

Frequency Synthesizer

ZSN-4950AC+

50Ω 4950 MHz (fixed)

The Big Deal

- Fixed frequency
- Integrated microcontroller
- Low phase noise and spurious
- Robust design and construction
- Size 2.75" x 1.96" x 0.62"



CASE STYLE: KF1336

Product Overview

The ZSN-4950AC+ is a Frequency Synthesizer, designed to operate at 4950MHz for military application. The ZSN-4950AC+ is packaged in a coaxial package (size of 2.75" x 1.96" x 0.62") to shield against unwanted signals and noise.

Key Features

Feature	Advantages
Low phase noise and spurious: <ul style="list-style-type: none">• Phase noise: -84 dBc/Hz typ. @ 10 kHz offset• Comparison spurious: -85 dBc typ.• Reference spurious: -90 dBc typ.	Low phase noise and spurious improve system EVM (Error Vector Magnitude).
Shut Down	Enable customer to control (ON/OFF) the output signal.
Robust design and construction	To enhance the robustness of ZSN-4950AC+, each internal component is secured to the substrate with chip bonder, thereby eliminating the risk of tombstoning during subsequent solder reflow operations by the customer.



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Frequency Synthesizer

ZSN-4950AC+

50Ω 4950 MHz (fixed)

Features

- Fixed frequency
- Integrated microcontroller
- Low phase noise and spurious
- High reliability over temperature changes
- Robust design and construction
- Operating voltage (VCC =+15V)



CASE STYLE: KF1336

Connectors	Model	Price	Qty.
SMA Female	ZSN-4950AC+	\$154.95 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.

