

# Voltage Controlled Oscillator

## ZX95-690+

5V Tuning for PLL IC's 655 to 690 MHz

### Features

- Linear tuning characteristics
- Low phase noise
- Low pushing
- Low pulling
- 0.5-5V tuning voltage range
- Protected by US patent 6,790,049



CASE STYLE: GB956

Connectors	Model	Price	Qty.
SMA	ZX95-690-S+	\$44.95 ea.	(1-9)

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

*The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.*

### Applications

- R & D
- LAB
- Instrumentation
- PLL circuitry
- Wireless microphones

### Electrical Specifications

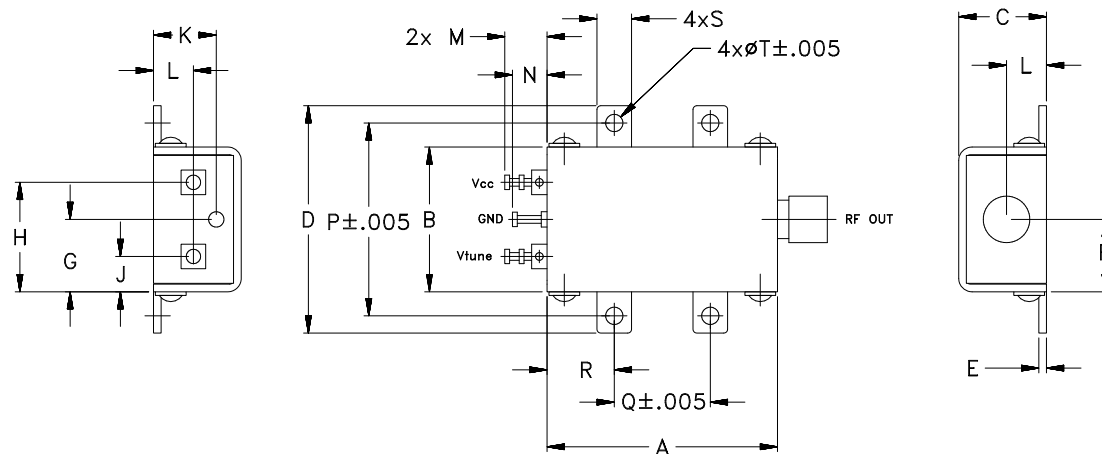
MODEL NO.	FREQ. (MHz)		POWER OUTPUT (dBm)	PHASE NOISE dBc/Hz SSB at offset frequencies, KHz				TUNING					NON HARMONIC SPURIOUS (dBc)	HARMONICS (dBc)		PULLING pk-pk @ 12 dB (MHz)	PUSHING (MHz/V)	DC OPERATING POWER	
	Min.	Max.		Typ.	1	10	100	1000	VOLTAGE RANGE (V)	SENSITIVITY (MHz/V)	PORT CAP (pF)	3 dB MODULATION BANDWIDTH (MHz)		Typ.	Typ.			Typ.	Typ.
ZX95-690+	655	690	-1	-89	-111	-131	-151	0.5	5	12 - 13	80	50	-90	-24	-16	0.4	0.4	5	17

### Maximum Ratings

Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	7V
Absolute Max. Tuning Voltage (Vtune)	7V
All specifications	50 ohm system

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

### 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	.45	.57	.18	.33	.21	.22	.18	1.00	.50	.35	.18	.106	GRAM
30.48	19.05	11.68	29.97	1.02	9.65	11.43	14.48	4.57	8.38	5.33	5.59	4.57	25.40	12.70	8.89	4.57	2.69	35.0



For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

**Notes:** 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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](http://www.minicircuits.com/MCLStore/terms.jsp).

