Coaxial

Voltage Controlled Oscillator

ZX95-3970+

5V Tuning for PLL IC's 3790 to 3970 MHz

Features

- low phase noise
- low pushing & pulling
- protected by US patent 6,790,049

Applications

- r & d
- lab
- instrumentation
- wireless communication
- point-to-point radio
- satellite systems

CASE STYLE: GB956

Connectors	Model
SMA	ZX95-3970-S+

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications

MODEL NO.	FREQ. (MHz)		POWER OUTPUT (dBm)	PHASE NOISE dBc/Hz SSB at offset frequencies,KHz Typ.				TUNING VOLTAGE RANGE (V)		SENSI-TIVITY (MHz/V)	PORT CAP (pF)	3 dB MODULATION BANDWIDTH (MHz)	NON HARMONIC SPURIOUS (dBc)	HARMONICS (dBc)		PULLING pk-pk @12 dBr (MHz)	PUSHING (MHz/V)	DC OPERATING POWER	
																		Vcc (volts)	Current (mA)
	Min.	Max.	Typ.	1	10	100	1000	Min.	Max.	Typ.	Typ.	Typ.	Typ.	Typ.	Max.	Typ.	Typ.		Max.
ZX95-3970+	3790	3970	+3.5	-70	-98	-122	-143	0.5	5	51-85	10	180	-90	-23	-15	3	2.5	5	35

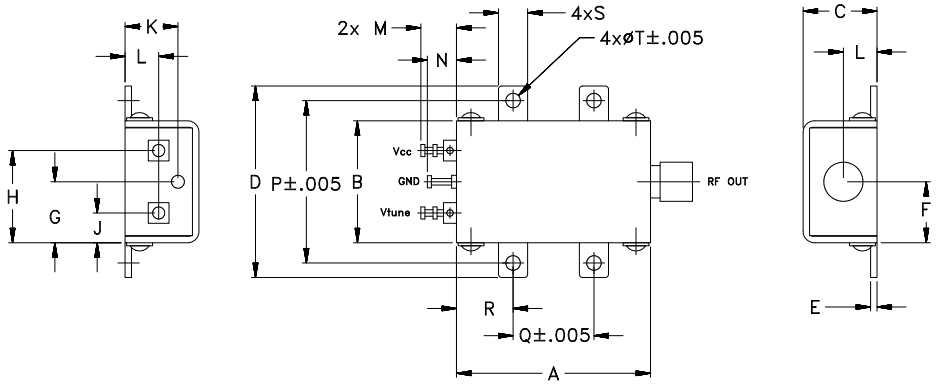
Maximum Ratings

Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	6V
Absolute Max. Tuning Voltage (Vtune)	6V
All specifications	50 ohm system

Permanent damage may occur if any of these limits are exceeded.

NOTE: When soldering the DC connections, caution must be used to avoid overheating the DC terminals. See Application Note AN-40-10 .

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	wt.
1.20	**.75**	**.46**	**1.18**	**.04**	**.38**	**.38**	**.57**	**.18**	**.33**	**.21**	**.22**	**.18**	**1.00**	**.50**	**.35**	**.18**	**.106**	grams
30.48	19.05	11.68	29.97	1.02	9.65	9.65	14.48	4.57	8.38	5.33	5.59	4.57	25.40	12.70	8.89	4.57	2.69	35.0