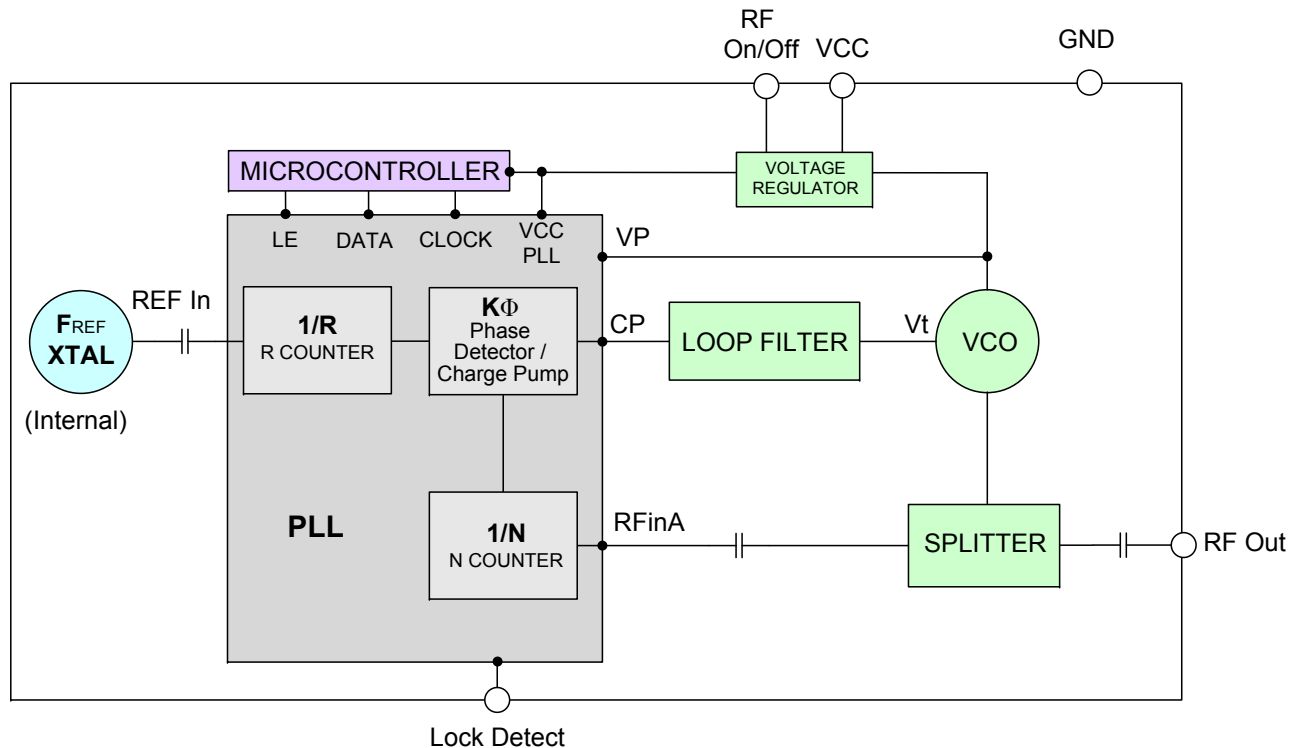
Applications

- Military

General Description

The ZSN-4950AC+ is a Frequency Synthesizer, designed to operate at 4950 MHz for military application. The ZSN-4950AC+ is packaged in a coaxial package (size of 2.75" x 1.96" x 0.62") to shield against unwanted signals and noise. To enhance the robustness of ZSN-4950AC+, each internal component is secured to the substrate with chip bonder, thereby eliminating the risk of tombstoning during subsequent solder reflow operations by the customer.

Simplified Schematic



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Electrical Specifications (over operating temperature -40°C to +70°C)

Parameters	Test Conditions	Min.	Typ.	Max.	Units
Frequency Range (fixed)	-	4950	-	4950	MHz
Comparison Frequency	-	-	1000	-	kHz
Settling Time (Power on to lock)	Within ± 10 Hz	-	25	-	mSec
Frequency Stability	-	-	± 50	-	kHz
Output Power	-	-6.5	-3.5	+0.5	dBm
SSB Phase Noise	@ 100 Hz offset	-	-59	-	dBc/Hz
	@ 1 kHz offset	-	-80	-72	
	@ 10 kHz offset	-	-84	-78	
	@ 100 kHz offset	-	-113	-108	
	@ 1 MHz offset	-	-133	-125	
Integrated SSB Phase Noise	@ 1kHz to 1MHz	-	-35	-	dBc
Reference Spurious Suppression	Ref. Freq. 26 MHz	-	-90	-73	dBc
Comparison Spurious Suppression	Comp. Freq. 1 MHz	-	-85	-68	
Non - Harmonic Spurious Suppression	-	-	-90	-	
Harmonic Suppression	-	-	-36	-25	dBc
VCC Supply Voltage	+15.00	+14.75	+15.00	+15.25	V
VCC Supply Current	-	-	69	77	mA
RF Output port Impedance	-	-	50	-	Ω
Module Shut Down (on/off internal supply)	on	-	2.00	5.50	V
	off	-	-	0.30	V
Digital Lock Detect	Locked	-	2.9	3.45	V
	Unlocked	-	-	0.40	V

Absolute Maximum Ratings

Parameters	Ratings
Supply Voltage	16V
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C

Permanent damage may occur if any of these limits are exceeded



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Typical Performance Data

FREQUENCY (MHz)	POWER OUTPUT (dBm)			VCC CURRENT (mA)		
	-45°C	+25°C	+75°C	-45°C	+25°C	+75°C
	4950	-3.18	-3.83	-4.84	66.54	68.51

FREQUENCY (MHz)	HARMONICS (dBc)					
	F2			F3		
	-45°C	+25°C	+75°C	-45°C	+25°C	+75°C
4950	-56.27	-57.64	-49.37	-40.74	-37.51	-38.06

FREQUENCY (MHz)	@TEMP.	PHASE NOISE (dBc/Hz)				
		@OFFSETS				
		100Hz	1kHz	10kHz	100kHz	1MHz
4950	-45°C	-53.60	-77.33	-85.06	-114.36	-135.22
	+25°C	-57.07	-81.29	-84.45	-114.06	-134.51
	+75°C	-55.60	-76.76	-83.99	-113.34	-134.46

