



frequency control solutions

texo

## ZT610

LOW PHASE NOISE  
VERY RUGGED PACKAGE

### Product Description

Greenray Industries' ZT610 TCXO offers excellent phase noise performance in a rugged package. The ZT610 provides reliable performance in high shock and vibration environments.



### Features

- Rugged 20.3 x 12.7 mm package
- Stability to 1.0ppm (-40 to +85°C)
- Aging <1.0ppm/year
- 5 VDC supply
- CMOS output
- Tight Stability & Aging
- Low phase noise

### Applications

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

Rev. D



ISO 9001  
Quality

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AS9100  
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ZT610 SERIES  
10 MHz to 50 MHz



## Electrical Characteristics

Frequency Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	+25°C, CMOS	10		50	MHz	
Frequency Stability (other stability available, please contact factory)	0°C to +50°C		± 0.5		ppm	B57
	-20°C to +70°C		± 1		ppm	N16
	-40°C to +85°C		± 3		ppm	T36
Aging	1 <sup>st</sup> year, for 10 MHz		± 0.5	± 1	ppm	
Acceleration Sensitivity	(Note 1)			2.5	ppb/g	
Frequency vs Reflow	After 24hrs recovery			1	ppm	
Electronic Frequency Control	EFC = 0 to V <sub>DD</sub> positive slope		± 5		ppm	
Phase Noise Performances						
Parameter	Frequency Offset (Hz)	Min	Typical	Max	Units	
Phase Noise (static) @ 10 MHz nominal Frequency	10		-105		dBc/Hz	
	100		-135		dBc/Hz	
	1k		-155		dBc/Hz	
	10 k		-160		dBc/Hz	
	100 k		-163		dBc/Hz	
DC Supply						
Parameter	Conditions	Min	Typical	Max	Units	
Supply Voltage (V <sub>DD</sub> )		4.75	5.0	5.25	VDC	
Input Current	+ output sink/source current			15	mA	
RF Output: CMOS						
Parameter	Conditions	Min	Typical	Max	Units	
Load	CMOS	10	15		pF	
Level		+4.5 "1" level		+0.5 "0" level	V	
Rise/Fall Time				3	ns	
Symmetry		40	50	60	%	

(1) Acceleration Sensitivity is worst axis tested at 90 Hz, 10 g



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## Environmental Screenings

Environmental			
Screening	Conditions	Method, Condition	Notes
Vibration	MIL-STD-202G	214, I.A	0.2 PSD, 5.35 g RMS
Shock	MIL-STD-202G	213, C	100 g, 6ms, half-sine

## Recommendation and General Information

Conditions	
Parameter	Notes
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +85°C
Terminal Finish	SnPb 63/37 (non-RoHS)
Package Weight	3 grams
Soldering Instruction	By hand or reflowed (recommended peak temperature of +220°C for 10 sec max)
Shipping	Tray pack
Marking	Line 1: Greenray logo Line 2: Model Line 3: Frequency Line 4: Serial Number + Data code (YYWW)

## Ordering Example

ZT1610	-	N16	-	10.0MHz	-	E
Model		Stability		Frequency in MHz		Termination finish
ZT610: +5.0V CMOS		Refer to Electrical Specs Table* B57 (0 to +50°C) N16 (-20 to +70°C) T36 (-40 to +85°C)		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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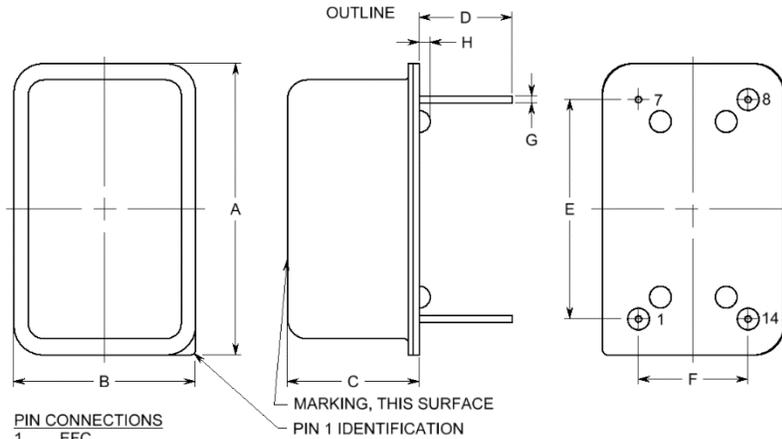


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### Package information



- PIN CONNECTIONS**
- 1. EFC
  - 7. 0V & CASE GND
  - 8. OUTPUT
  - 14. SUPPLY

#### PART DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
A	0.800	20.32	0.815	20.70
B	0.500	12.70	0.515	13.08
C	NA	NA	0.370	9.34
D	0.215	5.46	0.230	5.84
E	0.600	15.24	0.610	15.49
F	0.300	7.62	0.310	7.87
G	ø0.018	ø0.46	ø0.021	ø0.53
H	0.018	0.46	0.024	0.61



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