

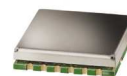
Frequency Synthesizer

SSN-3352A-119+

50Ω 3132 to 3352 MHz

The Big Deal

- Fractional N synthesizer
- Low phase noise and spurious
- Very small size 0.60" x 0.60" x 0.138"



CASE STYLE: KJ1367

Product Overview

The SSN-3352A-119+ is a Frequency Synthesizer, designed to operate from 3132 to 3352 MHz for WiMAX application. The SSN-3352A-119+ is packaged in a metal case (size of 0.60" x 0.60" x 0.138") to shield against unwanted signals and noise.

Key Features

Feature	Advantages
Low phase noise and spurious: • Phase Noise: -92 dBc/Hz typ. @ 10 kHz offset • Step Size Spurious: -84 dBc typ. • Comparison Spurious: -88 dBc typ. • Reference Spurious: -88 dBc typ.	Low phase noise and spurious improve system EVM (Error Vector Magnitude).
Robust design and construction	To enhance the robustness of SSN-3352A-119+, 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.
Small size, 0.60" x 0.60" x 0.138"	The small size enables the SSN-3352A-119+ to be used in compact designs.



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Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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.

50Ω 3132 to 3352 MHz

Features

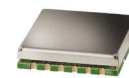
- Fractional N synthesizer
- Integrated VCO + PLL
- Low phase noise and spurious
- Robust design and construction
- Low operating voltage (VCC VCO=+4.85V, VCC PLL=+3.2V)
- Small size 0.60" x 0.60" x 0.138"

Applications

- WiMAX

General Description

The SSN-3352A-119+ is a Frequency Synthesizer, designed to operate from 3132 to 3352 MHz for WiMAX application. The SSN-3352A-119+ is packaged in a metal case (size of 0.60" x 0.60" x 0.138") to shield against unwanted signals and noise. To enhance the robustness of SSN-3352A-119+, 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.



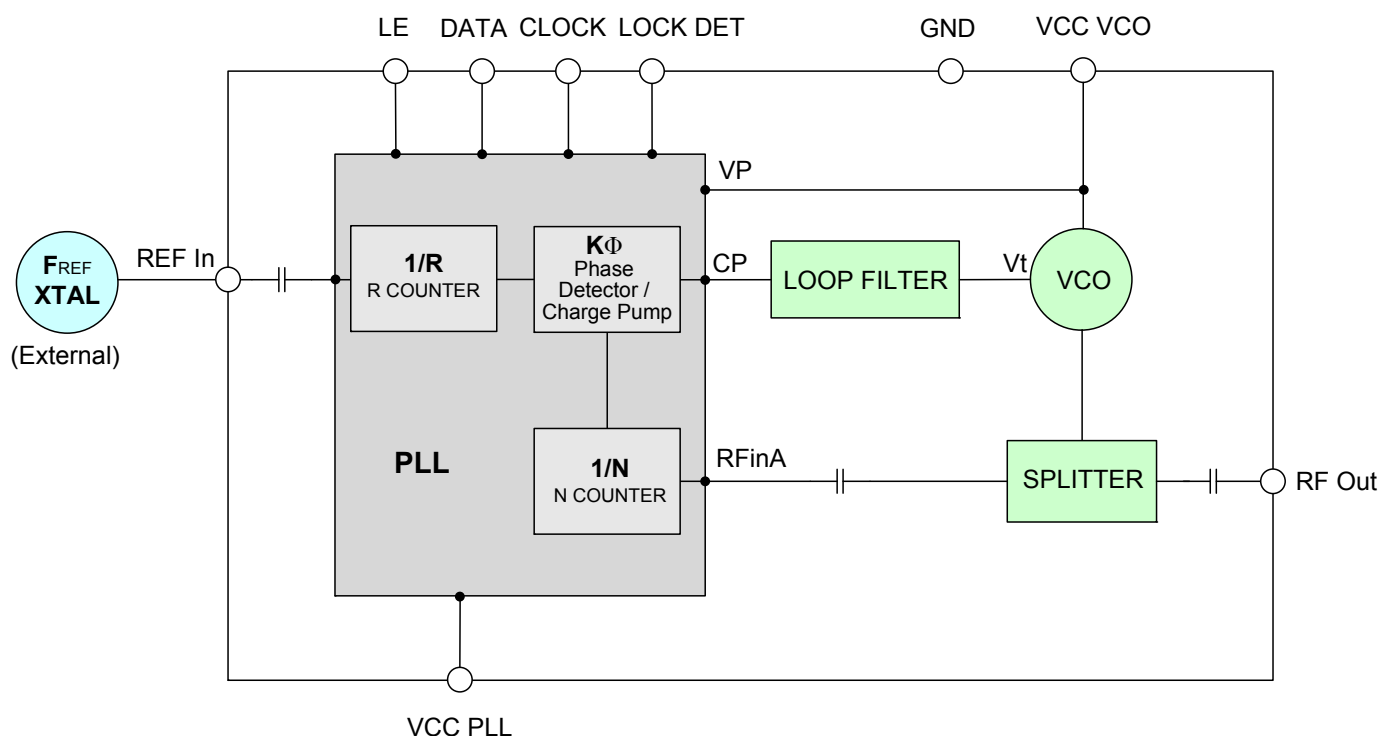
CASE STYLE: KJ1367

PRICE: \$29.95 ea. QTY (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.

