MtronPTI
...when timing matters

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Wesite: mtronpti.com NYSE MKT: LGL

MtronPTI XO8085 Integrated Frequency References

Combining over 25 years of discrete RF design expertise and high precision OCXO manufacturing experience, MtronPTI's XO8085 series provides designers a *High Stability, Ultra Low Phase Noise* and *Low G-Sensitivity* PLL OCXO platform with an option of *Multi Output Frequency References*. With RF systems getting smaller in size an integrated assembly like XO8085 with multi output frequency references, enable system designers to employ *one small package* with multi frequency references versus multiple OCXOs saving SWaP, cost and improving reliability.

For a 100MHz OCXO phase locked to a lower frequency references like a 10MHz OCXO, the close-in phase noise of the output is determined by the low frequency reference and the phase noise of offset frequencies greater than the PLL bandwidth is determined by the locked RF oscillator (100MHz OCXO). The XO8085 series provides a noise floor approaching -180dBc/Hz and close-in performance of -130dBc/Hz or better at 100Hz offset

Features: SWaP, Multi-Output Options, High Stability, Ultra Low Phase Noise, Low g-sensitivity

Applications: Test and Measurements, Radar Systems, Satcom, Avionics

General & Electrical Requirements:

A]. 10MHz Reference Input and 100MHz Output

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Nominal Frequency (RF Output)	F_O		100.0000		MHz	
Frequency Stabilities						
vs. Temperature[1]	$\Delta F_T/F$	-100		+100	ppb	Over the Operating Temperature Range
vs. Supply voltage[1] variation		-30		+30	ppb	5% change in supply voltage
Daily Aging[1]		-5		+5	ppb	After 30-days Power On
1 Year Aging[1]		-0.5		+0.5	ppm	
20-Years Aging[1]		-1.0		+1.0	ppm	

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RF External Reference (10MHz)						
RF Input Level		-3	0	+3	dBm	Customer to choose the signal Level between 0+/- 3dB
RF Input Lock Range				+/- 1	ppm	10MHz External would need to be within +/- 1ppm from Nominal 10MHz to lock
RF Output(100MHz)						
Output Type		Sinewave				
Output Level		+13			dBm	
Output Load			50		Ω	±10%
Additional Parameters						
Phase Noise (Under Static Conditions)				-100	dBc/Hz	10Hz Offset
				-130	dBc/Hz	100Hz Offset
				-158	dBc/Hz	1kHz Offset
				-175	dBc/Hz	10kHz Offset
				-180	dBc/Hz	100kHz Offset
				-180	dBc/Hz	1MHz Offset
				-180	dBc/Hz	10MHz Offset
Harmonics				-30	dB	
Sub-Harmonics				-50	dB	
Spurious				-80	dB	
g-sensitivity			1		ppb/g	Worst case axis
Warm-up Time				5	minutes	Test Condition(@ 25°C): Oscillator turned ON after 24hrs OFF. Frequency change 5 minutes after turn ON will be within ±0.05ppm of Long-term stable nominal frequency.
Temperature, Supply Voltage & Power Consumption						
Operating Temperature	OTR	-40		+70	°C	Full Specification Compliance
Storage Temperature	STR	-55		+100	°	
Operating Voltage	V_{CC}	+4.75	+5.0	+5.25	V_D	
Power Consumption			1.5		Watts	Steady state @ 25°C, In Still Air
				4.0	Watts	@ Warm-up

[1] ***Typical frequency stability parameters, performance will be representative of the 10MHz ref. that customer will feed on pin-15***

Environmental Conditions:

Seal	Hermetic
RoHS	Full RoHS Compliance

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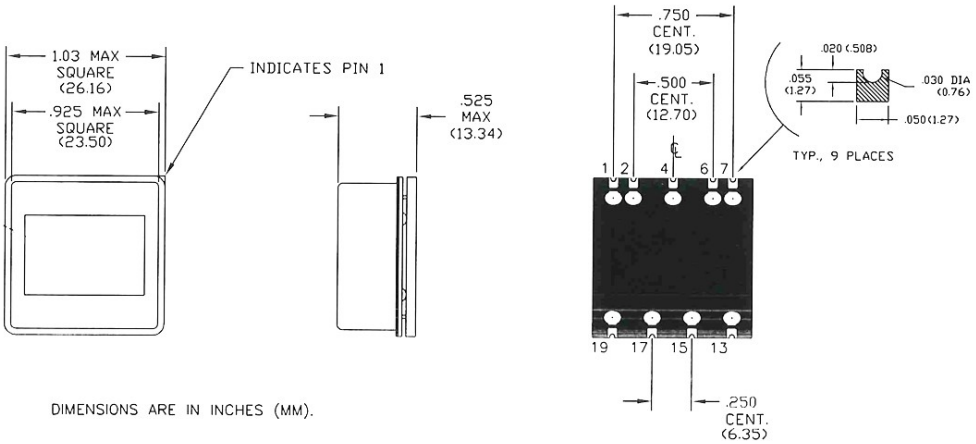