COMPARISON SPURIOUS ORDER n	COMPARISON SPURIOUS @Fcarrier 4950MHz+(n*Preference) (dBc) note 1		
	-45°C	+25°C	+75°C
-5	-100.00	-100.50	-97.18
-4	-98.25	-100.95	-96.24
-3	-97.76	-101.16	-93.76
-2	-93.52	-100.79	-90.81
-1	-87.53	-95.53	-85.06
0 ^{note 2}	-	-	-
+1	-87.69	-95.04	-84.74
+2	-93.86	-99.33	-90.38
+3	-98.07	-99.90	-93.90
+4	-99.18	-100.03	-96.59
+5	-99.41	-100.47	-97.10

REFERENCE SPURIOUS ORDER n	REFERENCE SPURIOUS @Fcarrier 4950MHz+(n*Preference) (dBc) note 3		
	-45°C	+25°C	+75°C
-5	-104.88	-104.82	-107.09
-4	-102.60	-100.51	-100.99
-3	-100.90	-100.35	-101.97
-2	-103.49	-102.46	-101.79
-1	-89.63	-91.93	-94.67
0 ^{note 4}	-	-	-
+1	-89.65	-88.68	-88.54
+2	-113.65	-105.61	-105.82
+3	-99.29	-100.47	-100.71
+4	-102.49	-102.07	-104.44
+5	-101.83	-101.32	-101.97

Note 1: Comparison frequency 1MHz

Note 2: All spurs are referenced to carrier signal (n=0).

Note 3: Reference frequency 26MHz

Note 4: All spurs are referenced to carrier signal (n=0).



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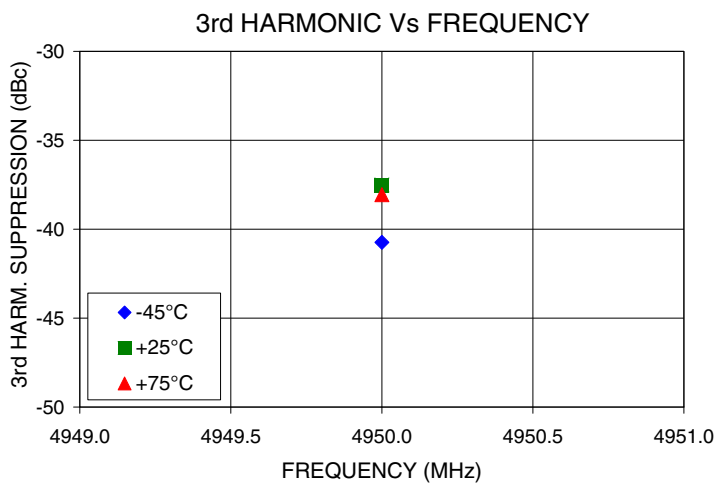
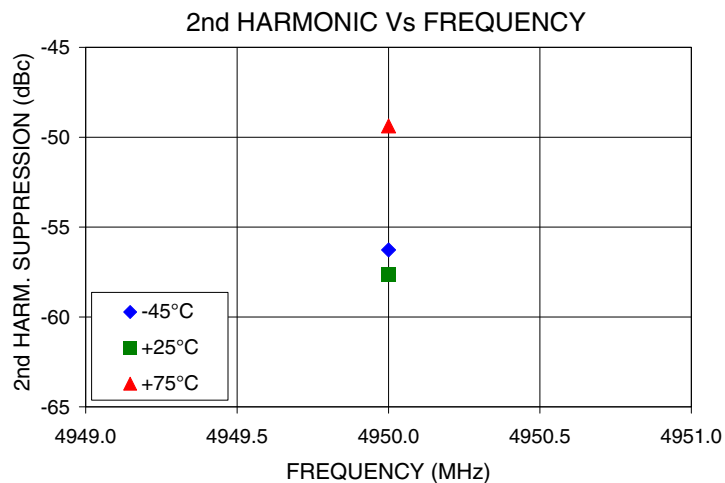
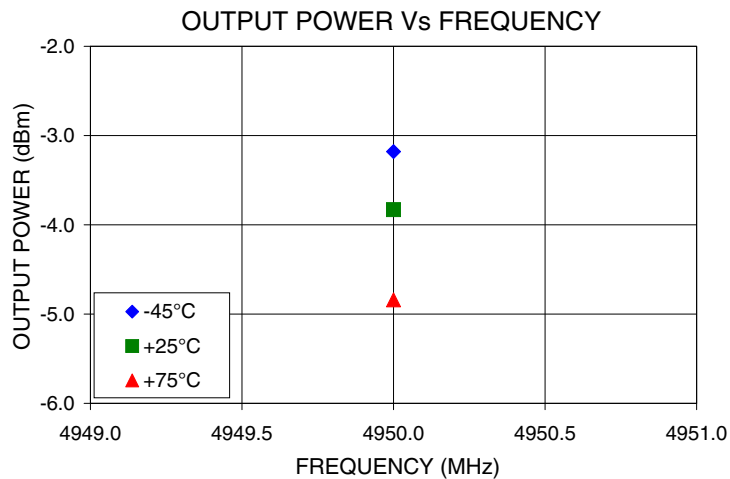


