

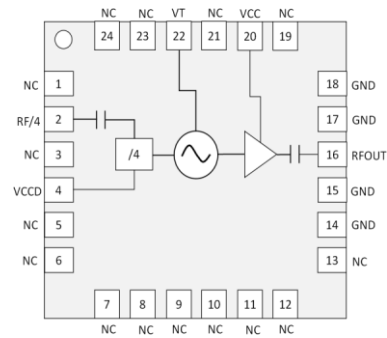
#### Performance Features

- Operating frequency band: 8.5GHz~10GHz
- Low power consumption: 129mA
- Output Power: 8dBm
- Phase noise: -111dBc/Hz@100kHz
- Package size: 24-pin QFN, 4mmx4mm

#### Typical Applications

- Point-to-Point Communication
- Satellite Communications
- Test measurements
- Instrumentation

#### Functional Block Diagram



#### Overview

CWV007SP4 type voltage controlled oscillator has very low phase noise in the same frequency range, very low 1/2, 3/2 and Nth harmonic interference, low power consumption, and flat output power characteristics.

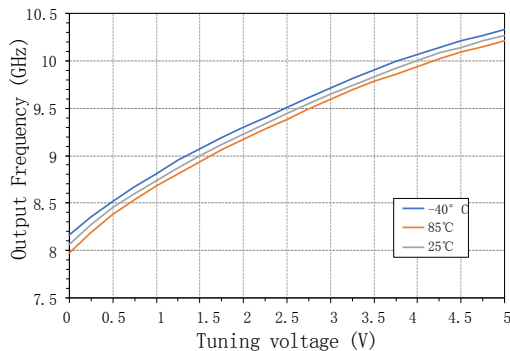
The CWV007SP4 is a 24-pin 4mmx4mm surface mount leadless plastic package. The pin pads are coated with Sn.

#### Electrical performance table (TA=+25°C, VCC=VCCD=5V)

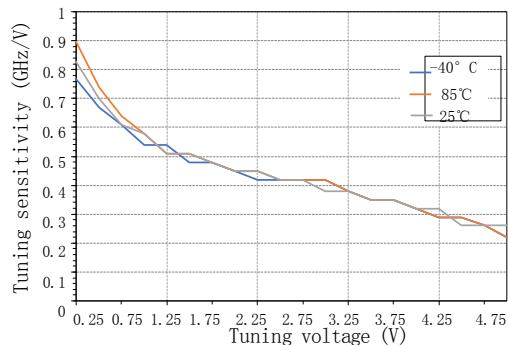
Parameter Name	Port Name	Minimum value	Typical values	Maximum value	Unit
Frequency range	RFOUT	8.5 to 10			GHz
Output power	RFOUT	5	8	10	dBm
	RF/4	-3.5	-1	1	
Single-sideband phase noise @ 100kHz, Vt=+2V	RFOUT		-111		dBc/Hz
Tuning voltage	Vt	0		5	V
Bias voltage	VCC, VCCD		5		V
Bias current	Vcc (RF)	100	110	120	mA
	Vcc (DIG)	16.5	18.5	20.5	
Tuning current (Vt=+5V)	Vt			1	uA
Harmonic suppression @Vt=+5V	1st/2nd harmonic		60		dBc
	3rd/2nd harmonic		60		dBc
Push frequency factor @Vt=+5V			16		MHz/V
Frequency temperature drift			1		MHz/° C

#### Test Curve

RFOUT output frequency VS tuning voltage



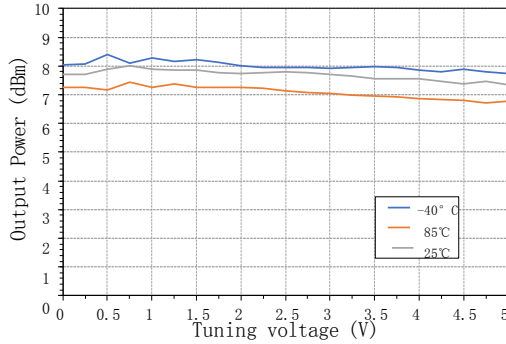
RFOUT tuning sensitivity VS tuning voltage



