Dynamic Engineers Inc.
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TCXO2020L-xMHz-y-z
UHF Temperature Compensated Crystal SMD Oscillator

Features and Benefits

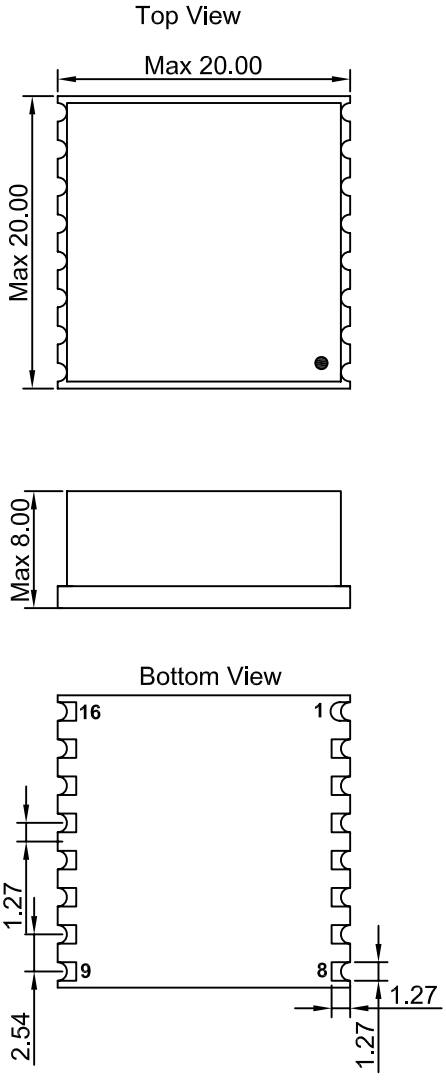
UHF temperature compensated crystal SMD oscillator
Up to ±0.5ppm stability over operating temperature
500 to 2500 MHz frequency range
Phase noise up to -115dBc/Hz @ 10kHz

Typical Applications

Mobile Radio
Communication Equipment

Mechanical Drawing & Pin Connections

Drawing No:MD160085-1



Pin Connection:

Pin#	Symbol	Function
1	Vc	Control voltag(EFC)
4	LD	Lock detect
5	NC	No connection
16	RF OUTPUT	RF output
2,7,9,13	Vs	Supply voltage
Others	GND	Ground,case

Unit : mm
1mm=0.039inch

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Specifications

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Frequency Range	F_0		500		2500	MHz	
RF Output							
Output Wave Form				Sine wave			
Load	R_L	±5%		50		Ω	
Output Level			+7			dBm	
Harmonics					-30	dBc	
Spurious					-80	dBc	
PLL Products					-60	dBc	
Phase Noise @ 1000 MHz (Please consult DEI for phase noise of other frequencies)		@1 kHz @ 10 kHz			-105 -115	dBc/Hz	
Power Supply							
Voltage	V_S		4.75	5.00	5.25	V	3.3V available
Current Consumption				70	100	mA	
Lock Detect Output LD (Internal PLL with TCXO reference)		Out of lock Locked	 3.5	0 5	1.5	V V	
Frequency Adjustment Range							
Electronic Frequency Control (EFC)			±5			ppm	
EFC Voltage	V_C		0.5	2.5	4.5	V	
EFC Slope ($\Delta f/\Delta V_C$)				positive			
EFC Input Impedance			100			kΩ	
Frequency Stability							
VS. Tolerance @+25°C					±1.0	ppm	
VS. over operating temperature range			±0.5		±3.0	ppm	Please refer to Options Tables
VS ±5% change in supply voltage	V_S				±0.2	ppm	Pushing
Long Term AgingPer year				±1.0	±2.0	ppm	

Environmental Conditions	
Parameter	**Reference Std.**
Operating temperature range	-40°C to +85°C or -20°C to +70°C
Storage temperature	-55°C to +105°C
Enclosure (L x W x H)	20.0 x 20.0 x 8.0 max. (mm)
Weight	20 g
Packing	Palette

Note: Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated

Absolute Maximum Ratings

Parameter	Sym.	Condition	Min.	Max.	Unit
Supply Voltage	V_S	V_S to GND	-0.5	V_S + 10%	V
Control Voltage	V_C	$V_C$to GND	-0.5	+7	V
Storage Temperature			-55	105	°C

Handling and Test

Parameter	Procedure		Condition
Electrostatic Discharge (ESD)			
THD Devices	IEC60749-26	HBM	2000V
SMD Devices	IEC60749-27	MM	200V
Washable	No		
ROHS-Compliant	Yes		

Ordering Code

TCXO2020L-xMHz-y-z

DEI Part Number

X: Frequency
(500 to 2500 MHz)

z: operating temperature range
1 = -20°C to +70°C
2 = -40°C to +85°C

y: stability over operating temperature
1 = ±0.5ppm
2 = ±1.0ppm
3 = ±1.5ppm
4 = ±2.0ppm
5 = ±2.5ppm
6 = ±3.0ppm

Example

TCXO2020L-1000MHz-1-1

Frequency = 1000 MHz
Stability Over Operating Temperature Range = ±0.5ppm
Temperature Range = -20°C to +70°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 Resistance to soldering heat	2-20 2-58	5.6.3	208H 210F		3.6.52 3.6.48	Test Ta Method 1 Test Td, Method 2 Test Td, Method 2
Shock*	2-27	5.6.8	213B	516.4	3.6.40	Test Ea, 2 x per axes 100g 6ms half-sine pulse
Vibration, sinusoidal*	2-6	5.6.7.1	201A 204D	516.4-4	3.6.38.1 3.6.38.2	Test FC, 30 min per axes
Vibraton random*	2-64	5.6.7.3	214A	514.5	3.6.38.3 3.6.38.4	Test Fdb
Endurance tests - Aging - Extended aging		 5.7.1 5.7.2	108A		4.8.35	 30 days @ 85°C, OCXO @ 25°C 1000h, 2000h, 8000h @ 85°C

Other environmental conditions information available upon request.