

Frequency Synthesizer

ZSN-3700AC+

50Ω 3700 MHz (fixed)

The Big Deal

- Low phase noise and spurious
- Fixed frequency without external programming
- Integrated microcontroller
- Robust design and construction
- Small size 2.75" x 1.96" x 0.62"



CASE STYLE: KG1446

Product Overview

The ZSN-3700AC+ is a Frequency Synthesizer, designed to operate 3700MHz for Military & Avionics application. The ZSN-3700AC+ 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: -93 dBc/Hz typ. @ 10 kHz offset• Comparison spurious: -96 dBc typ.• Reference spurious: -96 dBc typ.	Low phase noise and spurious improve system EVM (Error Vector Magnitude).
Robust design and construction	To enhance the robustness of ZSN-3700AC+, 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-3700AC+

50Ω 3700 MHz (fixed)

Features

- Fixed frequency without external programming
- Integrated microcontroller
- High reliability over temperature changes
- Robust design and construction
- Low operating voltage (VCC =+5V)
- Case size 2.75" x 1.96" x 0.62"



CASE STYLE: KG1446

Connectors	Model	Price	Qty.
SMA Female	ZSN-3700AC+	\$274.95 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.

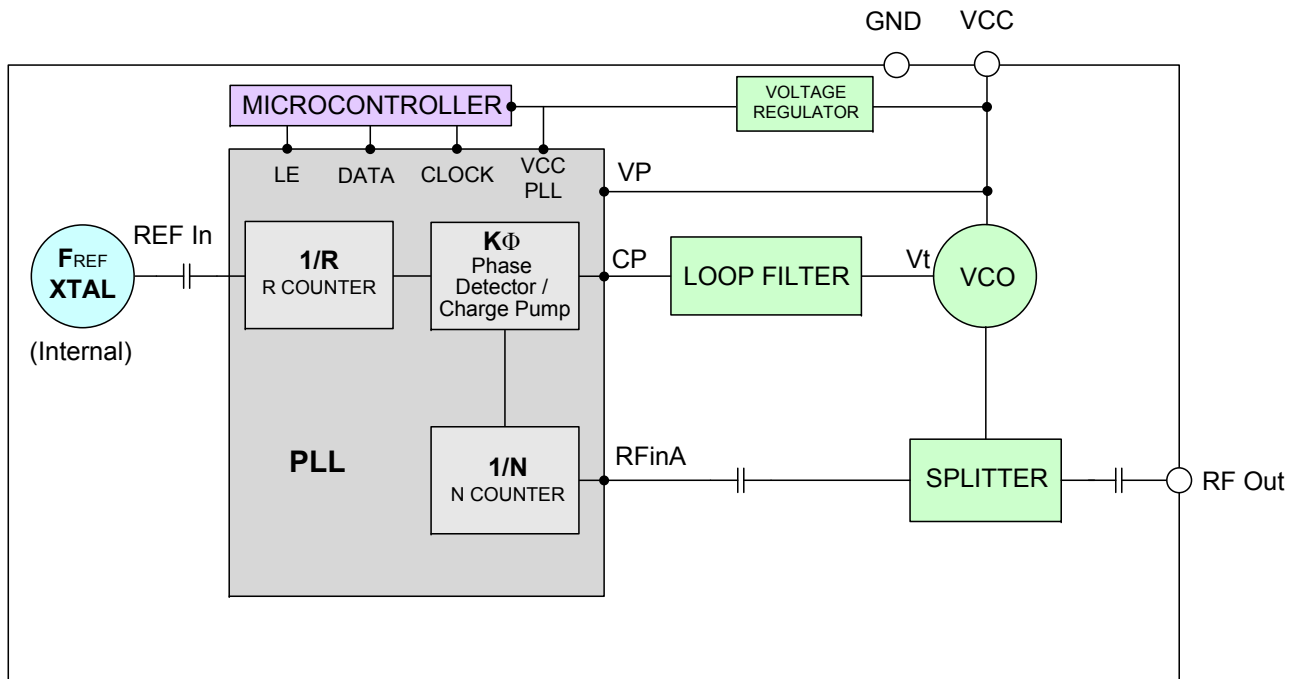
Applications

- Military & Avionics

General Description

The ZSN-3700AC+ is a Frequency Synthesizer, designed to operate 3700 MHz for Military & Avionics application. The ZSN-3700AC+ 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-3700AC+, 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 -20°C to +75°C)

