Dynamic Engineers Inc.
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TCXO5300Z-12.678303MHz-A
Analogue Temperature Compensated Xtal Oscillator

Features and Benefits

Meets all Medium-term stability requirements of COSPAS SARSAT : Class 2
12.678303MHz AT-strip resonator optimized for this application
CMOS output
+3.3V; 4 mA max.
Less than 1E-10 ADEV @ tau = 100ms
Less than +/- 200 ppb over -20°C to +55°C
Tri-state function

Typical Applications

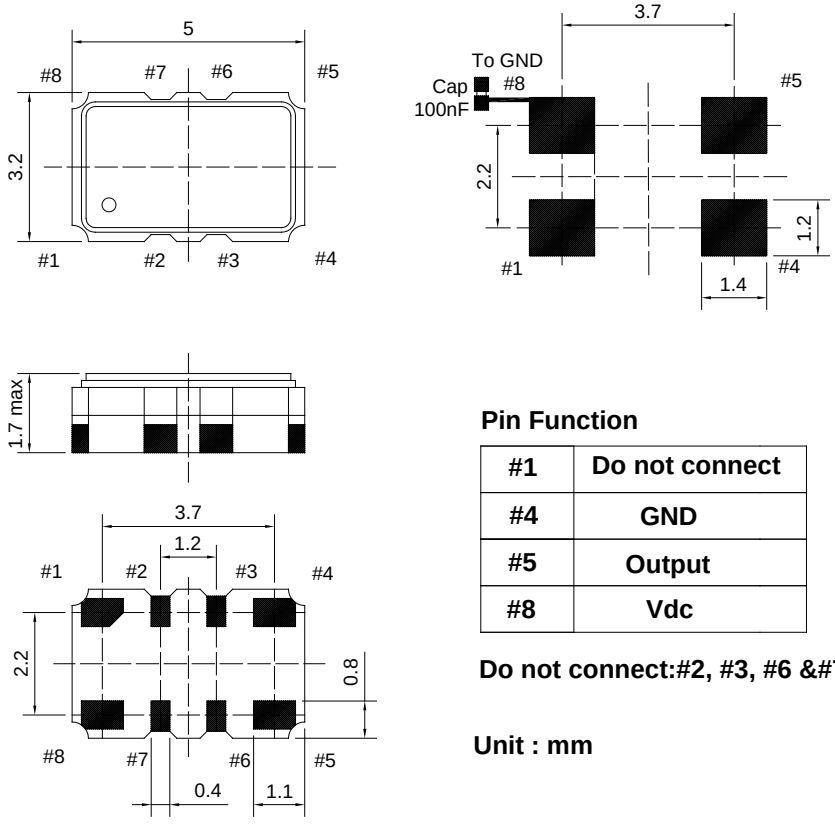
ELT Emergency Beacons
Other frequencies available for EPIRB and PLB beacon systems

Description

5 x 3.2 mm smd. TCXO platform optimized for crystal angle and compensation technique to meet the specific stability requirements of ELT (Emergency Locator Transmitter) applications.

