Coaxial

Voltage Controlled Oscillator

ZX95-470A+

5V Tuning for PLL IC's 410 to 470 MHz

Features

- Linear tuning characteristics
- Low phase noise
- Low pulling
- Low pushing
- Protected by US patent 6,790,049

Applications

- R&D
- LAB
- Instrumentation
- Wireless communications
- Industrial microwave & RF
- Defense communications & radar

CASE STYLE: GB956

Connectors	Model	Price	Qty.
SMA	ZX95-470A-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.

Electrical Specifications

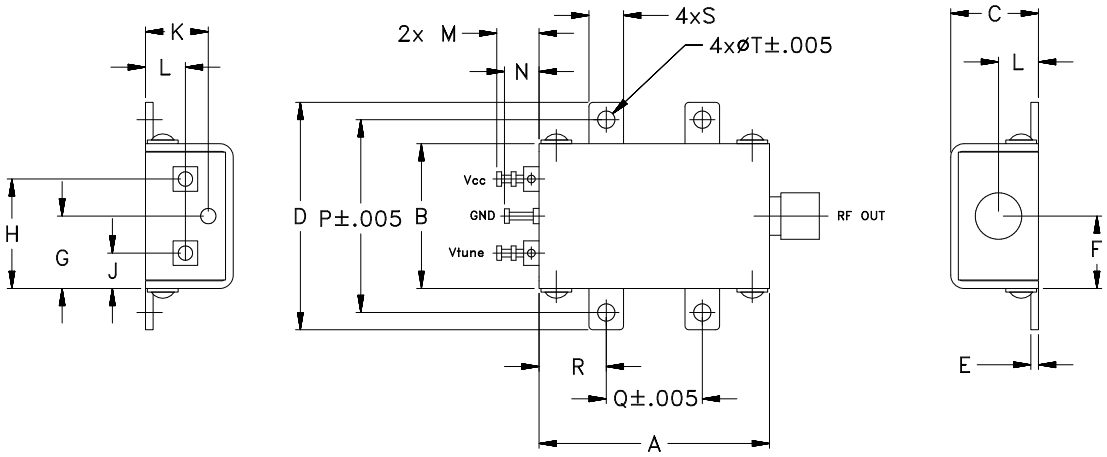
MODEL NO.	FREQ. (MHz)		POWER OUTPUT (dBm)	PHASE NOISE dBc/Hz SSB at offset frequencies,kHz Typ.				TUNING VOLTAGE RANGE (V)		SENSI-TIVITY (MHz/V)	PORT CAP (pF)	3 dB MODULATION BANDWIDTH (MHz)	NON HARMONIC SPURIOUS (dBc)	HARMONICS (dBc)		PULLING pk-pk @12 dBr (MHz)	PUSHING (MHz/V)	DC OPERATING POWER Vcc (volts)	DC OPERATING POWER Current (mA)
	Min.	Max.	Typ.	1	10	100	1000	Min.	Max.	Typ.	Typ.	Typ.	Typ.	Typ.	Max.	Typ.	Typ.		Max.
ZX95-470A+	410	470	+6.3	-85	-114	-135	-155	0.5	5	25 - 30	63	30	-90	-26	-15	0.4	1	5	35

Maximum Ratings

Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	6.5V
Absolute Max. Tuning Voltage (Vtune)	7.0V
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

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.

