

Engineering Development Model

Frequency Synthesizer

ZSN-EDR10920/1

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability. At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.



CASE STYLE : KF1336

Please click "Back", and then click "Contact Us" for Applications support.

ELECTRICAL SPECIFICATIONS 50Ω, over -40°C to +75°C				
Parameter	Min.	Typ.	Max.	Units
Frequency	4600 4950		4600 4950	MHz
Step size		5000		kHz
Settling Time Within ±1kHz		40		μsec
Output Power	-8	-4	+1	dBm
Phase Noise				
at 100 Hz offset		-75		dBc/Hz
at 1 kHz offset		-85		dBc/Hz
at 10 KHz offset		-89	-83	dBc/Hz
at 100 KHz offset		-102	-96	dBc/Hz
at 1000 kHz offset		-130	-124	dBc/Hz
Integrated SSB Phase Noise		-41		dBc
Reference Spurious Suppression		-102		dBc
Comparison Spurious Suppression		-74		dBc
0.5 Step size Spurious Suppression		-94		dBc
Non-Harm. Spurious Suppression		-90		dBc
Harmonic Suppression		-64		dBc
Supply voltage VCO & PLL		15		V
Supply current VCO & PLL		212	224	V
Reference In (Internal)				
Frequency		20		MHz
Amplitude		1		Vp-p
Impedance		100		kΩ
Ph. N @ 1kHz		-145		dBc/Hz
Digital Lock Detect	Locked Unlocked	2.93	3.33 0.4	V
Frequency Synthesizer PLL	Self-programmed (internal microcontroller)			

ABSOLUTE MAXIMUM RATINGS	
Operating Temperature	-45°C to 85°C
Storage Temperature	-55°C to 100°C
Supply Voltage	16V

D-Sub15(Male) Pin connections				Other Connections	
VCC	1	LOCK DETECT	6	RF OUT	SMA (Female)
ON / OFF	2	GROUND	9,14		
FREQ.SELECT	3				
NOT CONNECTED	4,5,7,8,10 - 13,15				

Notes

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B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' 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/MCStore/terms.jsp



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FREQ. (MHz)	POWER OUTPUT (dBm)			HARMONICS (dBc)						VCO CURRENT (mA)			PLL CURRENT (mA)		
				F2			F3								
	-45 °C	+25°C	+75 °C	-45 °C	+25°C	+75 °C	-45 °C	+25°C	+75 °C	-45 °C	+25°C	+75 °C	-45 °C	+25°C	+75 °C
4600	-3.53	-4.09	-5.07	-53.37	-53.78	-55.48	-54.73	-53.06	-52.49	44.87	46.59	47.47	219.71	213.87	230.39
4950	-4.64	-4.64	-4.69	-66.92	-63.66	-60.93	-61.65	-63.29	-69.31	44.88	46.60	47.53	219.59	214.26	229.94

FREQ. (MHz)	PHASE NOISE (dBc/Hz) @ OFFSETS														
	-45 °C					+25°C					+75 °C				
	100Hz	1kHz	10kHz	100kHz	1MHz	100Hz	1kHz	10kHz	100kHz	1MHz	100Hz	1kHz	10kHz	100kHz	1MHz
4600	-70.96	-84.63	-89.32	-101.09	-131.53	-72.95	-86.16	-90.51	-101.14	-130.25	-72.81	-86.70	-90.50	-97.04	-127.90
4950	-71.37	-83.06	-87.75	-100.54	-130.77	-74.55	-82.70	-88.49	-100.54	-129.59	-72.89	-85.51	-89.17	-96.86	-127.71

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Typical Performance Data

COMPARISON SPURIOUS ORDER	COMPARISON SPURIOUS @F _{carrier} 4600 MHz± (n*F _{comparison}) (dBc) NOTE 1			COMPARISON SPURIOUS @F _{carrier} 4950 MHz± (n*F _{comparison}) (dBc) NOTE 1		
	-45 °C	+25°C	+75 °C	-45 °C	+25°C	+75 °C
-5	-123.00	-125.04	-108.56	-107.06	-98.90	-107.27
-4	-71.63	-72.58	-70.22	-70.47	-69.97	-69.99
-3	-124.05	-124.98	-108.62	-101.40	-99.89	-103.55
-2	-104.82	-108.92	-103.93	-91.95	-94.23	-85.03
-1	-122.85	-122.38	-104.59	-90.16	-92.72	-92.60
0 ^{note 2}	-	-	-	-	-	-
+1	-122.81	-114.90	-103.75	-90.26	-93.32	-94.42
+2	-105.84	-109.24	-105.68	-94.17	-93.68	-85.32
+3	-123.47	-124.75	-108.36	-102.41	-100.34	-101.61
+4	-71.10	-71.78	-69.40	-68.34	-68.39	-68.91
+5	-124.01	-125.17	-108.08	-112.12	-99.75	-107.75