Simplified Schematic



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REV. OR
M127606
EDR-10128F1
SSN-3352A-119+
Category-A1
RAV
100630
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Electrical Specifications (over operating temperature -40°C to +85°C)

Parameters	Test Conditions	Min.	Typ.	Max.	Units
Frequency Range	-	3132	-	3352	MHz
Step Size	-	-	125	-	kHz
Comparison Frequency	-	-	26	-	MHz
Settling Time	Within ± 1 kHz	-	5	-	mSec
Output Power	-	0	+3	+6	dBm
SSB Phase Noise	@ 100 Hz offset	-	-75	-	dBc/Hz
	@ 1 kHz offset	-	-90	-83	
	@ 10 kHz offset	-	-92	-87	
	@ 100 kHz offset	-	-116	-109	
	@ 1 MHz offset	-	-137	-129	
Integrated SSB Phase Noise	@ 1kHz to 10MHz	-	-49	-45	dBc
Step Size Spurious Suppression	Step Size 125 kHz	-	-84	-54	dBc
0.5 Step Size Spurious Suppression	0.5 Step Size 62.5 kHz	-	-70	-54	
Reference Spurious Suppression	Ref. Freq. 52 MHz	-	-88	-80	
Comparison Spurious Suppression	Comp. Freq. 26 MHz	-	-88	-80	
Non - Harmonic Spurious Suppression	-	-	-90	-	
Harmonic Suppression	-	-	-30	-20	V
VCO Supply Voltage	+4.85	+4.75	+4.85	+5.25	
PLL Supply Voltage	+3.20	+3.10	+3.20	+3.30	mA
VCO Supply Current	-	-	44	55	
PLL Supply Current	-	-	17	26	
Reference Input (External)	Frequency	52 (square wave)	-	52	MHz
	Amplitude	1	-	1	V _{P-P}
	Input impedance	-	-	100	K Ω
	Phase Noise @ 1 kHz offset	-	-	-135	dBc/Hz
RF Output port Impedance	-	-	50	-	Ω
Input Logic Level	Input high voltage	-	2.65	-	V
	Input low voltage	-	-	0.60	V
Digital Lock Detect	Locked	-	2.70	-	V
	Unlocked	-	-	0.40	V
Frequency Synthesizer PLL	-	ADF4153			
PLL Programming	-	3-wire serial 3.2V CMOS			
Register Map @ 3352 MHz	R0_Register	-	(MSB) 001000000000001100000000 (LSB)		
	R1_Register	-	(MSB) 000101001000001101000001 (LSB)		
	R2_Register	-	(MSB) 000000000000001111000011 (LSB)		
	R3_Register	-	(MSB) 000000000000001111000111 (LSB)		

Absolute Maximum Ratings

Parameters	Ratings
VCO Supply Voltage	5.8V
PLL Supply Voltage	4.0V
VCO Supply Voltage to PLL Supply Voltage	-0.3V to +5.8V
Reference Frequency Voltage	-0.3Vmin, VCC PLL +0.3Vmax
Data, Clock, LE Levels	-0.3Vmin, VCC PLL +0.3Vmax
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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FREQUENCY (MHz)	POWER OUTPUT (dBm)			VCO CURRENT (mA)			PLL CURENT (mA)		
	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C
3132	2.88	2.95	2.95	41.81	43.57	44.88	14.90	16.82	19.05
3144	2.91	2.95	2.93	41.84	43.61	44.90	14.47	16.37	18.64
3169	2.95	3.00	2.98	41.91	43.65	44.95	14.67	16.57	18.91
3193	2.92	2.99	3.00	41.91	43.65	44.96	14.73	16.64	19.01
3218	2.71	2.76	2.79	41.98	43.72	45.00	14.80	16.72	19.13
3242	2.85	2.84	2.83	42.02	43.76	45.06	14.75	16.66	19.09
3267	2.87	2.94	2.98	42.09	43.79	45.10	14.90	16.82	19.27
3291	2.70	2.75	2.82	42.17	43.88	45.17	14.92	16.84	19.31
3316	2.86	2.85	2.87	42.22	43.93	45.21	14.99	16.92	19.40
3340	3.00	3.02	3.05	42.29	43.96	45.23	14.89	16.80	19.29
3352	2.94	2.98	3.03	42.33	43.99	45.25	14.46	16.36	18.80

FREQUENCY (MHz)	HARMONICS (dBc)					
	F2			F3		
	-45°C	+25°C	+85°C	-45°C	+25°C	+85°C
3132	-34.40	-29.87	-28.05	-47.19	-47.36	-56.19
3144	-32.01	-29.90	-27.58	-47.63	-47.51	-56.63
3169	-30.66	-30.00	-28.92	-46.04	-47.47	-56.90



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