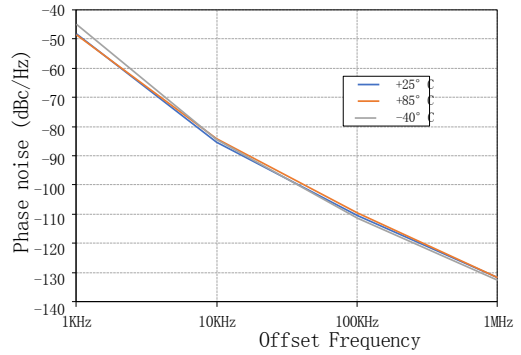
#### Test Curve

CWV  
Voltage Controlled Oscillator Series

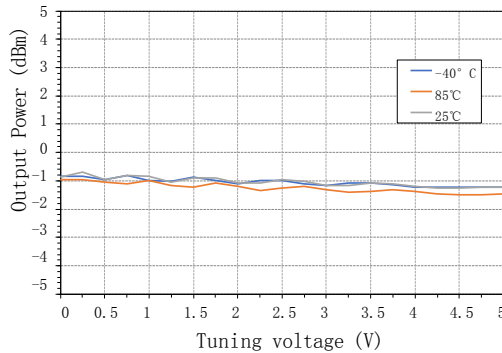
RFOUT output power vs. tuning voltage



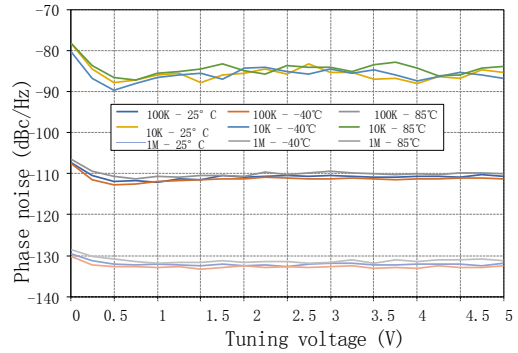
RFOUT Phase Noise vs. Offset Frequency @ Vt=3V



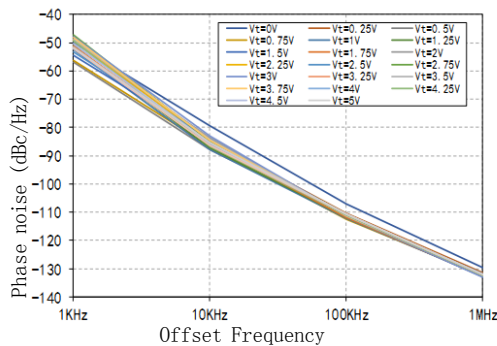
RF/4 output power vs. tuning voltage



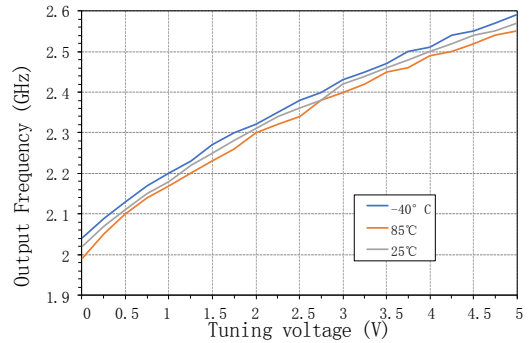
RFOUT phase noise vs. tuning voltage



RFOUT Phase Noise VS Offset Frequency (0V~5V)



RF/4 output frequency vs. tuning voltage



#### Extreme operating parameters

Bias voltage	5.5V
Tuning voltage	0V to 5.5V
Storage temperature range	-65°C~+150°C
Operating temperature range	-40°C~+85°C
Electrostatic protection level (HBM)	Class 1B

#### Package Information

Model	Packaging materials	Solder plate plating	MSL level [1]	Package identification [2]	Environmental requirements
CWV007SP4	Green resin compounds	Sn	MSL 3	S007 XXXXX	RoHS compliant

[1] Maximum reflow temperature 260° C

[2] XXXXX is the lot number

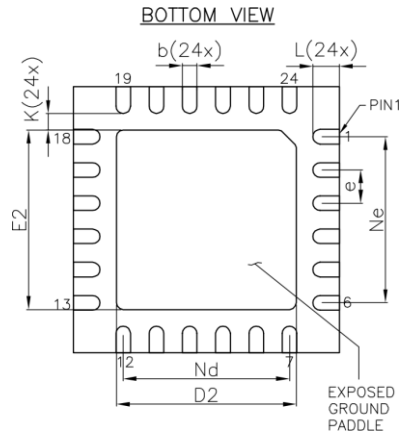
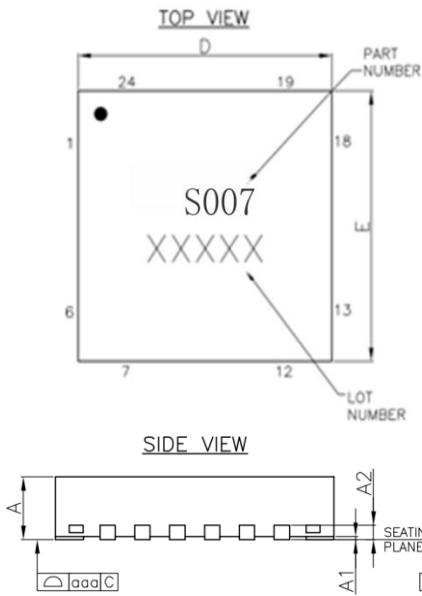
#### Pin Definition

Pin Number	Function Symbols	Function Description	Pin Number	Function Symbols	Function Description
1	NC	Vacant	13	NC	Vacant
2	RF/4	RF Output	14	GND	RF Ground
3	NC	Vacant	15	GND	RF Ground
4	VCCD	DC Bias	16	RFOUT	RF Output
5	NC	Vacant	17	GND	RF Ground
6	NC	Vacant	18	GND	RF Ground
7	NC	Vacant	19	NC	Vacant
8	NC	Vacant	20	VCC	DC Bias
9	NC	Vacant	21	NC	Vacant
10	NC	Vacant	22	VT	Tuning voltage
11	NC	Vacant	23	NC	Vacant
12	NC	Vacant	24	NC	Vacant

