Voltage Controlled Oscillator ZX95-3605R-S+

50Ω 3300 to 3605 MHz

The Big Deal:

- Wide Band
- Low Phase Noise
- Linear Tuning Sensitivity
- Robust design and construction
- Rigid unibody construction

CASE STYLE: GB956

Product Overview:

The ZX95-3605R-S+ is a Voltage Controlled Oscillator, designed to operate from 3300 to 3605 MHz for WiMAX applications. The ZX95-3605R-S+ is built using Mini-Circuits proven unibody construction (size of 1.20" x .75" x .46") which integrates the RF connectors with the case body to shield against unwanted signals and noise.

Key Features

Feature	Advantages
Linear Tuning Sensitivity Ratio: 1.37:1 typ.	Optimal for loop filter design.
Good Harmonic Suppression, -20 dBc typ.	Provides clear signals suitable for systems requiring high spectral purity.
Low Phase Noise: -97 dBc/Hz typ at 10 kHz offset	Low phase noise improves system EVM (Error Vector Magnitude).
High Power Output, +8.5 dBm typ.	Reduces amplification requirements and improves immunity to external noise sources.
Good Pulling, 3.5 MHz typ.	Improves immunity against changes in output load.
Good Pushing, 2.5 MHz/V typ.	Provides increased immunity against noisy DC lines and improves output frequency stability vs. variations in supply voltage.

Coaxial

Voltage Controlled Oscillator

ZX95-3605R-S+

Linear Tuning 3300 to 3605 MHz

Features

- low phase noise, -97 dBc/Hz typ. @ 10kHz offset
- linear tuning characteristics
- low pulling, 3.5 MHz typ.
- low pushing, 2.5 MHz/V typ.
- protected by US patent 6,790,049

Applications

- r & d
- lab
- instrumentation
- wireless communications
- WiMAX

CASE STYLE: GB956

Connectors	Model
SMA	ZX95-3605R-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				TUNING					NON HARMONIC SPURIOUS (dBc)	HARMONICS (dBc)		PULLING pk-pk @12 dBr (MHz)	PUSHING (MHz/V)	DC OPERATING POWER	
				Typ.				VOLTAGE RANGE (V)		SENSI-TIVITY (MHz/V)	PORT CAP (pF)	3 dB MODULATION BANDWIDTH (MHz)						Vcc (volts)	Current (mA)
	Min.	Max.	Typ.	1	10	100	1000	Min.	Max.	Typ.	Typ.	Typ.	Typ.	Typ.	Max.	Typ.	Typ.		Max.
ZX95-3605R-S+	3300	3605	+8.5	-71	-97	-118	-138	0.5	8	57-78	13	130	-90	-20	-15	3.5	2.5	5	46

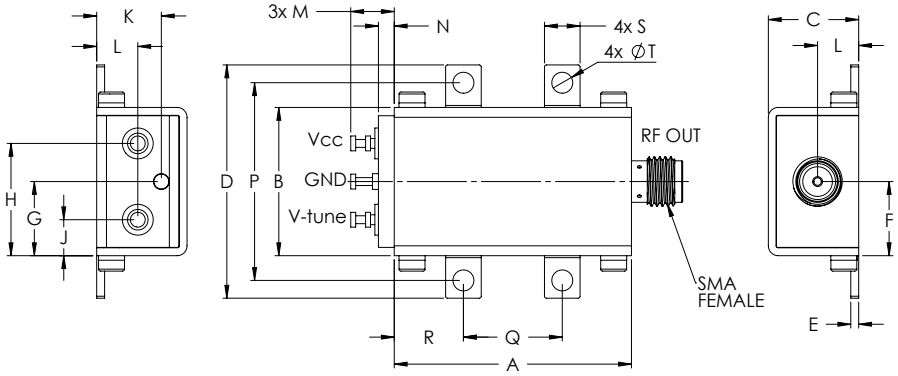
Maximum Ratings

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)	10V
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**	**.08**	**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	2.03	25.40	12.70	8.89	4.57	2.69	35.0