Notes

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

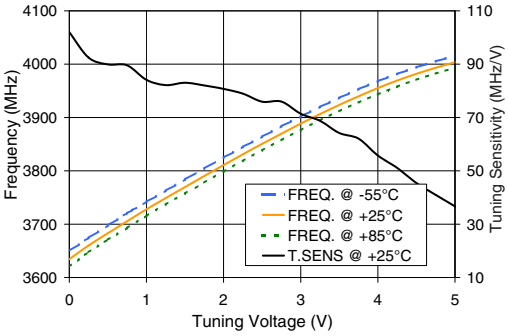
Performance Data & Curves*

ZX95-3970+

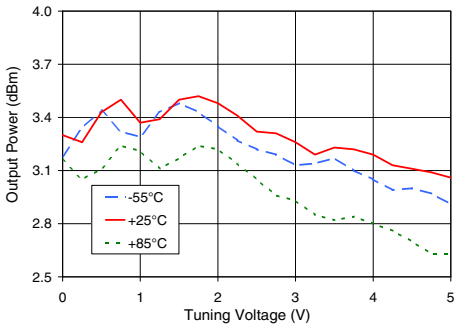
V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			Icc (mA)	HARMONICS (dBc)			FREQ. PUSH (MHz/V)	FREQ. PULL (MHz)	PHASE NOISE (dBc/Hz) at offsets				FREQ OFFSET (KHz)	PHASE NOISE at 3880 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	102.01	3650.0	3634.4	3620.6	3.18	3.30	3.16	26.22	-28.9	-23.1	-37.7	5.33	1.38	-69.77	-99.7	-123.3	-143.3	1.0	-70.21
0.50	89.92	3697.8	3683.1	3670.9	3.44	3.43	3.11	26.22	-27.8	-24.2	-40.0	3.38	3.28	-70.62	-100.7	-123.9	-144.4	2.6	-83.03
0.75	89.56	3720.6	3705.5	3693.0	3.32	3.50	3.24	26.17	-28.4	-22.2	-43.1	3.15	2.88	-72.49	-100.4	-123.3	-143.3	5.2	-90.84
1.00	84.14	3741.9	3727.9	3715.4	3.29	3.37	3.21	26.17	-27.8	-22.5	-44.8	2.79	0.17	-70.94	-99.9	-123.4	-144.1	10.0	-98.01
1.25	82.15	3762.7	3749.0	3736.9	3.43	3.39	3.11	26.17	-28.4	-23.4	-45.4	2.54	2.70	-71.09	-99.8	-123.7	-144.3	16.4	-103.70
1.50	83.04	3783.8	3769.5	3757.4	3.48	3.50	3.17	26.14	-28.1	-21.3	-46.9	2.42	3.77	-72.76	-99.3	-123.3	-143.8	10.0	-98.01
1.75	82.03	3804.4	3790.3	3777.9	3.43	3.52	3.24	26.10	-29.0	-21.8	-48.6	2.32	2.70	-70.65	-99.0	-122.8	-143.3	52.4	-115.85
2.00	80.73	3824.8	3810.8	3798.4	3.35	3.48	3.22	26.08	-28.3	-23.4	-47.8	2.17	0.44	-70.61	-98.9	-122.7	-143.1	100.0	-122.04
2.25	78.98	3844.8	3830.9	3818.5	3.27	3.41	3.14	26.07	-29.0	-21.9	-48.8	2.10	2.74	-70.99	-98.8	-122.7	-143.7	210.9	-129.60
2.50	75.92	3864.2	3850.7	3838.3	3.22	3.32	3.05	26.04	-28.3	-21.1	-51.7	2.08	3.80	-69.30	-98.6	-122.5	-143.5	341.4	-133.27
2.75	75.98	3883.5	3869.7	3857.6	3.19	3.31	2.96	26.02	-28.9	-24.0	-50.8	2.12	2.84	-70.46	-98.3	-122.7	-143.1	100.0	-122.04
3.00	71.40	3902.2	3888.7	3876.2	3.13	3.26	2.93	26.00	-28.4	-21.8	-50.9	2.14	0.19	-69.75	-98.1	-122.1	-142.8	709.5	-140.02
3.25	68.78	3919.8	3906.5	3894.6	3.14	3.19	2.85	25.98	-29.3	-23.6	-55.4	2.28	3.03	-68.76	-98.0	-122.1	-143.0	1000.0	-142.77
3.50	64.19	3936.9	3923.7	3911.7	3.17	3.23	2.82	25.96	-28.7	-23.5	-51.5	2.28	4.08	-69.35	-98.3	-122.3	-142.9	1148.5	-144.14
3.75	62.06	3953.2	3939.8	3928.1	3.10	3.22	2.84	25.93	-28.1	-22.6	-52.4	2.44	3.54	-70.88	-98.2	-121.9	-142.4	1859.3	-148.10
4.00	55.74	3968.1	3955.3	3943.3	3.05	3.19	2.80	25.92	-29.4	-23.0	-51.2	2.40	1.85	-68.73	-98.3	-121.8	-142.3	2344.6	-149.78
4.25	51.10	3981.7	3969.2	3957.8	2.99	3.13	2.76	25.90	-27.9	-25.2	-53.4	2.41	0.63	-69.54	-98.1	-121.7	-142.2	3795.6	-153.36
4.50	45.44	3994.2	3982.0	3970.7	3.00	3.11	2.70	25.89	-28.1	-22.5	-50.9	2.28	2.77	-70.45	-98.0	-121.6	-142.4	4872.5	-154.85
4.75	40.99	4005.4	3993.3	3982.3	2.97	3.09	2.63	25.88	-29.1	-25.3	-52.3	2.12	3.95	-70.65	-98.4	-121.6	-142.1	9946.9	-154.72
5.00	36.69	4015.7	4003.6	3992.7	2.91	3.06	2.63	25.87	-28.7	-23.0	-50.6	1.96	4.43	-70.43	-97.9	-121.4	-142.2	1000.0	-142.77