#### Dimension

CWV

Voltage Controlled Oscillator Series

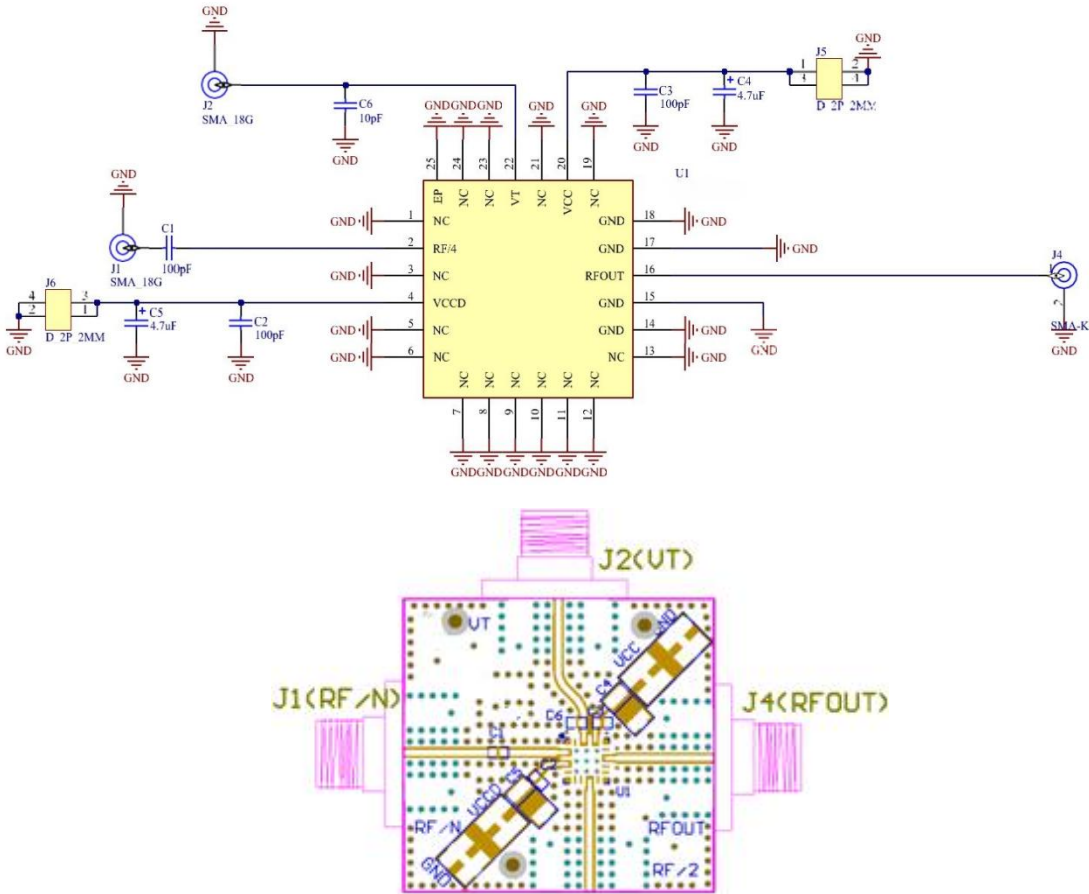


Dimension Table (unit:mm)			
Symbol	MIN	NOM	MAX
A	0.70	0.75	0.80
A1	0.00	----	0.05
A2	0.20Ref		
b	0.20	0.25	0.30
D	3.90	4.00	4.10
D2	2.60	2.70	2.80
e	0.50BSC		
Ne	2.50BSC		
Nd	2.50BSC		
E	3.90	4.00	4.10
E2	2.60	2.70	2.80
K	0.20	----	----
L	0.30	0.40	0.50
aaa	0.08		

Description:

1. Unit: mm
2. Lead frame material: copper alloy
3. Tube shell surface warpage: not more than 0.05mm
4. All ground pins should be connected to PCB RF ground

#### Evaluation Boards



Designator	Description
C1, C2, C3	Multilayer ceramic capacitor 0402 100pF
C4, C5	Tantalum Capacitor - Solid 4.7uF 1206
C6	Multilayer ceramic capacitor 10pF 0402
J1, J2, J4	SMA PCB connector
VCCD, VCC	2 mm DC pins
U1	CWV007SP4
J1, J2, J4 Recommend to use Nanjing Aowen D550B12E01-048 type SMA connector	

Circuit board material: Rogers 4350B

The circuit board of the device application should be designed according to the RF circuit design method, the signal line should be designed according to the 50 ohm impedance, and the ground pin of the package shell should be grounded nearby (similar to the figure), and there should be enough grounding holes to connect the top and bottom ground layers.