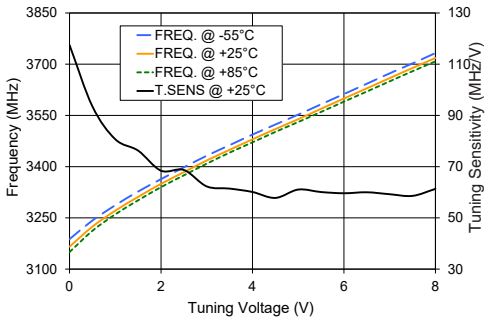
Performance Data & Curves*

ZX95-3605R-S+

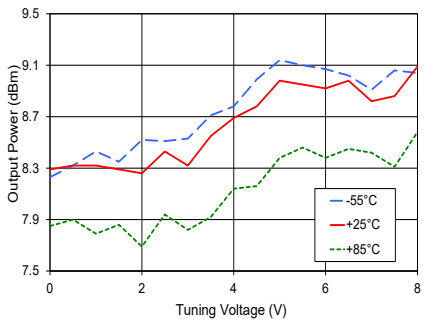
V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			Icc (mA)	HARMONICS (dBc)			FREQ. PUSH (MHz/V)	FREQ. PULL (MHz)	PHASE NOISE (dBc/Hz) at offsets				FREQ OFFSET (kHz)	PHASE NOISE at 3450 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	117.45	3187.6	3165.7	3149.8	8.23	8.29	7.85	38.45	-20.7	-44.7	-33.9	2.18	4.11	-69.02	-95.7	-117.8	-137.9	1.0	-71.06
1.00	80.68	3286.9	3271.2	3260.3	8.43	8.32	7.79	38.68	-20.9	-39.6	-36.1	1.68	1.96	-69.23	-97.4	-119.7	-140.2	2.0	-79.74
1.50	76.24	3327.1	3311.6	3301.3	8.35	8.29	7.86	38.74	-20.5	-38.6	-37.5	2.25	4.07	-70.37	-97.2	-119.7	-140.0	3.5	-86.26
2.00	68.41	3363.4	3349.7	3340.0	8.52	8.26	7.69	38.87	-20.7	-38.5	-38.4	2.27	1.19	-71.79	-97.7	-120.4	-140.9	6.0	-92.33
2.50	68.69	3398.1	3383.9	3374.5	8.51	8.43	7.94	38.95	-20.5	-35.7	-40.7	2.57	3.81	-70.55	-97.2	-119.8	-140.5	8.5	-95.84
3.00	62.27	3431.9	3418.2	3408.7	8.53	8.32	7.82	39.03	-19.9	-34.0	-43.5	2.54	1.45	-71.56	-97.4	-120.3	-140.8	10.0	-97.66
3.50	61.42	3462.9	3449.4	3441.0	8.71	8.55	7.92	39.21	-20.2	-32.5	-44.8	2.31	3.34	-70.07	-97.7	-120.7	-141.2	20.8	-105.51
4.00	60.10	3493.9	3480.1	3471.2	8.78	8.69	8.14	39.29	-20.1	-30.6	-46.7	2.51	2.00	-71.64	-96.8	-120.1	-140.6	35.5	-110.86
4.50	57.78	3523.3	3510.1	3501.7	8.99	8.78	8.16	39.43	-20.5	-30.2	-47.6	2.25	1.97	-72.09	-97.9	-120.8	-141.5	60.7	-116.11
5.00	61.05	3552.4	3539.0	3530.7	9.14	8.98	8.38	39.54	-21.0	-31.2	-47.9	2.13	3.45	-69.95	-97.4	-120.3	-141.2	86.7	-119.51
5.50	60.08	3582.6	3569.5	3560.3	9.10	8.95	8.46	39.58	-21.6	-31.1	-47.9	1.94	0.67	-68.84	-96.9	-119.8	-140.3	100.0	-120.68
6.00	59.61	3612.7	3599.6	3590.4	9.07	8.92	8.38	39.63	-21.8	-30.3	-48.3	1.49	4.35	-70.02	-97.0	-119.8	-140.5	148.1	-124.44
6.50	59.99	3642.8	3629.4	3620.0	9.02	8.98	8.45	39.65	-22.3	-29.3	-48.7	1.37	1.63	-70.02	-96.5	-119.5	-140.1	177.0	-125.74
7.00	59.23	3673.3	3659.4	3649.8	8.91	8.82	8.42	39.68	-23.4	-27.8	-47.9	1.23	3.11	-68.76	-95.6	-119.0	-139.5	211.6	-127.53
7.50	58.58	3702.4	3689.0	3679.5	9.06	8.86	8.31	39.70	-23.4	-27.3	-47.5	0.90	3.26	-68.74	-95.9	-119.3	-139.9	302.4	-130.74
8.00	61.30	3732.7	3718.3	3708.3	9.04	9.09	8.58	39.60	-25.1	-27.2	-46.7	0.98	0.96	-70.43	-95.9	-119.0	-139.7	361.5	-131.75
8.50	58.48	3763.3	3748.9	3738.2	8.85	8.80	8.52	39.55	-25.5	-26.4	-46.2	0.88	3.73	-69.72	-94.9	-118.2	-138.9	507.5	-135.19
9.00	57.65	3792.6	3778.2	3767.9	8.97	8.76	8.28	39.53	-27.0	-26.0	-44.0	0.29	1.21	-70.84	-95.3	-118.2	-139.1	606.7	-135.71
9.50	59.22	3822.7	3807.0	3796.3	8.93	8.92	8.44	39.37	-27.7	-26.3	-42.5	0.22	2.14	-68.56	-94.7	-117.8	-138.8	851.6	-139.81
10.00	59.22	3852.0	3836.6	3825.0	8.73	8.72	8.38	39.25	-28.9	-25.6	-42.5	0.88	3.31	-67.44	-93.7	-117.1	-138.1	1000.0	-141.26

