



frequency control solutions

tcxo

## 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:  $\pm 1.0$ 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. C



intertek

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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		± 1.0		ppm	N16
	-40°C to +85°C		± 5.0		ppm	T56
	-55°C to +125°C		± 7.0		ppm	X76
Aging	1 <sup>st</sup> year			± 1	ppm	
Acceleration Sensitivity	(Note 1)			0.7	ppb/g	SD
				0.07	ppb/g	LG
Frequency vs Voltage	For a 2% change			0.3	ppm	
Electronic Frequency Control	EFC = V <sub>DD</sub> 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	Ordering Code
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	± 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						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Clipped Sine						S
Load			10 pF // 10k Ω			
Level		+1.5			V <sub>pp</sub>	

(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)



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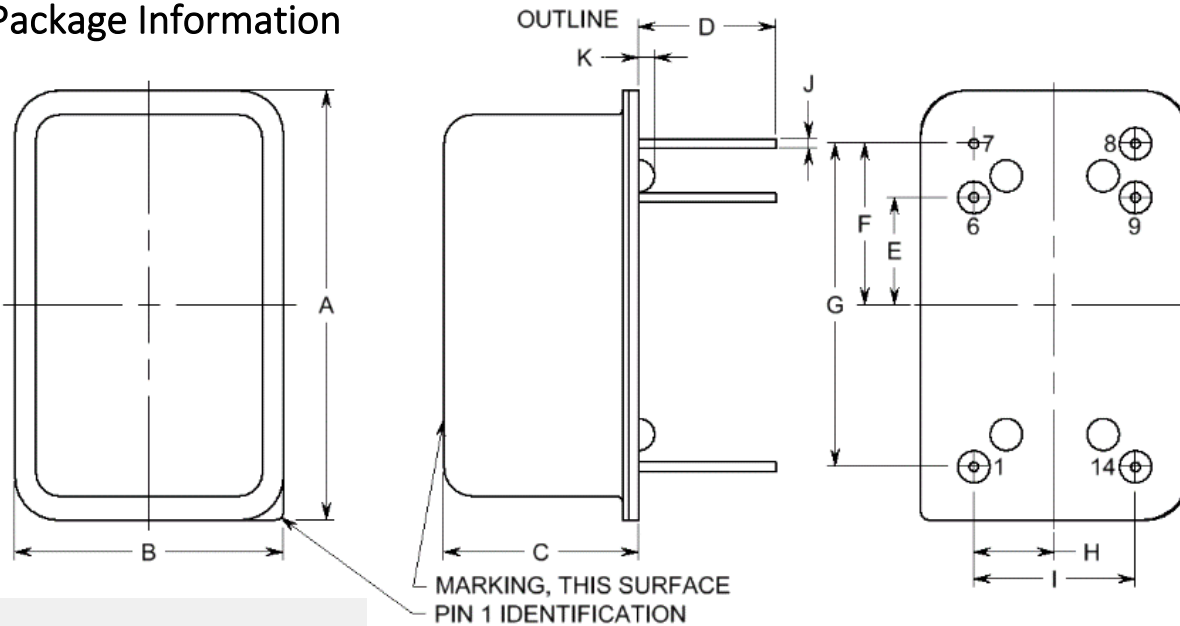


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### Package Information



#### Pad Connections

1. CONTROL VOLTAGE
2. NC
3. GROUND
4. OUTPUT
5. NC
6. SUPPLY VOLTAGE

(NC Pads may have internal Connections and should be Isolated)

#### 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

#### Preliminary Specification

The specifications on this datasheet pertain to a product which is under engineering development. Contact the factory to determine the current availability.



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