



frequency control solutions

## T1354

RADIATION TOLERANT  
ULTRA-LOW ACCELERATION SENSITIVITY

# tcxo

### Product Description

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



### Features

- 100 krad (Si) total ionizing dose
- Rugged, hermetic 20.3 x 12.7mm package
- Frequency: 20 to 80 MHz
- Stability:  $\pm 3.0$ ppm ( $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ )
- Ultra-low acceleration sensitivity  $< 0.07$  ppb/g
- +3.3 or +5 VDC supply
- Clipped sine output

### Applications

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

REV: D



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Electrical Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	@ +25°C	20		80	MHz	(FREQ.)
Frequency Stability	-20°C to +70°C		± 3.0		ppm	N36
	-40°C to +85°C		± 5.0		ppm	T56
	-55°C to +125°C		± 7.0		ppm	X76
Aging	1 <sup>st</sup> year			± 1.0	ppm	
Acceleration Sensitivity	Worst axis tested @ 90 Hz, 10 g			2.5	ppb/g	SG
				0.7	ppb/g	LG
				0.07	ppb/g	ULG
Frequency vs Voltage	For a 2% change			± 0.3	ppm	
Voltage Control (EFC)	0 to Supply, Negative Slope		± 7.0		ppm	
Short-term Stability	For a 1 sec tau			1	ppb	
Phase Noise Performance						
Parameter	Frequency Offset (Hz)	Min	Typical	Max	Units	Ordering Code
Static @ 20 MHz Nom. Freq.	10		-90		dBc/Hz	
	100		-120		dBc/Hz	
	1 k		-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	B
	± 5%	4.75	5.0	5.25	Vdc	E
Supply Current				35	mA	
RF Output						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Clipped Sine						CS
Load			10 pF // 10 kΩ			
Output Voltage		+ 1.5			V p-p	



Environmental and Mechanical Specifications				
Test	Standard	Method	Condition	Description
Vibration	MIL-STD-883	2007	A	50 g, 20 to 2,000 Hz, swept sine
Shock	MIL-STD-883	2002	B	1,500 g, 0.5 ms half-sine

Recommendations and General Information	
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	Sn 100 (Lead-free), SnPb 63/37 (non-RoHS)
Package Weight	3 grams
Package Finish	Stainless Steel and Ni plated Kovar
Soldering Instruction	Hand Solder
Shipping	Tray Pack
Marking	GRI Logo, Model #, Frequency, Serial #, Date Code Addition marking upon request if space is available

Ordering Example						
<b>T1354</b>	<b>-</b>	<b>T</b>	<b>56</b>	<b>-</b>	<b>B</b>	<b>-</b>
					<b>SG</b>	<b>-</b>
						<b>20.0 MHz</b>
						<b>-</b>
						<b>LF</b>
Model	Temp. Range	Stability	Supply Voltage	G-Sensitivity	Freq. (MHz)	Term. Finish
	N: -20 to +70°C T: -40 to +85°C X: -55 to +125°C	16: ±1ppm 26: ±2ppm 36: ±3ppm 56: ±5ppm 76: ±7ppm	B: 3.3V E: 5.0V	SG: < 2.5 ppb/g LG: < 0.7 ppb/g ULG: < 0.07 ppb/g HG: Customer-specific	20 to 80	LF: Sn 100 (Lead-free) PB: SnPb 63/37 (non-RoHS)

The Order ID (T1354-T56-B-SG-20.0MHz-LF) is only used to issue the preliminary quote. The Part Number (T1354-1) for the quoted Electrical Characteristics, Screenings, and other options, will be provided with the Greenray Sales Order.

Other specification options are available, please use the contact information below for more information.



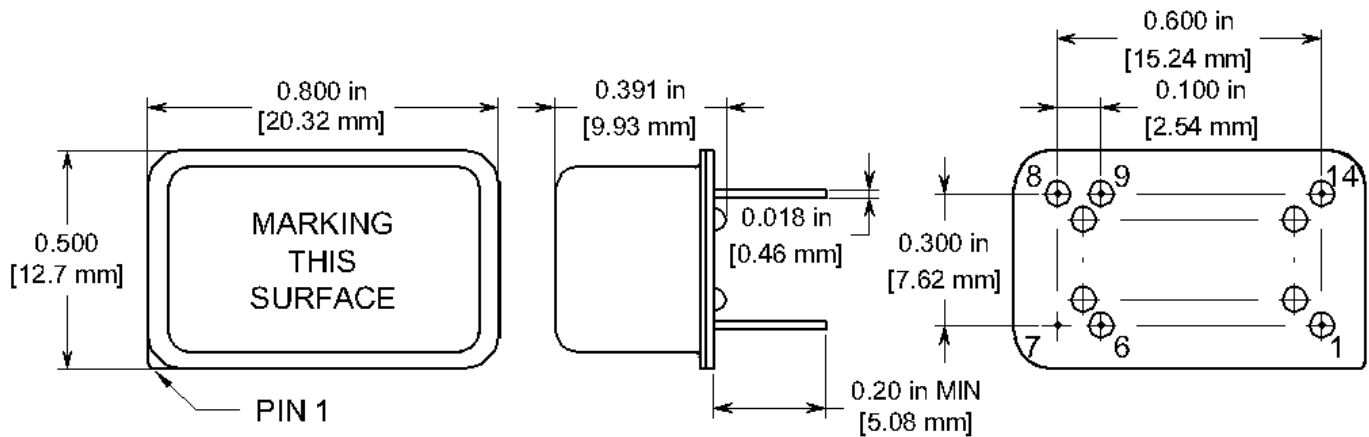
frequency control solutions

## T1354 SERIES

20 MHz to 80 MHz

texo

### Package Information



#### PIN CONNECTIONS

1	CONTROL VOLTAGE (EFC)
6	NO CONNECT (NC)
7	GND
8	OUTPUT
9	NO CONNECT (NC)
14	SUPPLY VOLTAGE (Vdd)

(NC PINs may have internal connections and should be isolated)



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