

Rev. C

T-S42-XXYY-X –100.000 MHz Phase-Locked Clean-up ULPN TCXO with Low G-sensitivity

Product Data Sheet

Features

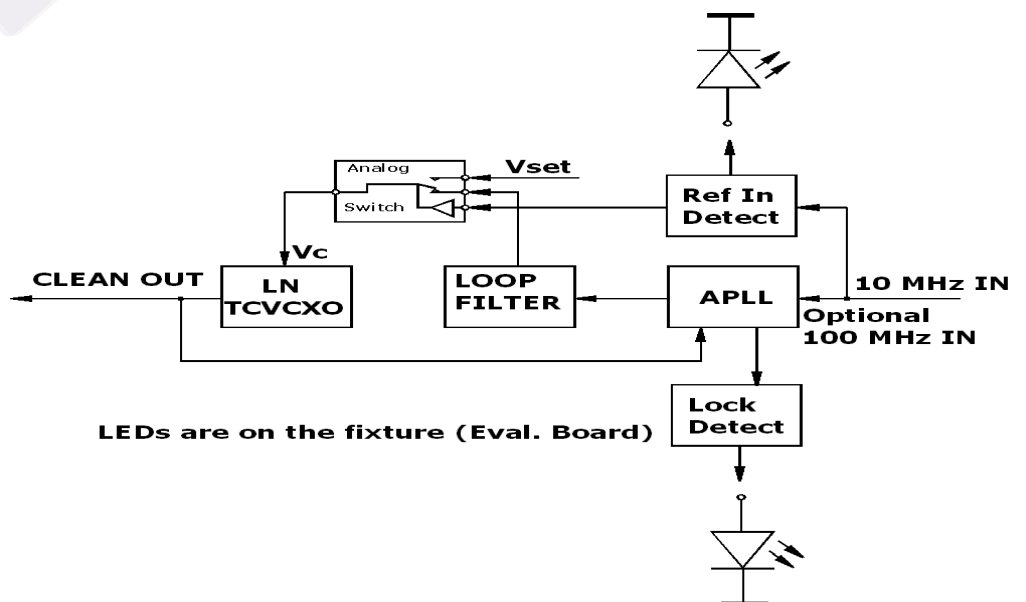
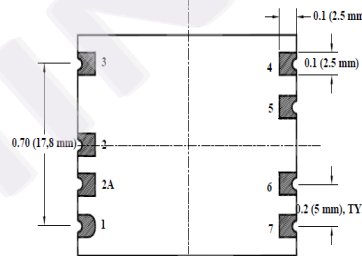
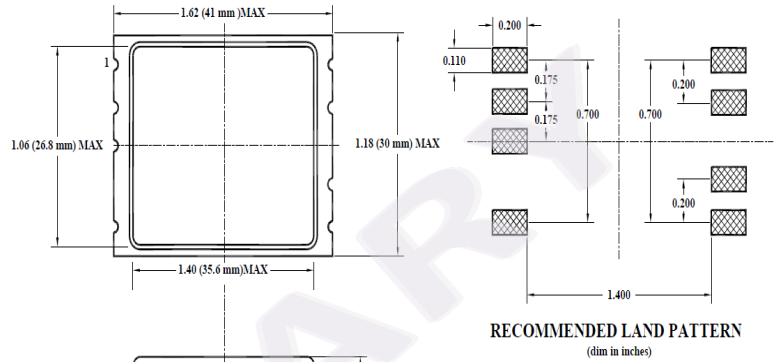
- Low G-sensitivity (0.2 ppb/G)
- Low Phase Noise Similar to OCXO
- Compact SMD Package
- In Absence of REF IN Frequency Returns to Preset Value
- Low Power Consumption
- Fast Ready

Applications

- Significantly improves Phase Noise of incoming signal
- COTS/Dual use

Pinout

- Pad #1 - 10 MHz or Optional 100 MHz Input
- Pad #2 - Vref;
- Pad #2A - Vset
- Pad #3 - Vcc
- Pad #4 - Lock Detect
- Pad #5 - RF OUT
- Pad #6 - Case, GND
- Pad #7 - Input Signal Detect



Specifications:

Parameter	Symb	Condition	Min	Typ	Max	Unit	Note
Absolute Maximum Ratings							
Input Break Down Voltage	V _{cc}		-0.5		5.5	V	V _{cc} = 5 V
Operating Temp.	T _o		-20		70	°C	
Operable Temp.	T _O		-40		85	°C	
Storage temper.	T _s		-40		85	°C	

