

Coaxial

# Voltage Controlled Oscillator

## ZX95-4415+

Linear Tuning 4214 to 4415 MHz

### Features

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

### Applications

- R&D
- LAB
- Instrumentation
- Wireless communications
- WiMAX



CASE STYLE: GB956

Connectors	Model	Price	Qty.
SMA	ZX95-4415-S+	\$40.95 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

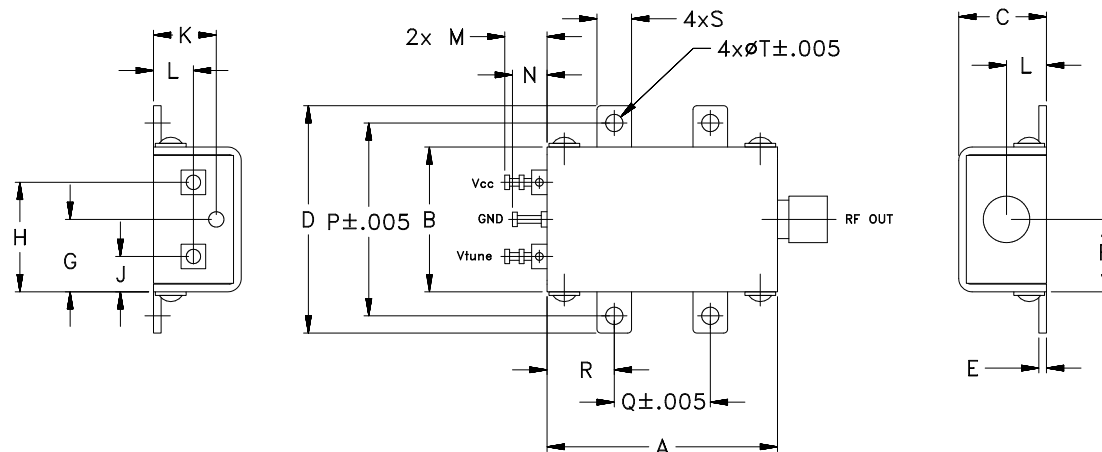
MODEL NO.	FREQ. (MHz)		POWER OUTPUT (dBm)	PHASE NOISE dBc/Hz SSB at offset frequencies, kHz				TUNING				NON HARMONIC SPURIOUS (dBc)	HARMONICS (dBc)		PULLING pk-pk @ 12 dBr (MHz)	PUSHING (MHz/V)	DC OPERATING POWER		
	Min.	Max.		Typ.	1	10	100	1000	VOLTAGE RANGE (V)	SENSITIVITY (MHz/V)	PORT CAP (pF)		3 dB MODULATION BANDWIDTH (MHz)	Typ.			Max.	Typ.	Max.
ZX95-4415+	4214	4415	+5	-71	-95	-116	-136	1	10	36 - 45	10	150	-90	-27	-15	2	4.5	5	40

### 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)	12V
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

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**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).

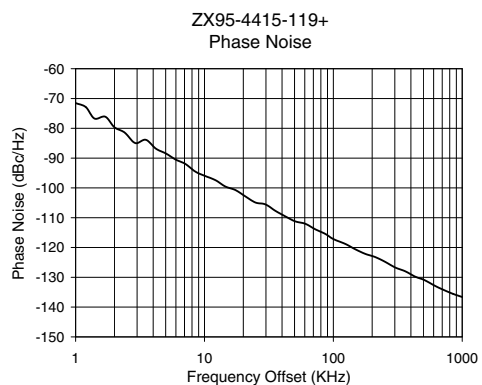
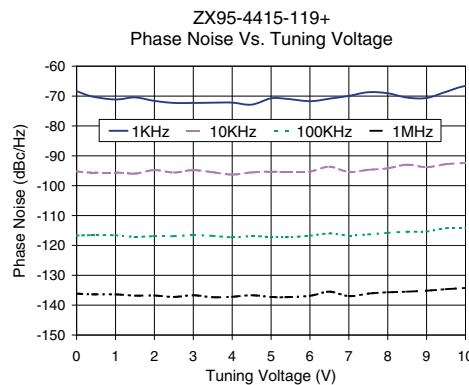
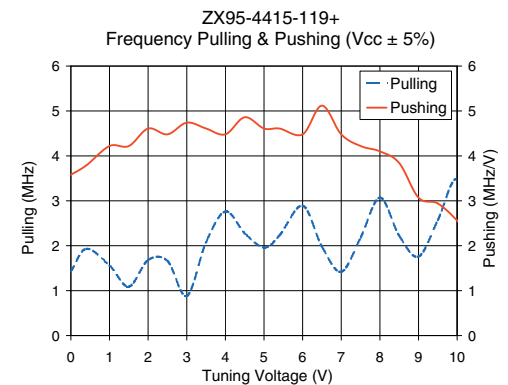
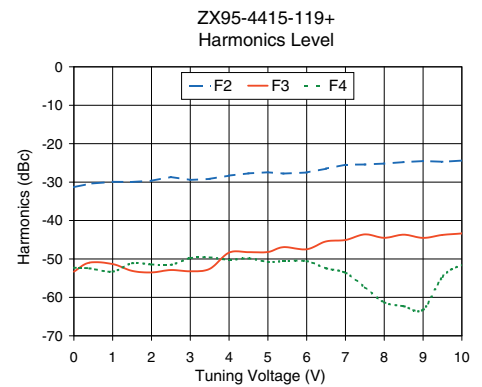
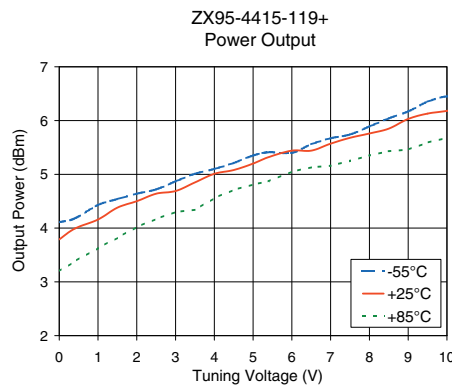
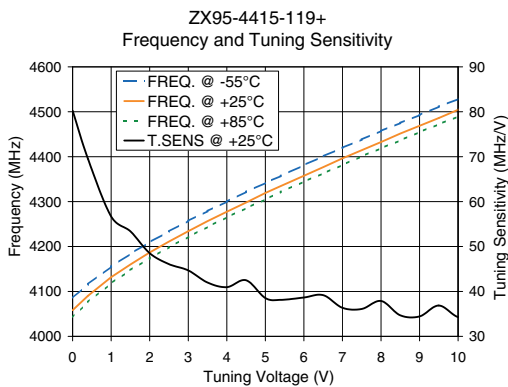
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ZX95-4415+  
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# Performance Data & Curves\*

