Voltage Controlled Oscillator ZX95-2045R-S+

50Ω 1900 to 2000 MHz

The Big Deal:

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

Generic photo used for illustration purposes only

CASE STYLE: GB956

Product Overview:

The ZX95-2045R-S+ is a Voltage Controlled Oscillator, designed to operate from 1900 to 2000 MHz for WCDMA applications. The ZX95-2045R-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: 1.4:1 typ.	Optimal for loop filter design.
Good Harmonic Suppression, -25 dBc typ.	Provides clear signals suitable for systems requiring high spectral purity.
Low Phase Noise: -101 dBc/Hz typ at 10 kHz offset	Low phase noise improves system EVM (Error Vector Magnitude).
High Power Output, +6.5 dBm typ.	Reduces amplification requirements and improves immunity to external noise sources.

NON-CATALOG

Coaxial

Voltage Controlled Oscillator

ZX95-2045R-S+

5V Tuning for PLL ICs 1900 to 2000 MHz

Features

- linear tuning characteristics
- low phase noise, -101 dBc/Hz typ. @ 10kHz offset
- low pushing, 1 MHz/V typ.
- protected by US patent 6,790,049

Applications

- r & d
- lab
- wireless communications
- test equipment
- WCDMA

Generic photo used for illustration purposes only

CASE STYLE: GB956

Connectors	Model
SMA	ZX95-2045R-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)	DC OPERATING POWER Current (mA)
	Min.	Max.	Typ.	1	10	100	1000	Min.	Max.	Typ.	Typ.	Typ.	Typ.	Typ.	Max.	Typ.	Typ.		Max.
ZX95-2045R-S+	1900	2000	+6.5	-74	-101	-122	-143	0.5	4.5	42-56	40	60	-90	-25	-12	6	1	5	35

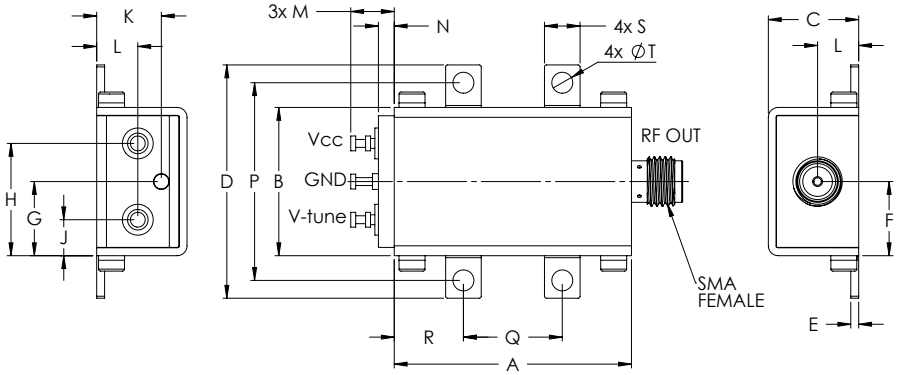
Maximum Ratings

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)	6.5V
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