Mechanical Drawing & Pin Connections

Drawing No: MD150017-2



Pin Function

#1	**Do not connect**
#4	**GND**
#5	**Output**
#8	**Vdc**

Do not connect:#2, #3, #6 &#7

Unit : mm

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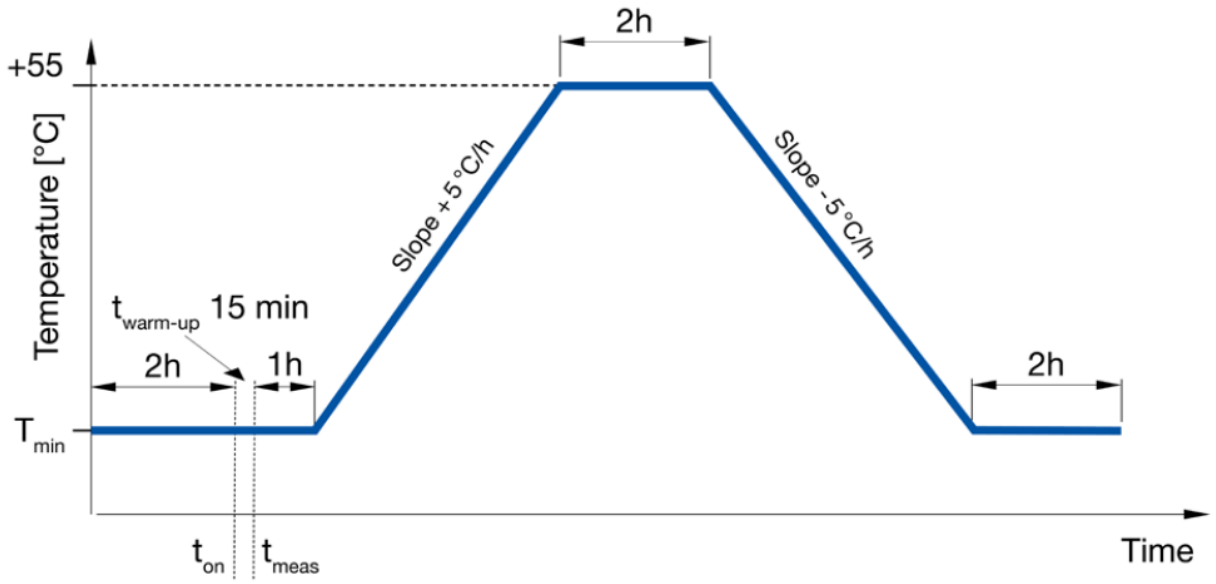
Specifications

TCXO Specification	Sym	Condition	Value Min.	Value Typ.	Value Max.	Unit	Note
Nominal Frequency	F_{nom}			12.678303		MHz	
Output Waveform				CMOS			
Output Level High			2.97			V	
Output Level Low					0.33	V	
Output Load		+/-5%		15		pF	
Symmetry (Duty)		@ ½ Vdc	45		55	%	
Tri-state function		pin # 6: oscillation pin # 6: high impedance		pin # 9 high or open pin # 9 low			
Power Supply							
Supply Voltage	V_{cc}		3.135	3.3	3.465	V	
Supply Current					4	mA	
Frequency Stability							
VS. Temperature		From -20°C to +55°C Ref. to (F_{MAX} + F_{MIN})/2			+/-0.2	ppm	
Tolerance at +25°C		@+25°C			+/-0.5	ppm	
Tolerance after Reflow		Measured 8hours after reflow			+/-0.5	ppm	
VS. Supply Voltage		+/-5% change at 25°C			+/-0.1	ppm	
VS. Load Change		+/-5% change at 25°C			+/-0.1	ppm	
Year Aging		First year			+/-1.0	ppm	
		10 years			+/-3.0	ppm	
Allan Variance (ADEV)		@ τ = 100ms			0.1	ppb	
Medium-Term Stability				IAW C/S T.007 and C/S IP TCXO			
Mean Slope ΔF/dt after 15 min Power-up		Steady state			0.7	ppb/min.	T = const
		During temperature ramp			1.7	ppb/min.	∆ T/dt = ± 5 °C/hour
Residual ΔF (r.m.s.) from Slope					2.0	ppb	Over 18 points
Phase Noise		@10Hz			-95	dBc/Hz	
		@100Hz			-120		
		@1KHz			-140		
		@10KHz			-150		
		@100KHz			-155		

Environmental Conditions			
Parameter	**Reference Std.**		**Test Condition**
Operating Temperature range	-20°C to +55°C		
Storage Temperature range	-55°C to +105°C		
Vibration sinusoidal	IEC 60028-2-6	IEC 60679-1-5.6.7	Test Fc, 30 min per axis 10 Hz – 55 Hz 0.75mm, 55 Hz – 2 KHz 10g
Shock	IEC 60028-2-27	IEC 60679-1-5.6.8	Test Ea, 3 x per axes 100 g, 6 ms half-sine pulse
Soldering	IEC 60028-2-20 IEC 60028-2-58	IEC 60679-5..6.3	Test Ta 235°C+/-2°C Method 1 Test Tb Method 1A, 5s

Medium Term Stability

Frequency stability measurement procedure according the COSPAS/SARSAT T.001



Note #1: $T_{min.}$ = -20 °C (Class 1 beacon)
T_{ON} = beacon turn-ON time after 2 hours “cold soak”
Tmeas = start time of frequency stability measurement (TON + 15 min)

Note: #2: The 2h and 1h warm-up and stabilisation times are for type approval test of complete beacon.
For testing of TCXO these times may be shortened accordingly.