# ZX95-4415+

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 4315 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	80.26	4085.2	4058.2	4042.4	4.11	3.79	3.20	31.45	-31.3	-53.3	-52.3	3.58	1.43	-68.4	-95.2	-116.7	-136.1	1.0	-71.53
1.00	56.70	4155.4	4131.8	4118.1	4.43	4.16	3.63	31.62	-29.9	-51.3	-53.3	4.22	1.56	-71.2	-95.6	-116.6	-136.4	2.0	-79.65
1.50	53.38	4183.7	4160.1	4147.6	4.54	4.38	3.82	31.70	-30.0	-53.1	-51.1	4.22	1.09	-70.5	-96.0	-117.1	-136.8	3.5	-83.84
2.00	48.51	4209.6	4186.8	4173.6	4.64	4.50	4.02	31.76	-29.7	-53.5	-51.4	4.61	1.68	-71.6	-94.8	-116.9	-136.8	6.0	-90.54
2.50	46.08	4233.7	4211.1	4198.6	4.72	4.64	4.17	31.84	-28.7	-52.9	-51.5	4.48	1.66	-72.3	-95.6	-116.9	-137.2	8.5	-94.54
3.00	44.67	4257.1	4234.1	4221.4	4.87	4.69	4.30	31.89	-29.4	-53.2	-49.8	4.74	0.88	-72.3	-94.8	-116.6	-136.7	10.0	-95.91
3.50	41.98	4278.9	4256.4	4243.6	5.01	4.85	4.34	31.97	-29.2	-52.6	-49.6	4.61	2.08	-72.2	-95.5	-116.8	-137.4	20.8	-102.87
4.00	40.96	4300.0	4277.4	4265.0	5.10	5.01	4.56	32.03	-28.3	-48.4	-50.2	4.48	2.76	-72.2	-96.3	-117.3	-137.2	35.5	-107.69
4.50	42.50	4321.6	4297.9	4285.2	5.21	5.08	4.71	32.06	-27.7	-48.2	-49.8	4.86	2.28	-72.9	-95.6	-116.9	-136.7	60.7	-112.04
5.00	38.53	4341.5	4319.2	4304.9	5.35	5.20	4.81	32.14	-27.4	-48.2	-50.8	4.61	1.96	-70.8	-95.3	-117.1	-137.3	86.7	-115.47
5.40	38.12	4357.2	4334.6	4321.5	5.41	5.32	4.87	32.19	-27.8	-46.9	-50.6	4.61	2.23	-70.9	-95.5	-117.3	-137.3	100.0	-117.16
6.00	38.66	4381.0	4357.4	4344.3	5.40	5.44	5.05	32.24	-27.5	-47.5	-50.6	4.48	2.89	-71.7	-95.3	-116.7	-136.9	148.1	-120.60
6.50	39.17	4400.8	4376.8	4362.8	5.56	5.44	5.13	32.25	-26.5	-45.4	-52.4	5.12	1.98	-70.9	-93.6	-116.0	-135.5	177.0	-122.15
7.00	36.35	4419.6	4396.4	4381.5	5.67	5.57	5.16	32.33	-25.5	-45.1	-53.6	4.48	1.42	-69.9	-95.4	-116.7	-137.0	211.6	-123.22
7.50	36.10	4438.2	4414.5	4400.9	5.74	5.68	5.25	32.38	-25.4	-43.6	-57.4	4.22	2.18	-68.7	-94.7	-116.3	-136.1	302.4	-126.72
8.00	37.89	4457.2	4432.6	4418.6	5.89	5.76	5.35	32.39	-25.2	-44.5	-61.3	4.10	3.07	-69.1	-94.2	-115.8	-135.7	361.5	-127.98
8.50	34.69	4475.0	4451.5	4436.3	6.04	5.85	5.43	32.42	-24.8	-43.7	-62.3	3.84	2.22	-70.5	-93.0	-115.4	-135.5	507.5	-130.90
9.00	34.43	4492.7	4468.9	4454.8	6.17	6.03	5.46	32.44	-24.5	-44.5	-63.2	3.07	1.76	-70.7	-93.8	-115.3	-135.2	606.7	-132.72
9.50	36.86	4511.4	4486.1	4472.1	6.35	6.13	5.59	32.42	-24.7	-43.8	-54.7	2.94	2.57	-68.6	-92.8	-114.2	-134.6	851.6	-135.58
10.00	34.30	4528.3	4504.5	4489.4	6.45	6.18	5.68	32.41	-24.4	-43.4	-51.7	2.56	3.48	-66.6	-92.4	-114.1	-134.2	1000.0	-136.61

\*at 25°C unless mentioned otherwise



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