Parameters	Test Conditions	Min.	Typ.	Max.	Units	
Frequency Range (fixed)	-	3700	-	3700	MHz	
Step Size	-	-	20	-	MHz	
Settling Time (Power on to lock)	Within ± 100 Hz	-	20	-	mSec	
Frequency Accuracy	-	-	±7.4	-	kHz	
Frequency Stability	-	-	±3.7	-	kHz	
Output Power	-	-	+1.7	-	dBm	
SSB Phase Noise	@ 100 Hz offset	-	-78	-	dBc/Hz	
	@ 1 kHz offset	-	-94	-83		
	@ 10 kHz offset	-	-93	-86		
	@ 100 kHz offset	-	-120	-113		
	@ 1 MHz offset	-	-143	-138		
Integrated SSB Phase Noise	@ 1kHz to 10MHz	-	-49	-	dBc	
Reference Spurious Suppression	Ref. Freq. 20 MHz	-	-96	-77	dBc	
Comparison Spurious Suppression	Step Size 20 MHz	-	-96	-77		
Non - Harmonic Spurious Suppression	-	-	-90	-		
Harmonic Suppression	-	-	-60	-53	dBc	
VCC Supply Voltage	+5.00	+4.75	+5.00	+5.25	V	
VCC Supply Current	-	-	65	73	mA	
Reference Input (Internal)	Frequency	20 (square wave)	-	20	MHz	
	Amplitude	1	-	1	V _{p-p}	
	Input impedance	-	-	100	KΩ	
	Phase Noise @ 1 kHz offset	-	-	-145	dBc/Hz	
RF Output port Impedance	-	-	50	-	Ω	
Digital Lock Detect	Locked	-	2.80	-	3.25	V
	Unlocked	-	-	-	0.40	V

Absolute Maximum Ratings

Parameters	Ratings
Supply Voltage	5.8V
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)		
	-25°C	+25°C	+80°C	-25°C	+25°C	+80°C
3700	0.42	1.71	-2.17	63.63	65.69	68.28

FREQUENCY (MHz)	HARMONICS (dBc)					
	F2			F3		
	-25°C	+25°C	+80°C	-25°C	+25°C	+80°C
3700	-62.60	-63.77	-59.81	-73.29	-70.46	-81.36

FREQUENCY	@TEMP.	PHASE NOISE (dBc/Hz)				
		@OFFSETS				
		100Hz	1kHz	10kHz	100kHz	1MHz
3700	-25°C	-75.62	-90.38	-92.81	-119.15	-142.64
	+25°C	-79.17	-95.19	-93.24	-120.49	-143.25
	+80°C	-73.26	-93.02	-93.97	-117.23	-141.03

REFERENCE & COMPARISON SPURIOUS ORDER n	REFERENCE & COMPARISON SPURIOUS @Fcarrier 3700MHz+(n*Freference) (dBc) note 1		
	-25°C	+25°C	+80°C
-5	-95.62	-112.03	-93.11
-4	-95.32	-109.70	-91.34
-3	-95.32	-114.33	-94.97
-2	-93.71	-97.88	-95.85
-1	-86.56	-87.95	-102.29
0 ^{note 2}	-	-	-
+1	-82.31	-86.90	-87.12
+2	-90.10	-100.49	-90.42
+3	-93.26	-103.82	-91.20
+4	-93.68	-101.97	-94.94
+5	-95.24	-102.97	-91.01

