



### Features and Benefits

- High frequency stability(up to  $\pm 0.5$  ppm over  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ )
- Low power consumption (up to 15 mA)
- DIL8 package design
- 3.3V CMOS output

### Typical Applications

- Microwave Communication
- Mobile Devices

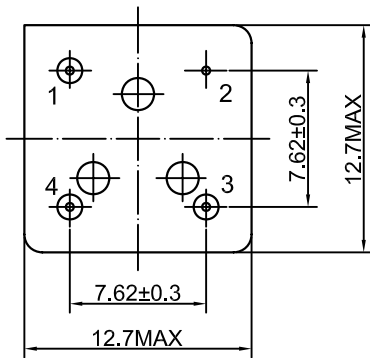
### Description

TCXO1313LSQ1 offers high frequency stability and low power consumption in DIL8 package with wide range of stability vs. operating temperature options to suit the different applications needs.

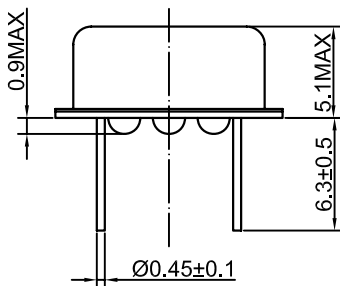
### Mechanical Drawing & Pin Connections

Drawing No: MD140070-1

Bottom View



Side View



Pin Connection(With EFC)

Pin#	Symbol	Function
1	Vc	Control Voltage (EFC)
2	GND	Ground
3	RF OUT	RF Output
4	Vs	Supply Voltage

Pin Connection(Without EFC)

Pin#	Symbol	Function
1	N.C. or Comp OUT	No connection or Complementary RF Output (PECL and LVDS)
2	GND	Ground
3	RF OUT	RF Output
4	Vs	Supply Voltage

Unit in mm  
1mm = 0.0394 inches



## Specifications

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Frequency Range			1		800	MHz	
Output Waveform			HCMOS				
Output Load				15		pF	
Amplitude			According to relevant Logic Standard				
<b>Power Supply</b>							
Supply Voltage	V <sub>s</sub>		3.15	3.30	3.45	V	
Current Consumption (Note 2)			15 ~ 50			mA	
<b>Frequency Adjustment Range</b>							
Mechanical (internal trimmer)			±3			ppm	Ordering Option = blank
Electronic Frequency Control (EFC)			±5			ppm	Ordering Option = "V"
EFC Voltage	V <sub>c</sub>		0.15	1.65	3.15	V	
EFC Slope	Δf / ΔV <sub>c</sub>		Positive				
EFC Input Impedance			100			kΩ	
<b>Frequency Stability</b>							
Vs Operating Temperature			±0.5		±5.0	ppm	Refer to ordering options
Vs Supply Voltage changes	V <sub>s</sub>	±5%		±0.1	±0.3	ppm	
Vs Load changes		±10%			±0.2	ppm	
Long Term Aging Per Year		@ +40°C			±1.0	ppm	
<b>Environmental Conditions</b>							
Operating Temperature Range			-40		+85	°C	Refer to ordering options
Storage Temperature Range			-55		+105	°C	
Enclosure (see drawing) L x W x H		max	12.7 x 12.7 x 5.1			mm	IEC 60679-3 CO21
Weight					4	g	

### Notes:

1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
2. Depending on frequency and supply voltage
3. All combinations of options might not be available. Please consult DEI for details

## Absolute Maximum Ratings

Parameter	Sym	Min	Max.	Unit	Condition
Supply Voltage	V <sub>s</sub>	-0.5	V <sub>s</sub> +10%	V	V <sub>s</sub> to GND
Control Voltage	V <sub>c</sub>	-0.5	6	V	V <sub>c</sub> to GND

## Handling and Testing

Parameter	Procedure	Condition
Electrostatic Discharge (ESD)		
THD devices	IEC60749-26	HBM 2000V
SMD devices	IEC60749-27	MM 200V
Washable	Yes	
RoHS Compliant	Yes	



### Ordering Options

Frequency Stability		Temperature (Lower)		Temperature (Upper)	
Code	Stability [ppm]	Code	T (°C)	Code	T (°C)
1	±0.5	1	0	1	+50
2	±1.0	2	-10	2	+60
3	±1.5	3	-20	3	+70
4	±2.0	4	-30	4	+75
5	±2.5	5	-40	5	+80
6	±3.0			6	+85
7	±3.5				
8	±5.0				

### Ordering Codes

Model	EFC	Frequency in MHz (up to 4 digits)	Frequency Stability	Minimum Operating Temperature	Maximum Operating Temperature
TCXO1313LSQ1	_ or "V"	xxx.yyyy	t	w	Z

Example: TCXO1313LSQ1-20.0000-5-5-6 has the following specifications

EFC = no EFC control  
 Frequency = 20.0000 MHz  
 Stability = ±2.5 ppm  
 Operating Temperature = -40°C to +85°C

### Environmental Conditions

Test	IEC 60068 Part...	IEC 60679-1 Clause	MIL-STD-202G Method	MIL-STD-810F Method	MIL-PRF-55310D Clause	Test Conditions (IEC)
Sealing tests (if applicable)	2-17	5.6.2	112E		3.6.1.2	Gross leak: Test Qc, Fine leak: Test Qk
Solderability	2-20	5.6.3	208H		3.6.52	Test Ta Method 1
Resistance to soldering heat	2-58		210F		3.6.48	Test Td <sub>1</sub> Method 2 Test Td <sub>2</sub> Method 2
Shock	2-27	5.6.8	213B	516.4	3.6.40	Test Ea, 3 x per axes 100g, 6 ms half-sine pulse
Vibration sinusoidal	2-6	5.6.7.1	201A	516.4-4	3.6.38.1	Test Fc, 30 min per axes,
			204D		3.6.38.2	10 Hz – 55 Hz 0,75mm; 55 Hz – 2 kHz, 10g
Vibration, random	2-64	5.6.7.3	214A	514.5	3.6.38.3	Test Fdb
					3.6.38.4	
Endurance tests			108A			
- aging		5.7.1			4.8.35	30 days @+85°C
- extended aging		5.7.2				1000h, 2000h, 8000h @ +85°C