



frequency control solutions

texo

T56

WIDE TEMPERATURE RANGE
LOW ACCELERATION SENSITIVITY

Product Description

Greenray Industries' T56 Series TCXO has been developed as a reference oscillator for timing applications requiring low power draw, tight stability over military temperature range, and a compact footprint.



Features

- Wide temperature range $-55\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$
- Small and rugged 5.0 x 3.2 mm package
- Tight temperature stability of $\pm 1\text{ ppm}$ over $-55\text{ }^{\circ}\text{C}$ to $+125\text{ }^{\circ}\text{C}$
- Excellent long-term aging $< 4\text{ ppm}$ over 10 years
- Low acceleration sensitivity $< 3 \times 10^{-10}/\text{g}$
- Low power consumption

Applications

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

Rev. D



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T56 SERIES
10 MHz to 52 MHz



Electrical Characteristics

Electrical Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	+25°C	10		52	MHz	
Frequency Stability (other stability available, please contact factory)	-45°C to +105°C		± 0.5		ppm	J57
	-55°C to +125°C		± 1.0		ppm	X16
Aging	1 st year			± 1.0	ppm	
	10 years			± 4.0	ppm	
Acceleration Sensitivity	Worst axis tested @ 90 Hz, 10 g			NA	x10 ⁻¹⁰ /g	SD
			0.4	5	x10 ⁻¹⁰ /g	LG
			0.2	3	x10 ⁻¹⁰ /g	UL
Frequency vs Reflow	After 24 hrs recovery			1.0	ppm	
Frequency vs Voltage	± 5%			0.2	ppm	
Frequency vs Load	± 10%			0.1	ppm	
Voltage Control	VC=0 to Supply, Positive Slope		± 8.0		ppm	
Start-up Time			10	16	ms	
Phase Noise Performance						
Parameter	Frequency Offset (Hz)	Min	Typical	Max	Units	
Static @ 20 MHz Nom. Freq.	10		-80		dBc/Hz	
	100		-112		dBc/Hz	
	1 k		-133		dBc/Hz	
	10 k		-145		dBc/Hz	
	100 k		-149		dBc/Hz	
	Floor		-150		dBc/Hz	
DC Supply						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Supply Voltage		3.0	3.3	3.6	Vdc	3.3
Supply Current	CMOS			6	mA	
	Clipped Sine			3	mA	
RF Output						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
CMOS						C
Load			15		pF	
Level	Supply Voltage=3.3 V	80% "1" Level			20% "0" Level	
Symmetry		40	50	60	%	
Clipped Sine						CS
Load			10 pF// 10 kΩ			
Sub-harmonics		+ 0.8	+ 1.9	+ 3.0	V p-p	



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Environmental and Mechanical Specifications

Screenings			
Screening	Standard	Method, Condition	Description
Vibration	MIL-STD-202G	204, C	20 g, 20 Hz to 2000 Hz, swept sine
Shock	MIL-STD-202G	213, I	100 g, 11 ms, half-sine

Recommendations and General Information

Information	
Parameter	Notes
Operating Temperature	-55°C to +125°C
Storage Temperature	-60°C to +125°C
Terminal Finish	ENIG STD., SnPb 63/37 (non-RoHS) available
Package Weight	3 grams
Soldering Instruction	Reflow
Shipping	Tray Pack, Tape & Reel

Ordering Example

T56	X16	CS	LG	10 MHz	E
Model	Stability	Output	G-Sensitivity	Frequency in MHz	Term. Finish
	J57: -45°C to +105°C X16: -55°C to +125°C	CS: Clipped Sine C: CMOS	SD: STD LG: Low G UL: Ultra-Low G HG: Customer Specific	10 MHz to 52 MHz	E: Au, <10µin PB: SnPb, >97% Sn