Note 1: Comparison frequency equals to reference frequency = 20 MHz

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



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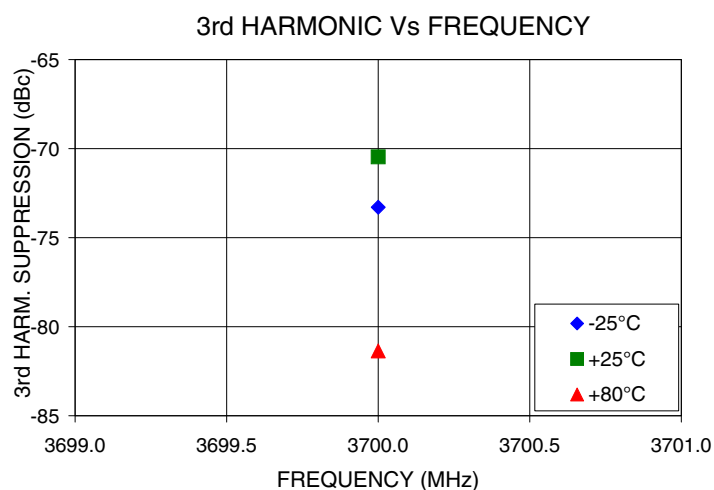
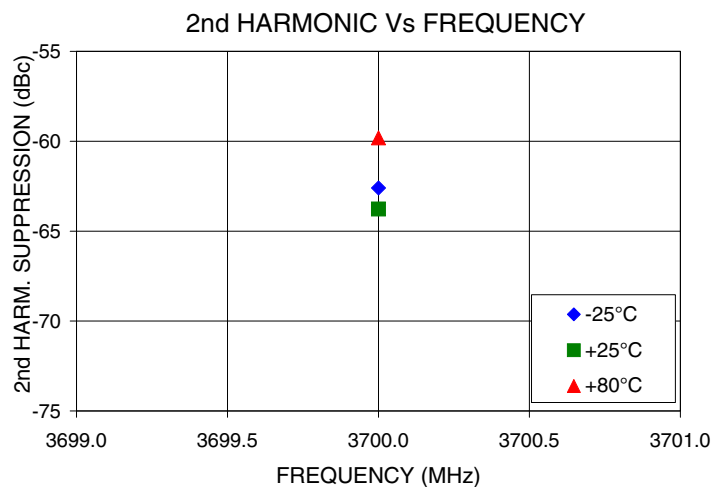
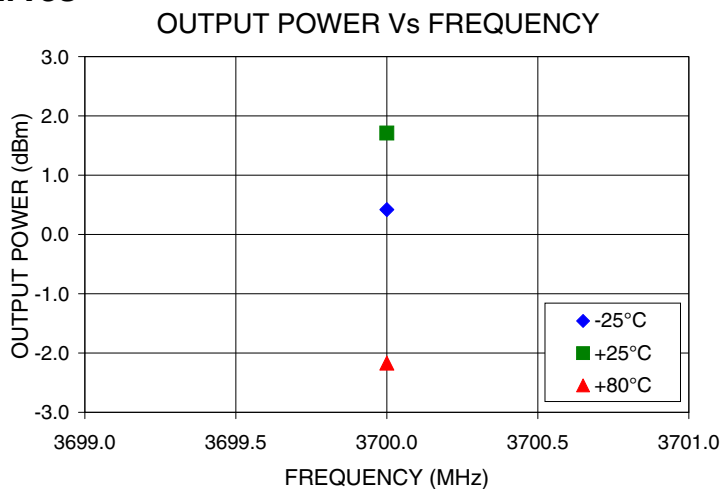