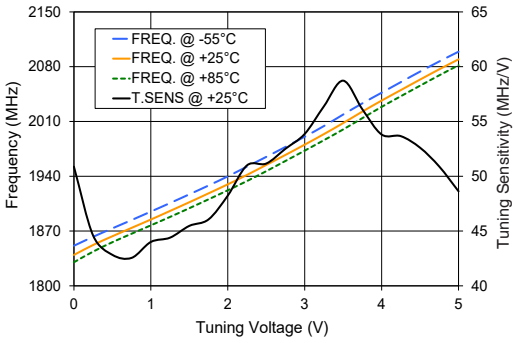
Performance Data & Curves*

ZX95-2045R-S+

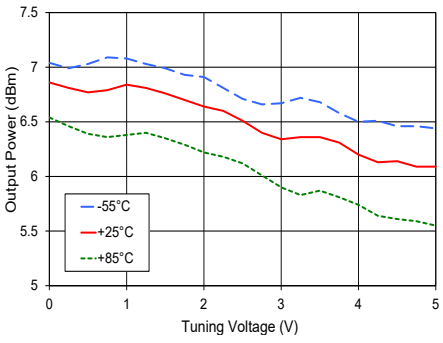
V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			Icc (mA)	HARMONICS (dBc)			FREQ. PUSH (MHz/V)	FREQ. PULL (MHz)	PHASE NOISE (dBc/Hz) at offsets				FREQ OFFSET (kHz)	PHASE NOISE at 1950 MHz (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C		F2	F3	F4			1kHz	10kHz	100kHz	1MHz		
0.00	50.87	1851.2	1839.5	1830.2	7.04	6.86	6.54	26.34	-23.8	-36.3	-35.0	1.98	8.20	-73.28	-99.5	-121.5	-141.8	1.0	-74.64
0.25	44.58	1862.6	1852.2	1843.8	6.99	6.81	6.46	26.34	-23.3	-34.8	-36.2	1.75	7.55	-73.25	-99.8	-122.0	-142.2	2.0	-83.56
0.50	42.82	1873.4	1863.4	1855.8	7.03	6.77	6.39	26.31	-25.4	-33.8	-36.5	1.51	5.02	-74.72	-100.6	-122.4	-142.9	3.5	-90.48
0.75	42.55	1884.0	1874.1	1866.6	7.09	6.79	6.36	26.29	-27.0	-32.1	-38.1	1.31	4.23	-73.25	-101.0	-122.9	-143.0	6.0	-96.41
1.00	44.00	1894.9	1884.7	1877.3	7.08	6.84	6.38	26.27	-26.4	-31.5	-37.5	1.16	5.58	-74.88	-101.0	-122.7	-143.1	8.5	-99.92
1.25	44.39	1905.8	1895.7	1888.1	7.03	6.81	6.40	26.26	-24.7	-31.2	-37.6	1.09	7.07	-74.51	-101.1	-122.5	-142.9	10.0	-101.32
1.50	45.47	1916.9	1906.8	1899.2	6.99	6.76	6.35	26.26	-24.5	-30.6	-38.1	1.00	6.88	-74.13	-100.6	-122.8	-143.0	20.8	-109.23
1.75	46.06	1928.2	1918.2	1910.5	6.93	6.70	6.29	26.27	-24.0	-30.7	-38.9	0.88	7.20	-76.23	-101.4	-123.1	-143.6	35.5	-114.04
2.00	48.23	1939.8	1929.7	1922.1	6.91	6.64	6.22	26.26	-24.5	-29.7	-40.7	0.76	6.15	-76.34	-101.3	-123.3	-143.5	60.7	-118.91
2.25	50.99	1952.3	1941.7	1933.9	6.81	6.60	6.18	26.25	-26.5	-29.5	-42.3	0.68	5.34	-74.49	-101.1	-123.0	-143.4	86.7	-122.05
2.50	51.16	1964.7	1954.5	1946.5	6.71	6.51	6.12	26.25	-26.1	-28.2	-42.3	0.65	4.25	-74.86	-101.8	-123.4	-143.8	100.0	-123.24
2.75	52.51	1977.5	1967.3	1959.6	6.66	6.40	6.01	26.23	-25.3	-28.6	-41.1	0.62	5.67	-75.80	-102.4	-123.6	-144.1	148.1	-126.85
3.00	53.86	1990.5	1980.4	1972.7	6.67	6.34	5.90	26.22	-23.8	-28.5	-42.5	0.57	6.83	-76.21	-102.3	-123.7	-144.4	177.0	-128.31
3.25	56.39	2004.2	1993.9	1986.1	6.72	6.36	5.83	26.19	-22.8	-28.3	-42.1	0.56	6.93	-76.29	-101.8	-123.7	-144.3	211.6	-129.88
3.50	58.72	2018.9	2008.0	1999.8	6.68	6.36	5.87	26.17	-24.2	-28.5	-43.9	0.65	4.48	-76.04	-101.8	-123.3	-143.6	361.5	-134.50
3.75	56.10	2033.2	2022.6	2014.3	6.58	6.31	5.81	26.19	-25.2	-27.4	-43.0	0.84	3.85	-74.61	-101.5	-123.3	-143.9	507.5	-137.53
4.00	53.81	2046.8	2036.7	2028.7	6.50	6.20	5.74	26.20	-24.7	-26.7	-42.9	0.96	6.28	-75.41	-102.2	-123.8	-144.3	606.7	-139.31
4.25	53.66	2060.3	2050.1	2042.3	6.51	6.13	5.64	26.19	-23.4	-27.4	-40.6	0.97	6.49	-75.91	-102.0	-123.8	-144.2	851.6	-142.13
4.50	52.60	2073.8	2063.5	2055.7	6.46	6.14	5.61	26.18	-23.4	-26.4	-40.2	1.01	5.71	-75.46	-101.7	-123.4	-144.4	1000.0	-143.54

*at 25°C unless mentioned otherwise

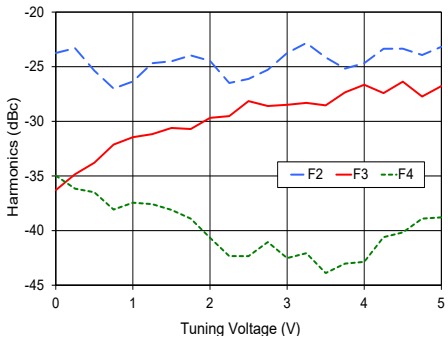
ZX95-2045R-S+
Frequency and Tuning Sensitivity



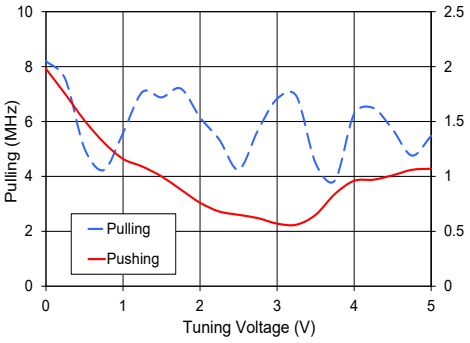
ZX95-2045R-S+
Power Output



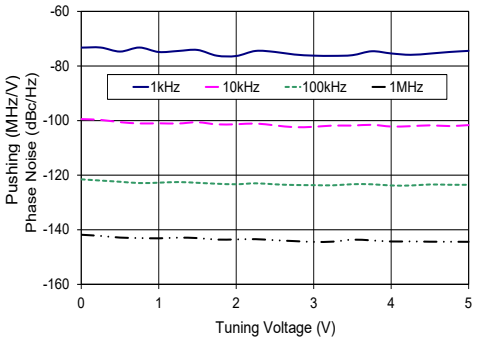
ZX95-2045R-S+
Harmonics Level



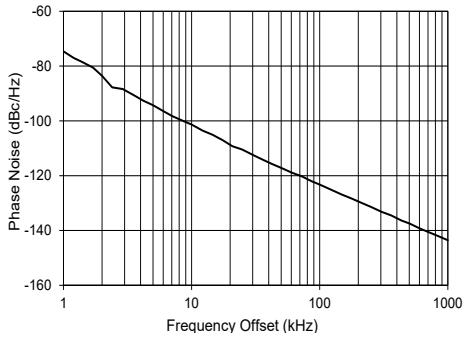
ZX95-2045R-S+
Frequency Pulling & Pushing (Vcc ± 5%)



ZX95-2045R-S+
Phase Noise Vs. Tuning Voltage



ZX95-2045R-S+
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