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Typical Performance Curves



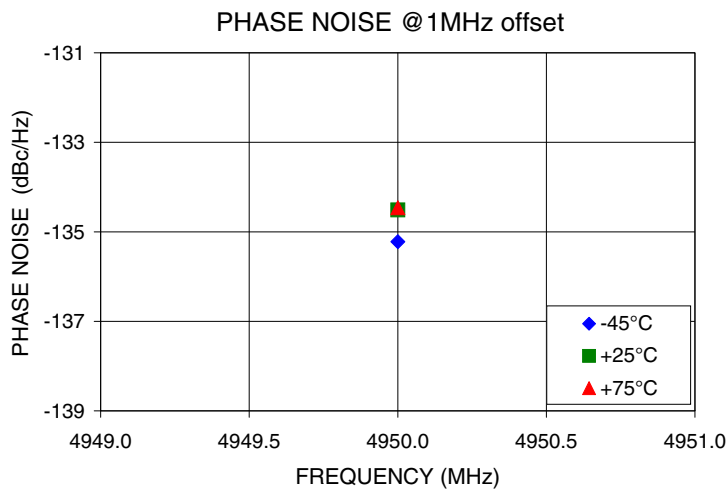
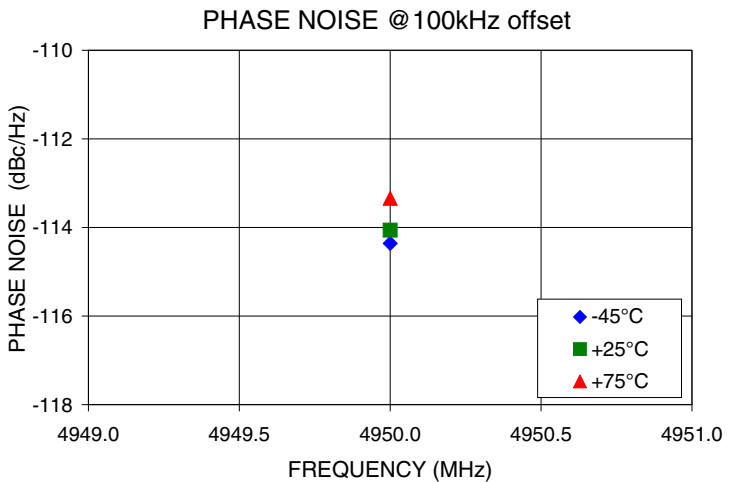
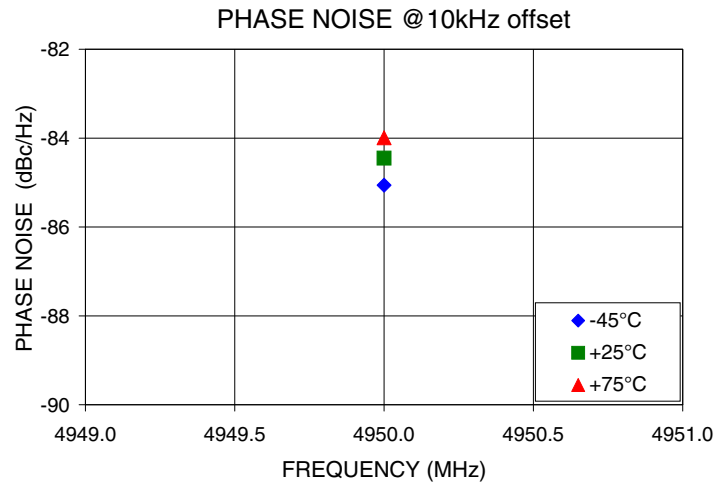
