#### C7LC'' \$\*7!%\$\$A < n!5!J

100MHz low power low profile OCXO

#### **Features and Benefits**

8mm low profile design
Custom 100 MHz frequency with internal heating resonator (IHR)
Less than ±30 ppb total stability over -20°C to +70°C
Less than ±2 ppb per day aging
Low power consumption at 0.15W at +25°C
Better than -168dBc/Hz floor @ 100 MHz
60 seconds fast warm-up time

TEL: 1-281-870-8822 EMAIL:Sales@DynamicEng.com

#### **Typical Applications**

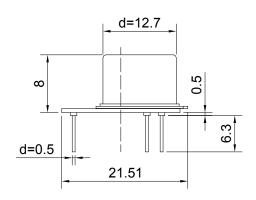
100 MHz Frequency Source Reference for mobile test equipment Synthesizers Wireless Communications Battery Powered Application

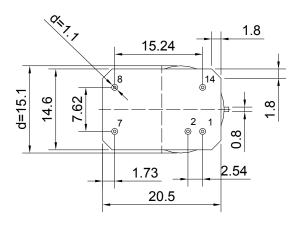
#### **Description**

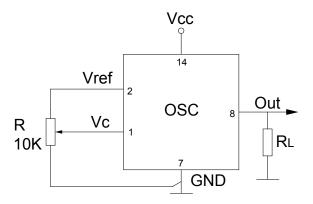
A sophisticated and highly stable low profile oven controlled oscillators with the latest internal heating resonator (IHR) topologies.