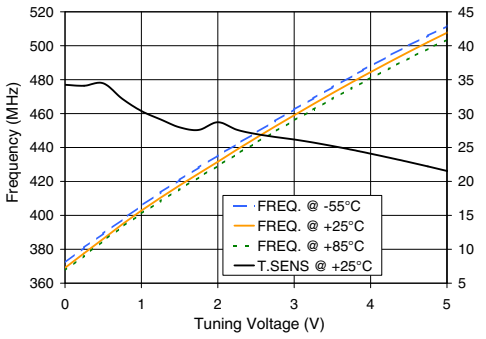
Performance Data & Curves*

ZX95-470A+

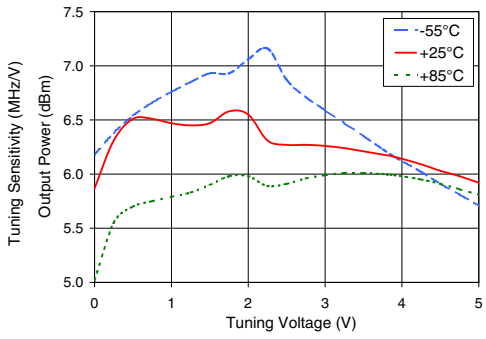
V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			Icc (mA)	HARMONICS (dBc)			FREQ. PUSH (MHz/V)	FREQ. PULL (MHz)	PHASE NOISE (dBc/Hz) at offsets				FREQ OFFSET (KHz)	PHASE NOISE at 440 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	34.24	372.1	369.0	367.4	6.18	5.87	5.02	24.29	-21.2	-41.1	-37.1	0.55	0.51	-80.8	-107.5	-127.9	-148.0	1.0	-85.43
0.50	34.46	389.3	386.1	384.9	6.54	6.51	5.70	24.51	-21.4	-42.9	-32.8	1.91	0.75	-81.5	-110.9	-133.0	-152.5	2.0	-95.18
0.75	32.17	397.5	394.7	393.3	6.66	6.51	5.75	24.57	-22.0	-43.5	-32.7	1.93	0.78	-81.7	-111.5	-133.9	-153.6	3.5	-102.95
1.00	30.38	405.7	402.8	401.0	6.76	6.47	5.79	24.63	-22.6	-43.2	-32.7	1.55	0.63	-82.9	-111.8	-134.6	-153.8	6.0	-108.72
1.25	29.14	413.5	410.4	408.4	6.85	6.45	5.83	24.68	-23.4	-41.7	-32.6	1.32	0.50	-83.7	-113.3	-135.1	-154.7	8.5	-112.63
1.50	27.97	420.9	417.7	415.5	6.93	6.47	5.90	24.72	-24.0	-40.4	-32.7	1.19	0.40	-85.6	-114.2	-136.0	-155.1	10.0	-114.37
1.75	27.59	428.2	424.7	422.4	6.93	6.58	5.98	24.73	-24.8	-39.9	-32.9	1.09	0.30	-86.1	-115.4	-136.6	-156.2	20.8	-121.98
2.00	28.73	435.3	431.6	429.2	7.06	6.55	5.98	24.75	-24.7	-41.6	-32.2	1.03	0.20	-84.7	-113.7	-135.1	-155.2	35.5	-126.83
2.25	27.61	442.0	438.7	436.1	7.16	6.31	5.89	24.87	-25.3	-38.3	-32.8	0.92	0.08	-83.4	-114.1	-135.7	-155.5	60.7	-130.70
2.50	26.99	448.8	445.6	442.8	6.87	6.27	5.91	24.93	-26.5	-36.6	-33.6	0.92	0.07	-85.3	-114.3	-136.1	-156.0	86.7	-134.53
2.75	26.55	455.6	452.4	449.4	6.71	6.27	5.96	24.98	-27.4	-35.5	-34.4	0.96	0.16	-84.1	-114.0	-136.4	-155.2	100.0	-135.64
3.00	26.18	462.4	459.0	456.0	6.59	6.26	5.99	25.03	-27.9	-34.7	-34.7	1.01	0.25	-82.8	-114.3	-135.8	-155.5	148.1	-139.17
3.25	25.73	469.0	465.6	462.4	6.47	6.24	6.01	25.08	-28.7	-34.1	-35.6	1.07	0.32	-84.1	-113.8	-135.5	-154.9	177.0	-140.74
3.50	25.22	475.6	472.0	468.7	6.35	6.21	6.01	25.13	-29.3	-33.6	-36.2	1.13	0.39	-84.9	-113.5	-134.9	-154.5	211.6	-142.21
3.75	24.67	481.9	478.3	474.9	6.23	6.18	6.00	25.18	-29.7	-32.7	-36.8	1.20	0.44	-86.7	-113.4	-134.5	-154.3	302.4	-144.89
3.90	24.32	485.7	482.0	478.5	6.16	6.16	5.99	25.21	-30.1	-32.6	-37.0	1.24	0.46	-84.9	-113.0	-134.0	-153.7	361.5	-146.73
4.25	23.49	494.2	490.5	486.8	6.02	6.09	5.95	25.28	-30.6	-32.2	-37.6	1.33	0.49	-85.3	-112.5	-133.4	-153.0	507.5	-149.63
4.50	22.86	500.1	496.4	492.6	5.91	6.03	5.91	25.33	-30.8	-32.0	-38.1	1.38	0.49	-87.2	-112.1	-132.5	-152.8	606.7	-151.28
4.75	22.21	505.9	502.1	498.2	5.81	5.98	5.86	25.39	-31.1	-31.4	-38.6	1.43	0.47	-82.5	-110.8	-132.1	-152.2	851.6	-153.90
5.00	21.54	511.5	507.6	503.6	5.71	5.92	5.81	25.44	-31.3	-31.2	-38.5	1.47	0.43	-83.8	-110.7	-131.5	-151.4	1000.0	-155.11

*at 25°C unless mentioned otherwise

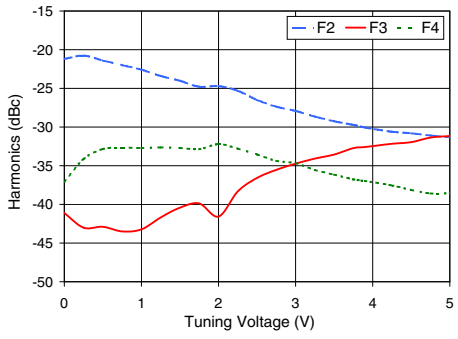
ZX95-470A+
Frequency and Tuning Sensitivity



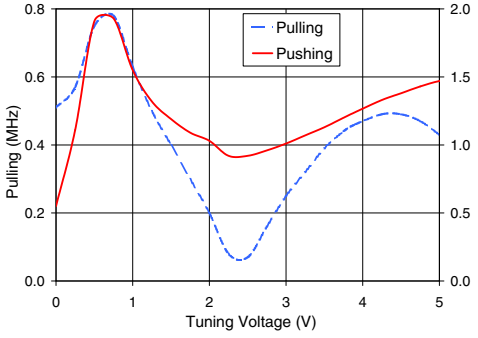
ZX95-470A+
Power Output



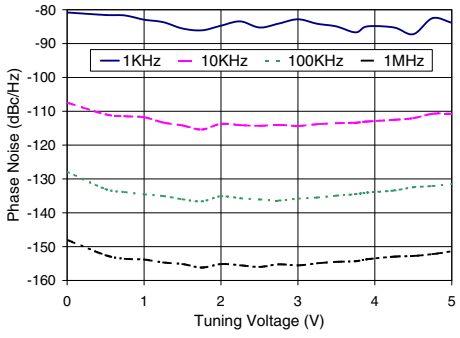
ZX95-470A+
Harmonics Level



ZX95-470A+
Frequency Pulling & Pushing (Vcc ± 5%)



ZX95-470A+
Phase Noise Vs. Tuning Voltage



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Phase Noise