Electrical High Frequency

Input Frequency	F _{in}			10.000 100.000		MHz	Option A Option B
Output Frequency	F _{out}		80	100.000	125.000	MHz	
Frequency Capture Range (APR)	ΔF/F	Over All	±100			ppb	When input signal disappears free run within 100 ppb as shipped, 1,500 ppb over 10 years
Allan Deviation		.01s to 0.1s		8E-11			
Frequency stability	ΔF/F	Locked	Equal to incoming signal				
Recommended MAX Input SSB Phase Noise	£(Δf)	10 Hz			-80	dBc/Hz	10 MHz, Option A
		100 Hz			-110		
		1 KHz			-130		
		10 KHz			-140		
		100 KHz			-140		
		10 Hz			-70		
		100 Hz			-100		100 MHz, Option B
		1 KHz			-120		
		10 KHz			-140		
		100 KHz			-140		
Input signal		CMOS	2			V	Swing
		Sine Wave	0		15		dBm
Output SSB Phase Noise Floor	£(Δf)	10 Hz			-95	dBc/Hz	
		100 Hz			-125		
		1 KHz			-152		
		10 KHz			-170		
		100 KHz			-172		
		10 Hz			20		
Output SSB Phase Noise Improvement Compared to Input Phase Noise adjusted to 10 MHz		100 Hz			50	dBc/Hz	Should add 20LogN, 20 dB for 100 MHz Cannot improve beyond listed above noise floor
		1 KHz			50		
		10 KHz			50		
		100 KHz			50		
G-sensitivity		worst direction			±0.2	ppb/G	
Input Voltage	V _{cc}	Code 0	4.75	5.0	5.25	V	By special request
		Code A	3.2	3.3	3.45		
Power consumption	P			100		mW	Driving 50 Ohm code S
Spectral Purity		Subharmonics			-70	dBc	10 MHz and multiples
		Spurious Harmonics			-80		
					-35		Output Code S
					-30		
Load	Internally AC coupled 50 Ohm (Sinewave) 10K Ohm//15pf (CMOS/TTL)						
Lock Time				1		minute	
Output Power	P _{out}	Into 50 Ohm	9	11			Output Code S
Logic 1 (CMOS)	V _{oh}		0.7V _{ref}			V	Output Code T
Logic 0 (CMOS)	V _{ol}				0.1V _{ref}	V	Output Code T
Duty Cycle			45/55		55/45	%	Output Code T
Rise/Fall Time	T _r /T _f			2	3	ns	Output Code T

All parameters for output frequency 100 MHz

Preset Voltage	Vset		1.65	V	Can be externally adjusted by LN metal Potentiometer 10 KOhm between Vref and GND
Lock Detect			Logic "1"		Can drive LED
Input Detect			Logic "1"		Can drive LED

Environmental and Mechanical

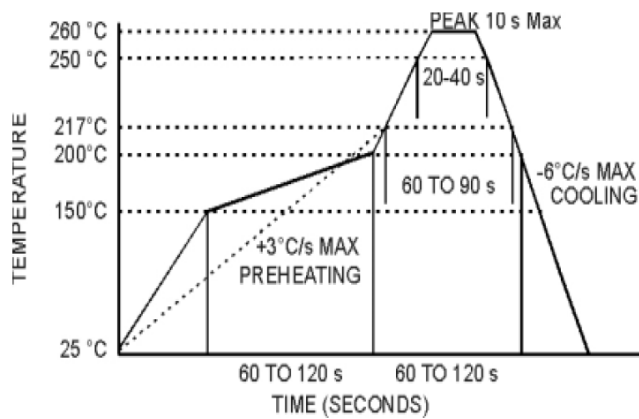
Operating temp. range	-20°C to 70°C Standard, Other options – see chart below
Mechanical Shock	Per MIL-STD-202, 30G, 11ms , survival
Vibration	Per MIL-STD-202, 5G to 2000 Hz, Survival
Soldering Conditions	See MAX reflow profile below; The device may be reflowed once. Reflowing upside down is not allowed. Hand soldering is highly encouraged. NO CLEAN assembly is recommended

Electrical Connections

Notes:

* All parameters, unless otherwise specified, are at nominal conditions, ie: T=25°C, Nominal Vcc & Nominal

MAX Reflow Profile



Creating a Part Number

T -
TCXO

S42 -

X X

YY X -

X - Frequency, MHz

Package Code
SMD 41x30x5.6, 8 pads

Environmental

Code	Specification
L	Contains a level of lead that is in excess of RoHS directive and is not designed for reflow
R	RoHS compliant

Supply Voltage

Code	Specification
0	5 V TYP
A	3.3 V (special request)

Input

Code	Specification
A	10 MHz
B	100 MHz

Output

Code	Specification
S	Sinewave
T	CMOS/TTL

Temperature Range

Code	In 5°C steps **
First letter	Lowest temperature from A = -40°C
Second letter	Highest temperature to Z = 85°C
Examples	
IS	0°C to 50°C
GU	-10°C to 60°C
EW	-20°C to 70°C

**Temperature Code Table

Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C	Letter	Temp °C
A	-40	F	-15	K	10	P	35	U	60	Z	85
B	-35	G	-10	L	15	Q	40	V	65		
C	-30	H	-5	M	20	R	45	W	70		
D	-25	I	0	N	25	S	50	X	75		
E	-20	J	5	O	30	T	55	Y	80		



**FREQUENCY
CONTROLS, INC.**