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Features and Benefits

High frequency stability (up to ±5 ppb over -40°C to +85°C) Low long term aging (up to ±2 ppb per day) Low power consumption (up to 250 mA steady state @ +25°C) Compact SMD design

Typical Applications

SATCOM System
Portable Microwave Applications

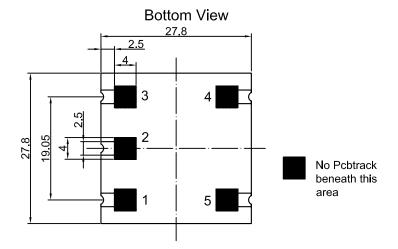
Description

OCXO2828LULNGseries offers high frequency stability, low long term aging and power consumption, with wide range of frequency stability vs. operating temperature options, all in a compact SMD package to suit the different communication needs.

Mechanical Drawing & Pin Connections

Drawing No: MD

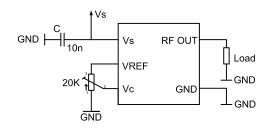
MD140067-1



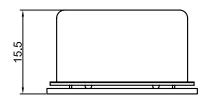
Pin Connections:

PIN#	Symbol	Function
1	RF OUT	RF Output
2	GND	Ground
3	Vc	Control Voltage (EFC)
4	VREF	Reference Voltage
5	Vs	Supply Voltage

Unit in mm 1mm = 0.0394 inches



Side View





Dynamic Engineers Inc.

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Specifications

Oscillator Specification	Sym	Condition	Min.	Value Typ.	Max.	Unit	Note
Operational Frequency Range	F _{nom}		5	īyp.	150	MHz	
Standard Frequencies	I nom		10.000, 100.000, 125.000			MHz	
			10.0	00, 100.000,	123.000	IVITIZ	
RF Output Signal Waveform	<u> </u>			Sine w	10110		
Load	RL	±5%		50 Sine w	/ave	Ω	
Output Level	K _L	±0%	+7	50	I	dBm	Note 3
Harmonics			+/		-30	dBc	Note 3
Spurious					-90	dBc	
Narm-up time @ +25°C		Af /f 0.1 nnm		3	-90 5	min	
		$\Delta f_{\text{final}} / f_0 < \pm 0.1 \text{ ppm}$		3	5	min	
Power Supply		< 40 MH=		5.0	ı		
Reference Voltage VREF Output		≤ 40 MHz >40 MHz		5.0 10.0		V	Note 4
Cupply Voltage	\/	>40 IVITZ	11.4	12.0	12.6	V	
Supply Voltage	Vs	Ct d t - t 0 - 0 - 0	11.4	12.0	150	•	Nata F
Current Consumption		Steady state, +25°C			350	mA mA	Note 5 Note 5
Francisco Adicatorant Banas		Warm-up			350	MA	Note 5
Frequency Adjustment Range				I	_		AT 0 .
Electronic Frequency Control (EFC)			±2		±5	ppm	AT-Cut
, , ,			±0.8	\/DEE / 0	\/DEE	V	SC-Cut
EFC voltage	Vc		0	VREF / 2	VREF	V	
EFC Slope	$\Delta f/\Delta V_C$			positive			
EFC Input Impedance			100			kΩ	
Frequency Stability							
Versus Operating Temperature Range		Steady state	Ref	er to ordering	options		
Initial Tolerance @+25°C		V _c @ VREF / 2			±300	ppb	
Versus supply voltage variation (pushing)	Vs	±5%			±10	ppb	
Versus load change (pulling)	R_L	±5%			±5	ppb	
Long Term Aging Per Day		AT-Cut			±10	nnh	Note 2
(after 30 days operation)		SC-Cut			±2	ppb	Note 2
Long Term Aging 1 st Year		AT-Cut		±300	±500	nnh	Note 2
(after 30 days operation)		SC-Cut		±50	±200	ppb	Note 2
Phase noise	Please consult DEI for details						
Environmental Conditions							
Operating temperature range	Refer to o	rdering options					
Storage temperature range	-55°C to 125°C						
Enclosure (see drawing) L x W x H	27.8 x 27.8 x 15.5 mm max. Note 6						
Weight	20 g max						

- 1. Terminology and test conditions are according to IEC60679-1 and MIL-PRF-55310, unless otherwise stated
- 2. Lower aging available on request
- 3. Other output level available on request
- 4. Other reference voltages available on request
- 5. May be higher for wide operating temperature range
- 6. Lower height H available on request

Absolute Maximum Ratings

Parameter	Sym	Min.	Max.	Unit	Condition
Supply Voltage	Vs	-0.5	V _s + 10%	V	V _s to GND
Control Voltage	Vc	-0.5	15	V	V _C to GND

Handling and Testing

Parameter	Procedure		Condition
Electrostatic Discharge (ESD) THD Devices	IEC60749-26	НВМ	2000V
SMD Devices	IEC60749-27	MM	200V
Washable	Yes		
RoHS-Compliant	Yes		



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Ordering Options: Frequency vs. Operating Temperature

Frequency Stability			erature wer)	Temperature (Upper)		
Code	Stability [ppb]	Code	T (°C)	Code	T (°C)	
1	±5	1	0	1	+50	
2	±10	2	-10	2	+60	
3	±25	3	-20	3	+70	
4	±50	4	-30	4	+75	
5	±100	5	-40	5	+80	
6	±200	6	-55	6	+85	

Ordering Codes

Model	Frequency in MHz (up to 3 digits)	Frequency Stability	Minimum Operating Temperature	Maximum Operating Temperature
OCXO2828LULN2	xxx.yyy	t	w	Z

Example: OCXO2828LULN2-100.000-3-5-6 has the following specifications

Frequency = 100.000 MHzStability = $\pm 25 \text{ ppb}$ Operating Temperature = -40°C to $+85^{\circ}\text{C}$

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 ₁ Method 2 Test Td ₂ Method 2
Shock	2-27	5.6.8	213B	516.4	3.6.40	Test Ea, 3 x per axes 100g, 6 ms 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, 10 Hz – 55 Hz 0,75mm; 55 Hz – 2 kHz, 10g
Vibration, 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

^{***}Note: Not all combinations of stability and operating temperature limits are available. Please consult DEI for further details.