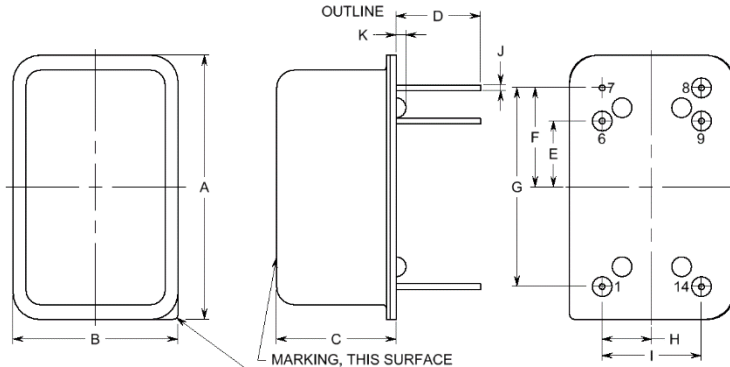


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Package dimensions and Pad Connections



- PIN CONNECTIONS**
- 1. EFC
 - 6. SDA (INTERNAL USE ONLY)
 - 7. 0V & CASE GND
 - 8. OUTPUT
 - 9. SCLK (INTERNAL USE ONLY)
 - 14. SUPPLY

PART DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
A	0.80	20.32	0.82	20.83
B	0.50	12.70	0.52	13.21
C	NA	NA	0.400	10.16
D	NA	NA	0.27	6.86
E	0.200	5.08	0.210	5.33
F	0.300	7.62	0.310	7.87
G	0.600	15.24	0.610	15.49
H	0.150	3.81	0.160	4.06
I	0.300	7.62	0.310	7.87
J	ø0.018	ø0.46	ø0.021	ø0.53
K	NA	NA	0.030	0.76



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