GREENRAY
frequency control solutions

ZT610

tcxo

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 1.0 ppm (-40 to +85°C)
- Aging <1.0 ppm/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: F

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
TEL: 717-766-0223 FAX: 717-790-9509 e-mail: sales@greenrayindustries.com
www.greenrayindustries.com

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ZT610 SERIES
10 MHz to 50 MHz

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Electrical Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	@ +25°C	10		50	MHz	(FREQ.)
Frequency Stability	0°C to +50°C		± 0.5		ppm	B57
	-20°C to +70°C		± 1.0		ppm	N16
	-40°C to +85°C		± 3.0		ppm	T36
Aging	1st year, for 10 MHz		± 0.5	± 1.0	ppm	
Acceleration Sensitivity	Worst axis tested @ 90 Hz, 10 g			3.5	ppb/g	SG
				3.0	ppb/g	LG
				2.5	ppb/g	ULG
Frequency vs Reflow	After 24 hrs recovery			1	ppm	
Voltage Control (EFC)	0 to Supply, Positive Slope		± 5.0		ppm	

Phase Noise Performance						
Parameter	Frequency Offset (Hz)	Min	Typical	Max	Units	Ordering Code
Static @ 10 MHz Nom. Freq.	10		-105		dBc/Hz	
	100		-135		dBc/Hz	
	1 k		-155		dBc/Hz	
	10 k		-160		dBc/Hz	
	100 k		-163		dBc/Hz	

DC Supply						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Supply Voltage		4.75	5.0	5.25	Vdc	E
Supply Current	+ output sink/source current			15	mA	

RF Output						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
CMOS						C
Load		10	15		pF	
Level		0.8 Vdd "1" Level		0.2 Vdd "0" Level	V	
Symmetry		40	50	60	%	
Rise / Fall Time				3	nSec	

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Environmental and Mechanical Specifications				
Test	Standard	Method	Condition	Description
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

Recommendations and General Information	
Parameter	Notes
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +85°C
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

ZT610 - T 36 - SG - 10.0 MHz - LF

Model	Temp. Range	Stability	G-Sensitivity	Freq. (MHz)	Term. Finish
	B: 0 to +50°C N: -20 to +70°C T: -40 to +85°C	57: ±0.5ppm 16: ±1ppm 26: ±2ppm 36: ±3ppm	SG: < 3.5 ppb/g LG: < 3.0 ppb/g ULG: < 2.5 ppb/g HG: Customer-specific	10 to 50	LF: SnAg 96.5/3.5(Lead-free) PB: SnPb 63/37 (non-RoHS)

The Order ID (ZT1610-T36-SG-10.0MHz-LF) is only used to issue the preliminary quote. The Part Number (ZT1610-1) 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.

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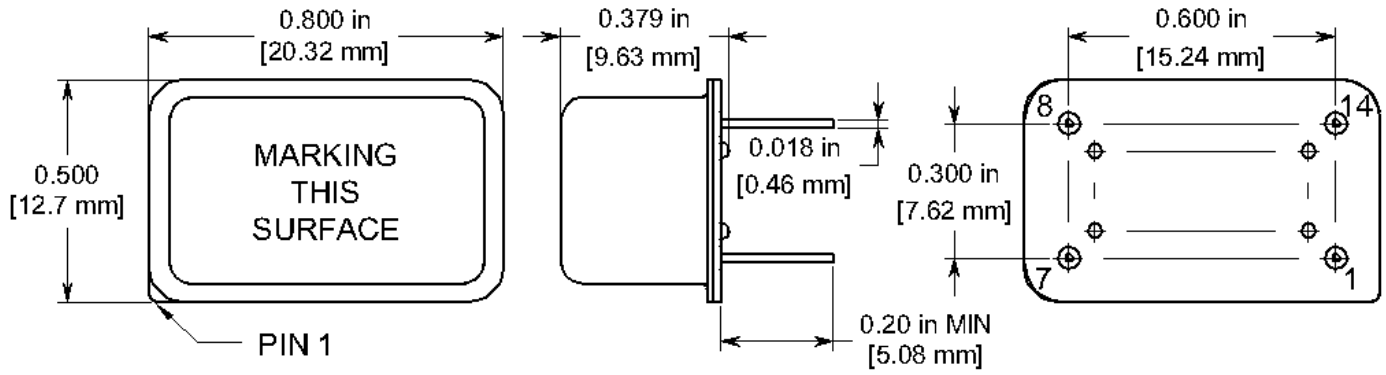
Package Information



PIN CONNECTIONS	
1	CONTROL VOLTAGE (EFC)
7	GND
8	OUTPUT
14	SUPPLY VOLTAGE (Vdd)

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

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