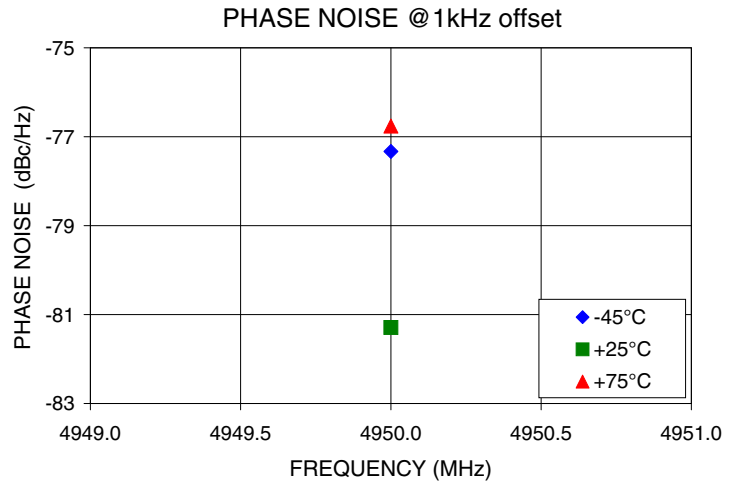
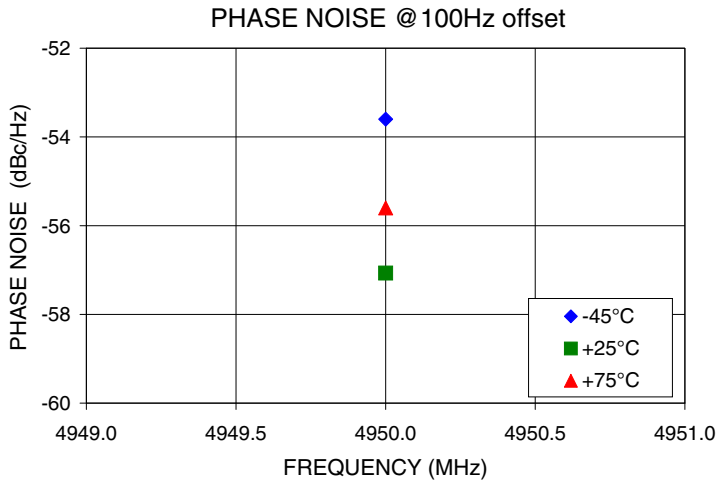
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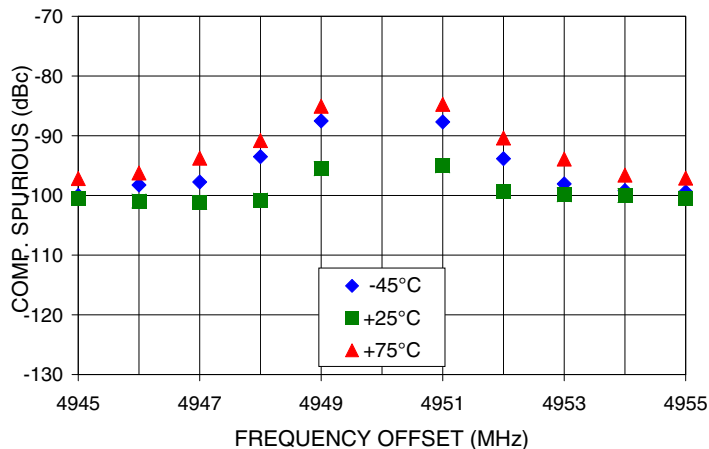