*at 25°C unless mentioned otherwise

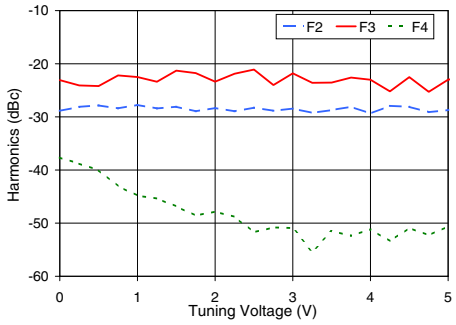
ROS-3970-2PH19+
Frequency and Tuning Sensitivity



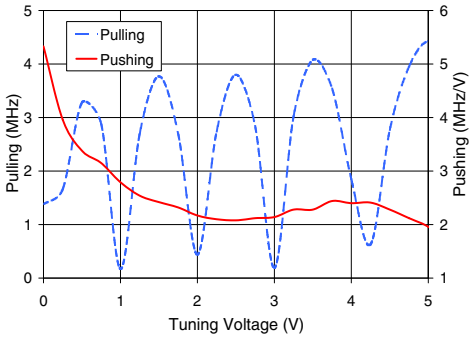
ROS-3970-2PH19+
Power Output



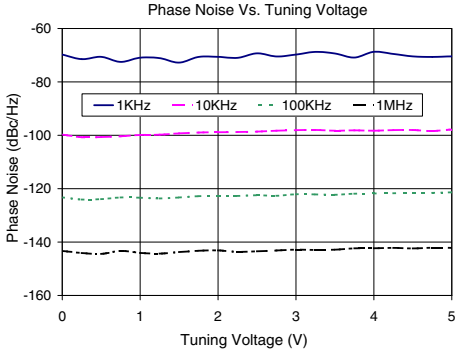
ROS-3970-2PH19+
Harmonics Level



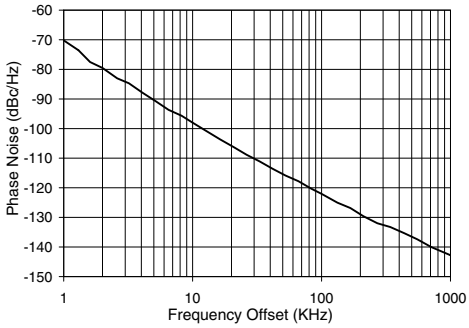
ROS-3970-2PH19+
Frequency Pulling & Pushing (Vcc ± 5%)



ROS-3970-2PH19+
Phase Noise Vs. Tuning Voltage



ROS-3970-2PH19+
Phase Noise



Notes
A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Mini-Circuits®
www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com