*at 25°C unless mentioned otherwise

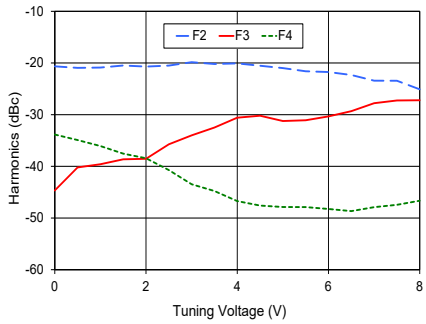
ZX95-3605R-S+
Frequency and Tuning Sensitivity



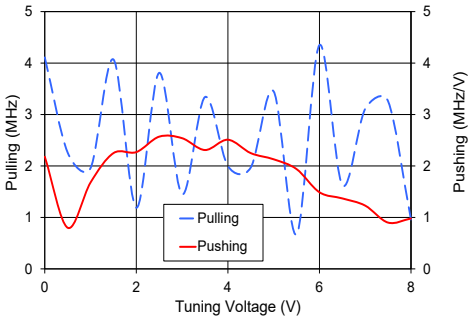
ZX95-3605R-S+
Power Output



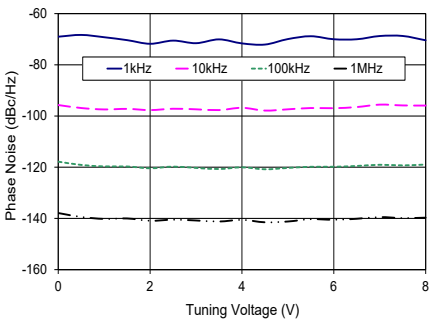
ZX95-3605R-S+
Harmonics Level



ZX95-3605R-S+
Frequency Pulling & Pushing (Vcc ± 5%)



ZX95-3605R-S+
Phase Noise Vs. Tuning Voltage



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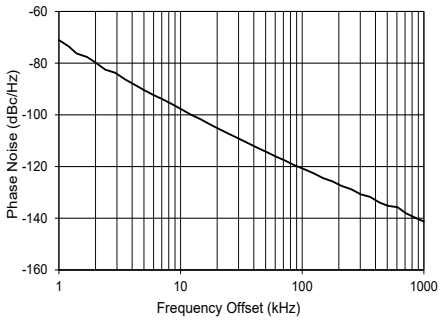
Phase Noise



Additional 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