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Typical Performance Curves



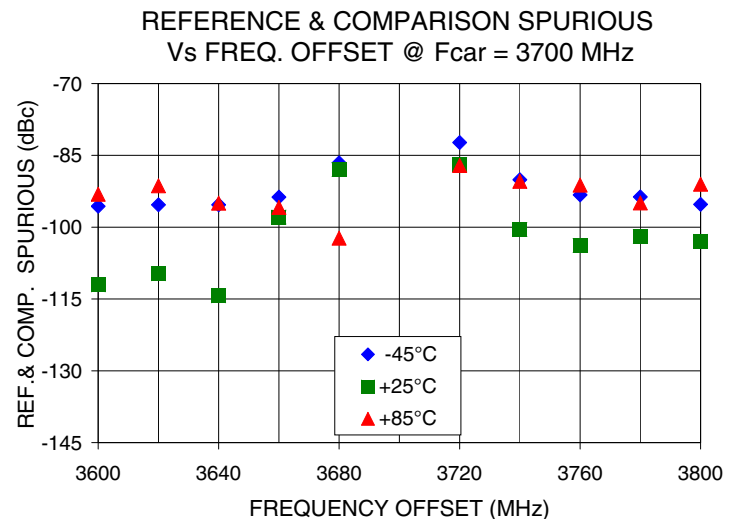
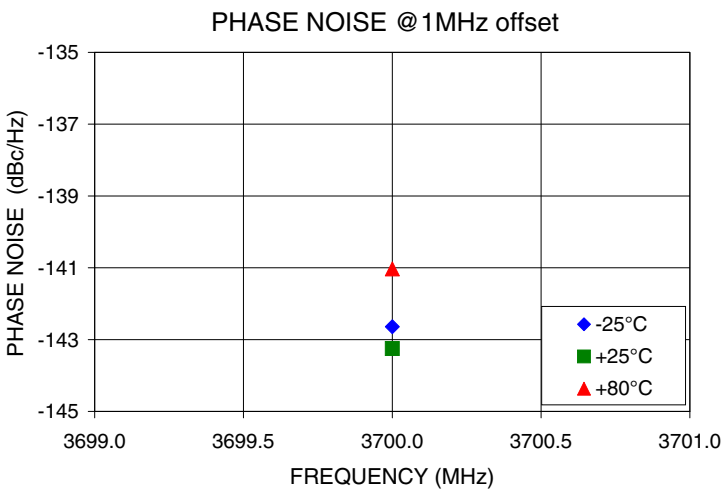
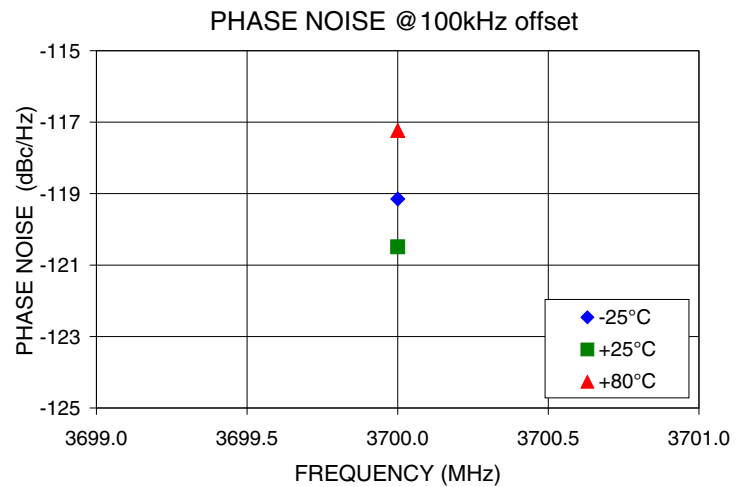
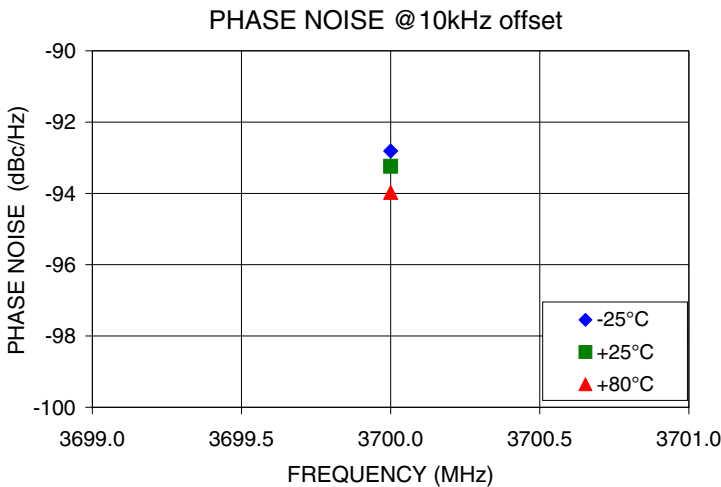
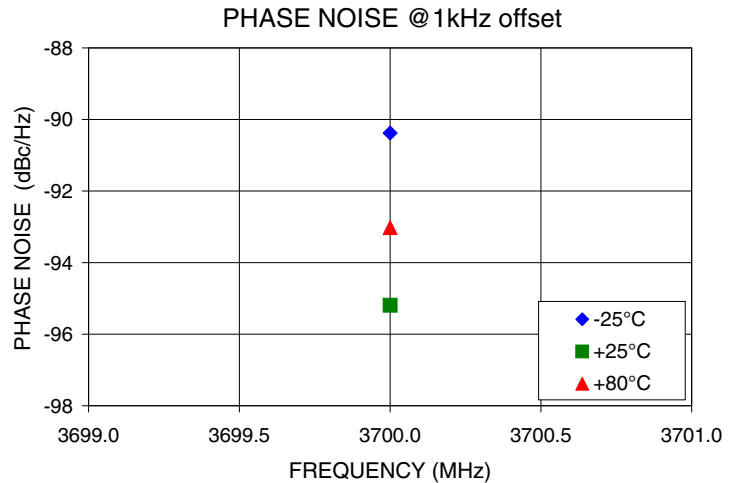
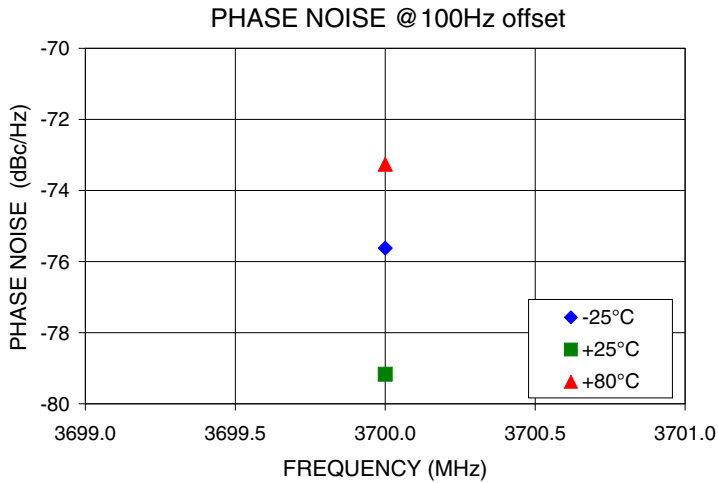
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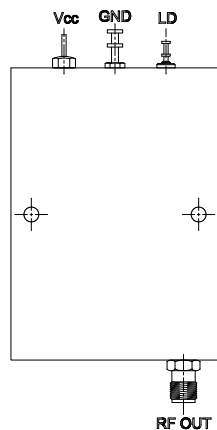


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Connectors Configuration

**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: KG1446

Tape & Reel: N.A.

Suggested Layout for PCB Design: N.A.

Evaluation Board: N.A.

Environment Ratings: ENV48



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