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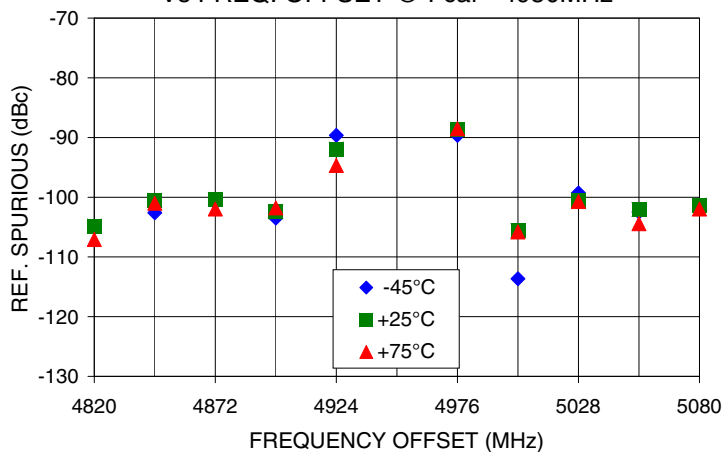


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COMPARISON SPURIOUS
Vs FREQ. OFFSET @ Fcar = 4950MHz



REFERENCE SPURIOUS
Vs FREQ. OFFSET @ Fcar = 4950MHz



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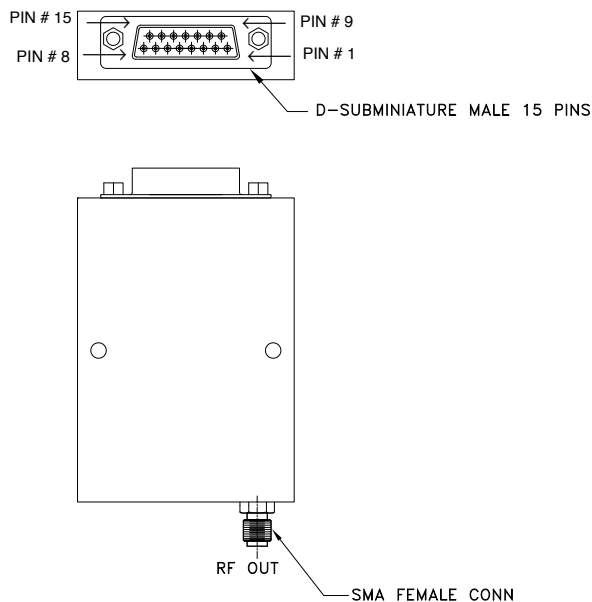


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Connectors Configuration



D-SUBMINIATURE MALE 15 PINS Connection

Pin Number	Function
1	VCC
2	RF On/Off
3	N/C
4	N/C
5	N/C
6	LOCK DETECT
7	N/C
8	N/C
9	GND
10	N/C
11	N/C
12	N/C
13	N/C
14	GND
15	N/C

Additional Detailed Technical Information

Additional information is available on our web site. To access this information enter the model number on our web site home page.

Case Style: KF1336

Tape & Reel: N.A.

Suggested Layout for PCB Design: N.A.

Evaluation Board: N.A.

Environment Ratings: ENV48



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