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

Drawing No: MD140029-1







Pin	Signal
1	Electrical tuning
2	Reference voltage
7	GND
8	RF Out
14	+V Supply

Unit: mm

## Dynamic Engineers Inc.

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### **Specifications**

Warm-up time         t <sub>up</sub> to Δt// = 1e-/ at +25°C         60         s         frequence after 15 mi           1 Hz         10 Hz         -95         -90           100 Hz         -125         -120           1 kHz         -153         -150	General Spe	ecifications								
Nominal Frequency	·			Condition	Value			Unit	Noto	
Frequency Control           Control Voltage Range         V <sub>c</sub> V <sub>cc</sub> = 5V         0         4.2         V           Tuning Range         ±0.5         ±1.0         ppm           Tuning Slope         Positive         Positive           Reference voltage         V <sub>ref</sub> V <sub>cc</sub> = 5V         4.1         4.2         4.3         V           Frequency Stability           Vs. temperature         -20°C to +70°C Ref +25°C         -30         +30         ppb           Vs. temperature         Worst direction         ±1         ppb/G           Vs. supply voltage         Ref V <sub>cc</sub> typ.         ±2         ppb           RF output         HCMOS         HCMOS           H-Level Voltage         V <sub>cc</sub> 3.8         V           L-Level Voltage         V <sub>cc</sub> 45         55         %           Rise / Fall Time         3         ns         Rohman         Load         55         %           Sub-Harmonics level         none         Name of the property of			_	Condition	Min.		Max		14010	
Control Voltage Range   V <sub>c</sub>   V <sub>cC</sub> = 5V   0			f <sub>0</sub>			100		MHz		
Tuning Range   ±0.5 ±1.0   ppm			, , , , , , , , , , , , , , , , , , ,		•	<u> </u>	4.0			
Tuning Slope   Reference voltage   V <sub>ref</sub>   V <sub>CC</sub> = 5V   4.1   4.2   4.3   V			V <sub>c</sub>	$V_{CC} = 5V$		.4.0	4.2			
Reference voltage         V <sub>ref</sub> V <sub>cc</sub> = 5V         4.1         4.2         4.3         V           Frequency Stability         Vs. temperature         -20°C to +70°C Ref +25°C         -30         +30         ppb           Vs. acceleration         Worst direction         ±1         ppb/G           Vs. supply voltage         Ref V <sub>cc</sub> typ.         ±2         ppb           RF output         Wave form         HCMOS           H-Level Voltage         V <sub>L</sub> A5         5         %           H-Level Voltage         V <sub>L</sub> A5         %         No.4         V           Load         10         A5         %         No.4         V           Sub-Harmonics level         Power Supply           Voltage         V <sub>CC</sub> Warm-up state Steady state, +25°C         0.70         W           Warm-up time         to Δf/f = 1e-7 at +25°C         60         s Reference frequen				±0.5			ppm			
			\/ - 5\/	4.1		12	W			
Vs. temperature         -20°C to +70°C Ref +25°C         -30         +30         ppb           Vs. acceleration         Worst direction         ±1         ppb/G           Vs. supply voltage         Ref V <sub>cc</sub> typ.         ±2         ppb           RF output         Provestion         HCMOS         Provestion           H-Level Voltage         V <sub>R</sub> V <sub>CC</sub> = 5V         3.8         V         V           L-Level Voltage         V <sub>L</sub> 45         55         %           Rise / Fall Time         3         ns         KOhm           Load         10         KOhm         pF           Sub-Harmonics level         none         pF           Power Supply         V <sub>CC</sub> 4.75         5.0         5.25         V           Power Consumption         Warm-up state Steady state, +25°C         0.70         W         Reference frequence after 15 m           Warm-up time         t <sub>up</sub> to Δf/f = 1e-7 at +25°C         60         s         Reference frequence after 15 m           SSB Phase Noise         1 Hz         -95         -90           1 NHz         -153         -150			V <sub>ref</sub>	V <sub>CC</sub> – 5V	4.1	4.2	4.3	V		
Vs. temperature   Ref +25°C   -30   +30   ppb		· ·	l	20°C to ±70°C		ı				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Vs. tempera	nture			-30		+30	ppb		
Vs. supply voltage         Ref V <sub>cc</sub> typ.         ±2         ppb           RF output         Wave form         HCMOS           H-Level Voltage         V <sub>R</sub> V <sub>CC</sub> = 5V         3.8         V           L-Level Voltage         V <sub>L</sub> 0.4         V           Duty Cycle         45         55         %           Rise / Fall Time         3         ns           Load         10         5         kOhm pF           Sub-Harmonics level         none         None         None           Power Supply         Voltage         V <sub>CC</sub> 4.75         5.0         5.25         V           Power Consumption         Warm-up state Steady state, +25°C         0.70         W         W           Warm-up time         to Δf/f = 1e-7 at +25°C         60         s         Reference frequence after 15 m           SSB Phase Noise         100 Hz         -95         -90         Amount of the control of the	Vs. accelera	ation					±1	ppb/G		
Wave form         HCMOS         HCMOS           H-Level Voltage         V <sub>R</sub> V <sub>CC</sub> = 5V         3.8         V         V           L-Level Voltage         V <sub>L</sub> 0.4         V         V         V         V         V         Duty Cycle         45         55         %         M         M         S         N	Vs. supply v	voltage		Ref V <sub>cc</sub> typ.		±2		• •		
				71						
						HCMOS				
Duty Cycle         45         55         %           Rise / Fall Time         3         ns           Load         10         kOhm pF           Sub-Harmonics level         none         kOhm pF           Power Supply         Voc         4.75         5.0         5.25         V           Power Consumption         Warm-up state Steady state, +25°C         0.70 0.15         W         W           Warm-up time         to Δf/f = 1e-7 at +25°C         60         s         Reference frequency after 15 m           1 Hz         10 Hz         -95         -90         -90           SSB Phase Noise         1 kHz         -125         -120         dBc/Hz	H-Level Vol	tage		$V_{CC} = 5V$	3.8					
Note		tage	V <sub>L</sub>							
Load         10         5         kOhm pF           Sub-Harmonics level         none         Power Supply           Voltage         V <sub>CC</sub> 4.75         5.0         5.25         V           Power Consumption         Warm-up state Steady state, +25°C         0.70         W         W           Warm-up time         t <sub>up</sub> to Δf/f = 1e-7 at +25°C         60         s         Reference frequence after 15 m           SSB Phase Noise         1 Hz         -95         -90         -90         -90         -125         -120         dBc/Hz					45					
Sub-Harmonics level   none   Power Supply	Rise / Fall T	ime					3			
	Load				10		5			
Voltage         V <sub>CC</sub> 4.75         5.0         5.25         V           Power Consumption         Warm-up state Steady state, +25°C         0.70 0.15         W         W           Warm-up time         t <sub>up</sub> to Δf/f = 1e-7 at +25°C         60         s         Reference frequence after 15 min a	Sub-Harmo	nics level				none		P -		
Voltage         V <sub>CC</sub> 4.75         5.0         5.25         V           Power Consumption         Warm-up state Steady state, +25°C         0.70 0.15         W           Warm-up time         t <sub>up</sub> to Δf/f = 1e-7 at +25°C         60         s         Reference frequence after 15 min after 1	<b>Power Supp</b>	oly								
Power Consumption         Warm-up state Steady state, +25°C         0.70 0.15         W W           Warm-up time         t <sub>up</sub> to Δf/f = 1e-7 at +25°C         60         s         Reference frequency after 15 minus           1 Hz         10 Hz         -95 -90         -90         -125 -120         dBc/Hz           SSB Phase Noise         1 kHz         -153 -150         dBc/Hz         -150	Voltage		$V_{CC}$		4.75		5.25			
Warm-up time         t <sub>up</sub> to Δf/f = 1e-7 at +25°C         60         s         Reference frequence after 15 min           1 Hz         10 Hz         -95         -90         -90         -125         -120         dBc/Hz           1 kHz         -153         -150         dBc/Hz         -150         -150         -150	Power Cons	sumption								
10 Hz         -95         -90           100 Hz         -125         -120           1 kHz         -153         -150	Warm-up tir	ne	t <sub>up</sub>	to Δf/f = 1e-7				S	Reference to frequency after 15 mins	
SSB Phase Noise         100 Hz         -125         -120         dBc/Hz           1 kHz         -153         -150										
1 kHz -153 -150 dBc/Hz	SSB Phase Noise							- dBc/Hz		
1 KHZ   -153   -150										
				10 kHz	-165	-162				
100 kHz -168 -165		Dor dov			-108	-165	1.0	nnh		
Ading	Aging			_						
First year   operation   ±200   ppb    Maximum ratings, environmental, mechanical conditions.	Maximum ra		nmenta		ne		±200	μρυ		
Operating temperature range   -20°C to +70°C					по.					
1 0 1	Storage temperature range									
	Humidity									
Mechanical Shock Per MIL-STD-202, 30G, half sine pulse, 11ms										
Vibration Per MIL-STD-202, 5G swept sine 10 to 2000 Hz										
Soldering Conditions Hand solder only – not reflow compatible 260°C 10s (on pins)	+ IDI GUOTI									
Washing Conditions  Washing with water or alcohol based detergent allowed only with final enough d stage		onditions		Hand solder only – not	reflow comp	patible 260°C	TUS (On	oins)		

Please contact Dynamic Engineers Inc. for further details.