PIN ASSIGNMENTS:

1.	RF OUTPUT
2.	DO NOT CONNECT
4.	CASE GROUND
6.	N/C OR GROUND
7.	N/C OR GROUND
13.	N/C
15.	RF INPUT
17.	FAULT INDICATOR
19.	+5V

RF Input: 10MHz (External reference)
Fault Indicator: 3.3 in Lock; 0V Out of Lock

Note: Thru-hole option available.

B]. 10MHz Reference Input and Four 100MHz Outputs

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Nominal Frequency	F_O		100.0000		MHz	
Frequency Stabilities						
vs. Temperature	$\Delta F_T/F$	-100		+100	ppb	Over the Operating Temperature Range
vs. Supply voltage variation		-30		+30	ppb	5% change in supply voltage
Daily Aging		-5		+5	ppb	After 30-days Power On
1 Year Aging		-0.5		+0.5	ppm	
20-Years Aging		-2.0		+2.0	ppm	
RF External Reference (10MHz)						
RF Input Level		-3	0	+3	dBm	Customer to choose the signal Level between 0+/-3dB
RF Outputs(100MHz)						
Output Type (Four Ports)			Sinewave			On Port 1 , Port2 , Port 3 and Port 4 simultaneously
Output Level			7		dBm	On Port 1 , Port2 , Port 3 and Port 4 simultaneously
Output Load			50		Ω	±10%

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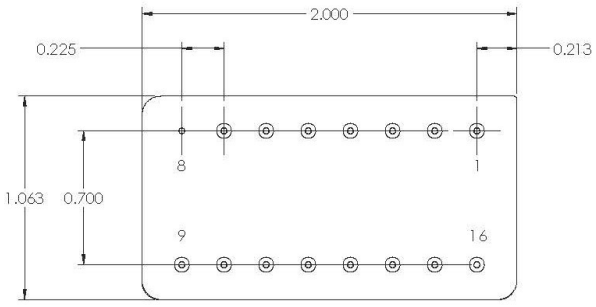
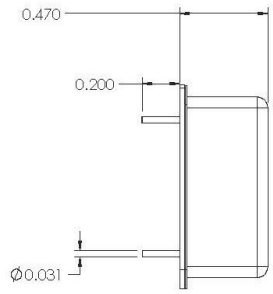
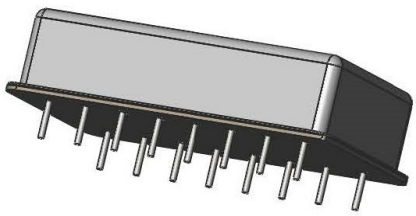
Port Isolation		30			dB	
Output VSWR				1.5:1		
Additional Parameters						
Phase Noise (Under Static Conditions)				-105	dBc/Hz	10Hz Offset
				-130	dBc/Hz	100Hz Offset
				-158	dBc/Hz	1kHz Offset
				-167	dBc/Hz	10kHz Offset
				-170	dBc/Hz	100kHz Offset
				-170	dBc/Hz	1MHz Offset
G-sensitivity				0.3	ppb/g	By design
Harmonics				-25	dB	
Spurious				-75	dB	
Warm-up Time				5	minutes	To within ±0.1ppm of the frequency after 1-hour of operation @ 25°C
Temperature, Supply Voltage & Power Consumption						
Operating Temperature	OTR	-40		+80	°C	Full Specification Compliance
Storage Temperature	STR	-55		+100	°C	
Operating Voltage	VCC	+4.75	+5.0	+5.25	V	
Power Consumption			1.5		Watts	Steady state @ 25°C, In Still Air
				4.0	Watts	@ Warm-up







PIN	Connection
1,5,12,16	NC
2	PORT 1
3,8,10,11,14	GROUND
4	PORT 3
6	FAULT INDICATOR
7	REFERNCE INPUT
9	+5V
10	PLL TEST POINT
13	PORT 4
15	PORT 2

Datasheet Revision Table:

Date	Rev.	Orig.	Details of Revision
06-08-18	A	DPD	Original Draft