

#### Dynamic Engineers Inc.

2550 Gray Falls Dr., Suite#128, Houston, TX, 77077 USA TEL: 1-281-870-8822 EMAIL: Sales@DynamicEng.com

### **Features and Benefits**

Frequency range: 26MHz Supply voltage: 3.3V Steady current: 3.2mA Max Output waveform: CMOS Frequency stability vs. operating temperature: ±0.2ppm Aging: ±1.0ppm per year Phase noise@100KHz: -155dBc/Hz Operating temperature: -40°C to +55°C Size: 5x3.2x1.7mm

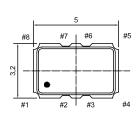
#### **Typical Applications**

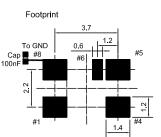
Emergency beacon class 1

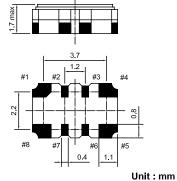
#### Description

TCXO5300BT-CS-26MHz-A offers wide temperature operation from -40°C to +55°C with outstanding frequency stability and low phase noise performance.

#### **Mechanical Drawing & Pin Connections**



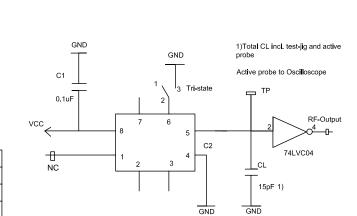




Pin Function #1 GND or N.C. #2 N.C. #3 N.C. #4 GND #5 Output

> Tri-state or N.C. N.C.

> > Vcc



Drawing No:

A8%)\$\$\$(!+

1mm=0.039inch

#6

#7

#8

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Rev. 1

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## **Specifications**

Oscillator Specification	Sym	Condition	Min.	Value Typ.	Max.	Unit	Note
Operational Frequency	Fnom			26		MHz	
Output				CMOS			
•			١	/ <sub>OH</sub> ≥ 0.9 * Ve	20		
Output Level			$V_{OL} \leq 0.1 * V_{CC}$				
Output Load				10		pF	
Symmetry (Duty)		@ ½ Vdc	45		55	%	
Power Supply				1			
Voltage	V <sub>cc</sub>	±5%		3.3		V	
Supply Current	00				3.2	mA	
		output disable		200		uA	
Start up Time					2	ms	
I		pin #6 > 2.1 V or open	pir	n #5 → oscilla			
Tri-state Function		pin #6 < 0.9 V or GND	pin #5 $\rightarrow$ high impedance				
Frequency Stability							
		-40°C to +55°C,			.0.0		
Versus Temperature		ref to (Fmax+Fmin)/2			±0.2	ppm	Class 1 beacon
Tolerance at 25°C					±0.5	ppm	
Versus Supply Voltage		±5% change			±0.01	ppm	
Versus Load		±10% change			±0.05	ppm	
First Year Aging					±1.0	ppm	
10 Years Aging					±3.0	ppm	
Medium-term stability		According the IAW C/S T.007 and C/S IP TCXO					
Mean slope $\Delta$ F/dt after 15 min power-up:							
steady state		T = const.			±0.7	ppb/min	
during temperature ramp		$\Delta T/dt = \pm 5 \text{ °C/hour}$			±1.7	ppb/min	
Residual ∆F (r.m.s.) from slope		over 18 points			2.0	ppb	
Phase noise		10 Hz			-90	dBc/Hz	
		100 Hz			-115		
		1000 Hz			-135		
		10 KHz			-150		
		100 KHz			-155		
Short-Term Stability	ADEV	Tau = 1 second			1x10 <sup>-10</sup>		
Environmental Conditions	<u>.</u>						
Operating temperature range	-40°C to +55°C						
Storage temperature range	-55°C to +105°C						
Reflow conditions per JEDEC J-STD-020	260 °C maximum during 10 sec. Max.						

#### **Environmental Conditions**

Test	Reference STD.	Test conditions (IEC)		
Vibration sinusoidal	IEC 60028-2-6 IEC 60679-1-5.6.7	Test Fc, 30 min per axis 10 Hz – 55 Hz at 0.75 mm, 55 Hz – 2 kHz at 10 g		
Shock	IEC 60028-2-27 IEC 60679-1-5.6.8	Test Ea, 3 x per axis at 100 g, 6 ms, half-sine pulse		
Soldering	IEC 60028-2-20 IEC 60028-2-58 IEC 60679-5.6.3	Test Ta 260 °C Method 1 Test Tb Method 1A, 5s		

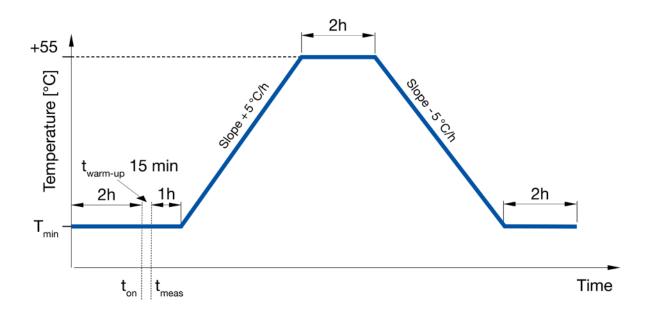
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## **Medium Term Stability**

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



Note #1:	Tmin	= -40 °C (Class 1 beacon)
	Tmin	= -20 °C (Class 2 beacon)
	TON	= 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.