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# Performance Data & Curves\*

# ZX95-690+

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 688 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	13.53	641.3	638.5	635.3	-1.64	-1.03	-0.65	11.53	-24.4	-37.1	-33.3	0.23	0.10	-89.1	-112.1	-131.8	-151.3	1.0	-88.82
0.50	12.01	647.7	645.0	642.0	-1.59	-0.98	-0.60	11.55	-24.2	-37.3	-33.3	0.28	0.12	-89.3	-110.9	-132.0	-152.1	2.0	-95.97
0.75	11.75	650.8	648.0	645.0	-1.58	-0.96	-0.58	11.56	-24.0	-37.5	-33.1	0.30	0.14	-90.8	-110.8	-131.7	-151.8	3.5	-102.00
1.00	11.66	653.7	650.9	648.0	-1.56	-0.95	-0.57	11.57	-24.0	-37.7	-32.7	0.31	0.16	-90.5	-111.4	-131.9	-152.1	6.0	-107.04
1.25	11.69	656.7	653.9	650.8	-1.55	-0.94	-0.56	11.58	-24.1	-37.9	-32.6	0.32	0.18	-91.3	-111.6	-131.3	-151.4	8.5	-109.16
1.50	11.79	659.6	656.8	653.7	-1.55	-0.93	-0.55	11.59	-24.1	-38.2	-32.6	0.33	0.19	-90.0	-111.4	-131.9	-151.6	10.0	-112.06
1.75	11.94	662.6	659.7	656.6	-1.54	-0.92	-0.55	11.60	-24.2	-38.3	-32.6	0.34	0.21	-91.0	-111.1	-131.5	-151.6	20.8	-117.86
2.00	12.12	665.7	662.7	659.6	-1.55	-0.93	-0.55	11.61	-24.2	-38.6	-32.6	0.34	0.24	-89.5	-110.9	-131.6	-151.5	35.5	-122.55
2.25	12.30	668.7	665.7	662.6	-1.55	-0.93	-0.55	11.62	-24.1	-38.9	-32.7	0.35	0.27	-88.4	-111.5	-131.7	-151.1	60.7	-127.38
2.50	12.47	671.9	668.8	665.6	-1.56	-0.94	-0.56	11.63	-24.0	-39.2	-32.6	0.35	0.30	-90.1	-110.7	-131.3	-151.4	86.7	-130.01
2.75	12.61	675.0	671.9	668.7	-1.57	-0.95	-0.58	11.63	-23.9	-39.5	-32.3	0.35	0.34	-89.6	-111.6	-131.3	-151.2	100.0	-131.37
3.00	12.71	678.2	675.1	671.8	-1.59	-0.98	-0.60	11.64	-23.8	-39.9	-32.2	0.34	0.36	-89.0	-111.5	-131.4	-150.5	148.1	-135.05
3.25	12.76	681.5	678.3	674.9	-1.61	-1.00	-0.63	11.65	-23.8	-40.4	-32.2	0.34	0.39	-89.7	-111.3	-131.1	-151.0	177.0	-136.21
3.50	12.75	684.7	681.5	678.1	-1.64	-1.03	-0.66	11.66	-23.7	-40.7	-32.2	0.34	0.41	-88.9	-110.5	-131.2	-150.7	211.6	-137.97
3.75	12.67	687.9	684.6	681.2	-1.68	-1.07	-0.69	11.66	-23.6	-41.0	-32.2	0.33	0.43	-88.5	-111.2	-131.0	-151.1	302.4	-141.22
4.00	12.54	691.1	687.8	684.3	-1.73	-1.11	-0.73	11.67	-23.5	-41.4	-32.1	0.33	0.44	-88.4	-111.0	-131.2	-150.5	361.5	-142.41
4.25	12.36	694.3	690.9	687.4	-1.78	-1.15	-0.77	11.68	-23.3	-41.8	-32.1	0.32	0.45	-88.5	-110.4	-130.8	-150.6	507.5	-145.36
4.50	12.15	697.4	694.0	690.5	-1.83	-1.20	-0.82	11.68	-23.2	-42.4	-32.2	0.32	0.46	-89.8	-110.1	-130.6	-150.8	600.0	-146.95
4.75	11.91	700.5	697.1	693.5	-1.89	-1.25	-0.87	11.69	-23.1	-43.1	-32.2	0.32	0.46	-89.2	-110.9	-130.6	-150.5	851.6	-150.26
5.00	11.65	703.5	700.1	696.5	-1.95	-1.30	-0.93	11.69	-23.0	-43.7	-32.1	0.32	0.45	-89.2	-109.8	-130.4	-150.0	1000.0	-151.61

\*at 25°C unless mentioned otherwise