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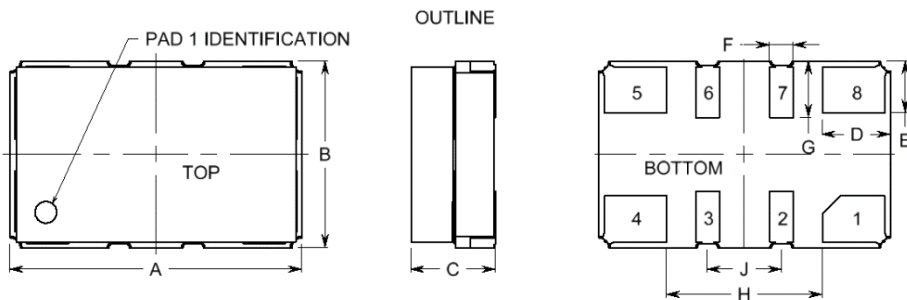


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Package information



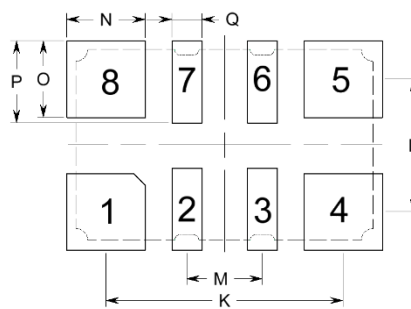
PART DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
A	0.197	5.00	0.207	5.25
B	0.126	3.20	0.136	3.45
C	NA	NA	0.079	2.00
D	0.046	1.17	NA	NA
E	0.035	0.89	NA	NA
F	0.016	0.41	NA	NA
G	0.038	0.97	NA	NA
H	0.105	2.67	0.115	2.92
I	0.056	1.42	0.066	1.68
J	0.050	1.27	0.060	1.52

Pad Connections

1. CONTROL VOLTAGE
 2. NC
 3. NC
 4. GROUND
 5. OUTPUT
 6. NC
 7. NC
 8. SUPPLY VOLTAGE
- (NC Pads may have internal Connections and should be Isolated)

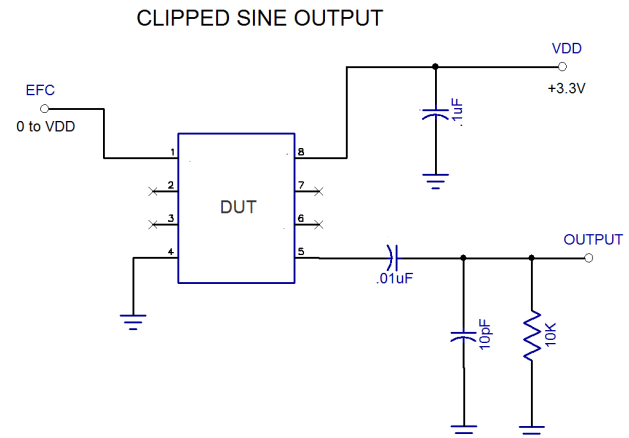
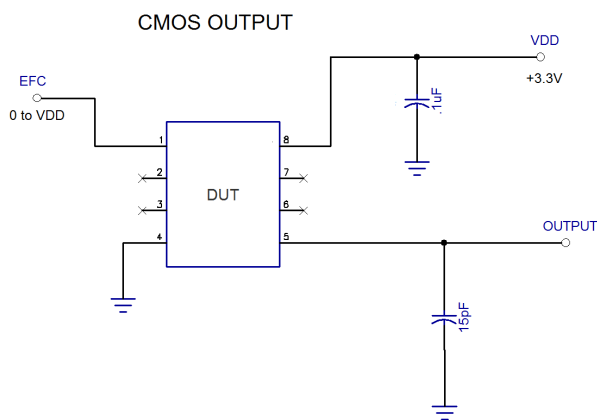
RECOMMENDED LAND PATTERN



LAND PATTERN DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
K	0.147	3.73	0.157	3.99
L	0.126	3.20	0.136	3.45
M	0.047	1.19	NA	NA
N	0.049	1.25	NA	NA
O	0.047	1.19	NA	NA
P	0.051	1.30	NA	NA
Q	0.019	0.48	NA	NA

Recommended Configuration



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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