

## TCXO3409

1 GHz LVPECL Ultra-low jitter TCXO

### Features

Frequency Range 200 to 1000 MHz  
Ultra Low jitter : 0.25 ps typical ( 12KHz to 20MHz BW )  
Low power : less than 220 mW typical  
LVPECL outputs

### Typical Applications

SONET / SDH / ATM  
10 Gigabit Ethernet  
Digital Wireless Reference

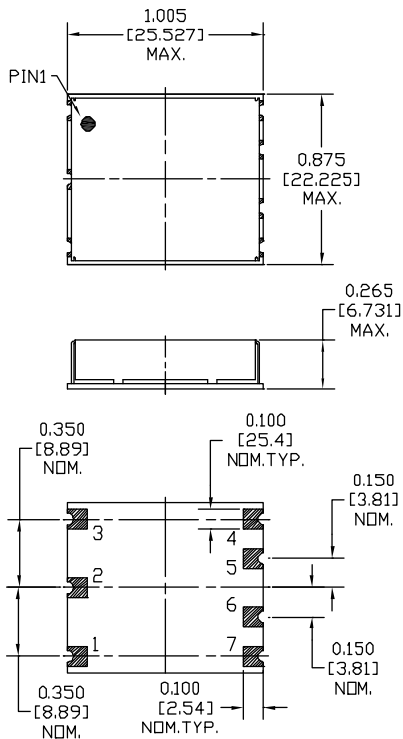
### Description

The TCXO3409 employs low noise / low jitter temperature compensation techniques with LVPECL outputs and less than 1.00 ppm temperature stability up to 1 GHz frequency operation. The device contains an internal voltage regulator for improved isolation from power supply ripple and added stability.

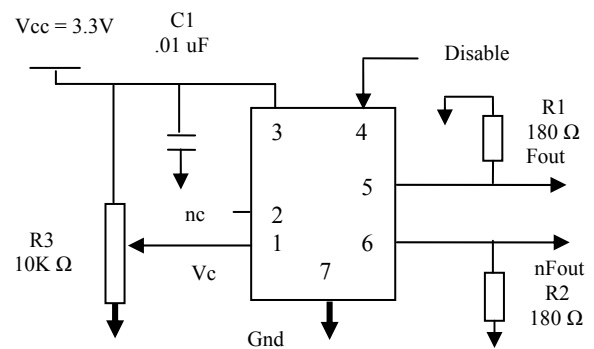
### Picture of Part



### Physical Dimensions



### Pin Connections



Pin #	Connection
1	Vc
2	N/C
3	Vcc
4	N/C
5	Output
6	Output
7	GND

# TCXO3409

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## Specification

TCXO Specification	Sym.	Condition	Value			Unit	Note	
			Min.	Typ.	Max.			
<b>Operational Frequency Range</b>	$f_0$		200		1000	MHz		
LVPECL Outputs	H - level voltage	$V_{OH}$	$V_{CC}-0.96$		$V_{CC}-0.81$	V		
	L - level voltage	$V_{OL}$	$V_{CC}-1.85$		$V_{CC}-1.65$	V		
	Rise & Fall time	$T_r/T_f$	20% to 80%		0.6	ns		
	Duty cycle			45	50	55	%	
	PECL LOAD	$R_L$	50 ohm to $V_{CC} - 2V$		50		ohm	
<b>Power supply</b>								
Voltage	$V_{CC}$		3.150	3.300	3.450	V	5.0 V +/- 5% option available	
Current consumption	$I_{CC}$	50 ohm load		65	80	mA		
<b>Frequency control*</b>								
Control voltage range	$V_C$		0.0	1.3 1.7	3.3	V	Nominal Frequency between 1.3 and 1.7 volts on Vcontrol	
Tuning range Slope			- 10		+10	ppm/v		
$V_C$ Input Impedance			10			Kohm		
Modulation BW			10			Hz	3 dB bandwidth	
<b>Frequency stability</b>								
vs. temperature		-40°C to +85°C, ref 25°C	-1.000		+1.000	ppm		
Tolerance at 25C			-0.1		+0.1	ppm	With 1.3 to 1.7 volts on Vcontrol	
		All conditions over 20 years	-4.6		+4.6	ppm		
<b>SSB Phase noise @ 622.08 MHz typical</b>		10 Hz				dBc/Hz		
		100 Hz		-90				
		1 kHz		-118				
		10 kHz		-142				
		100 kHz		-145				
Phase Jitter ( 12K to 20MHz )				0.25	0.50	ps		
Enable		No Outputs if Pin 4 greater than	2.5			volts	** Outputs always present if Pin 4 is left as a no-connect	
Disable		RF-outputs if Pin 4 less than			0.5	volts		
<b>Environmental, mechanical conditions.</b>								
Operating temperature range	<b>-40°C to +85°C maximum range available for +/- 1.00 ppm stability over temperature</b>							
Storage temperature range	<b>-55°C to +105°C</b>							
Thermal Shock	MIL-STD-883, Method 1011, Condition A							
Mechanical shock	MIL-STD-202, Method 213, Condition E							
Vibration	MIL-STD-883, Method 2007, Condition A							
Soldering	260C for 10 seconds maximum							

## Ordering Information

TCXO3409-XXX.XXXXXX-W-Y

1. Field "XXX.XXXXXX" is the Output Frequency to six decimals in MHz
2. Field "W" is Operating Temperature Range and Freq. Stability :
  - a. "0" for 0 °C to +70°C and +/- 1.000 ppm
  - b. "1" for -40 °C to +85°C and +/- 1.000 ppm
3. Field "Y" is Power Supply Option
  - a. "0" for 3.3V +/- 5%
  - b. "1" for 5.0V +/- 5%

## Part Number Example

TCXO3409-622.080000-1-0

622.080000 MHz operating frequency to six decimal places

-40°C to 85°C with +/- 1.000 ppm

3.3V supply