Note 1: Comparison frequency 5 MHz

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

REFERENCE SPURIOUS ORDER	REFERENCE SPURIOUS @F _{carrier} 4600 MHz± (n*F _{reference}) (dBc) NOTE 3			REFERENCE SPURIOUS @F _{carrier} 4950 MHz± (n*F _{reference}) (dBc) NOTE 3		
	-45 °C	+25°C	+75 °C	-45 °C	+25°C	+75 °C
-5	-77.37	-79.42	-83.55	-64.31	-70.37	-70.48
-4	-80.93	-86.46	-91.32	-68.15	-73.25	-71.37
-3	-71.64	-71.01	-72.22	-73.90	-76.61	-81.43
-2	-68.99	-68.32	-67.56	-69.16	-69.96	-71.02
-1	-71.85	-72.62	-70.25	-70.43	-69.86	-69.96
0 ^{note 4}	-	-	-	-	-	-
+1	-71.57	-71.80	-69.38	-68.39	-68.45	-68.96
+2	-69.96	-69.51	-67.64	-67.10	-68.37	-69.63
+3	-73.70	-73.95	-74.98	-75.97	-77.27	-78.15
+4	-78.98	-81.28	-85.12	-70.25	-74.42	-75.86
+5	-77.93	-78.21	-80.69	-66.71	-73.08	-78.36

Note 3: Reference frequency 20 MHz

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

Notes

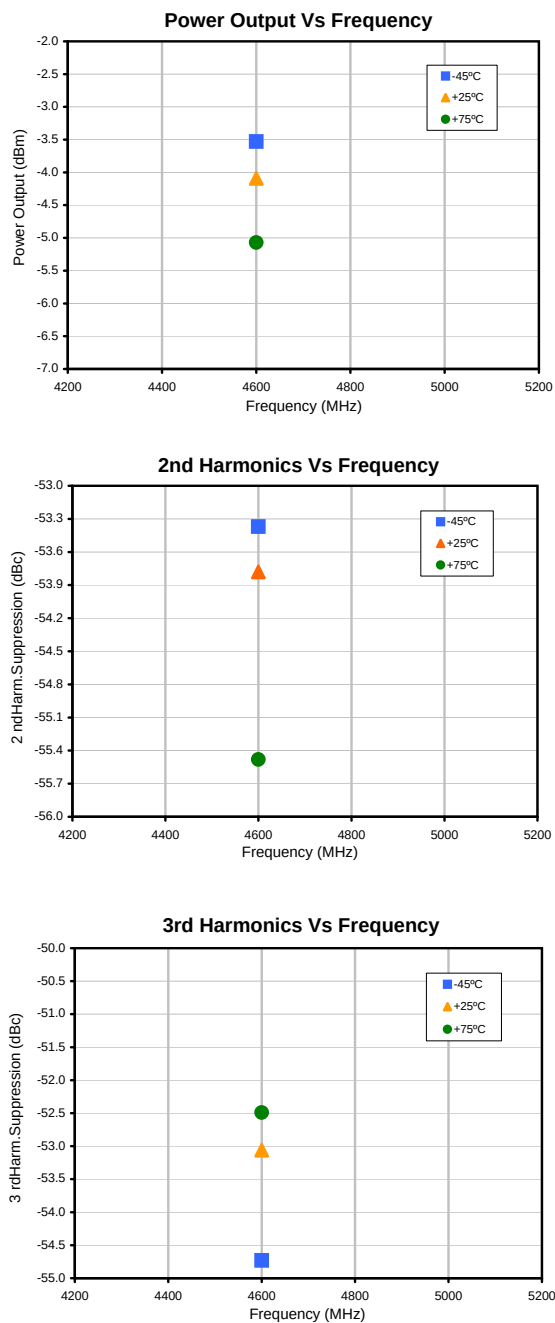
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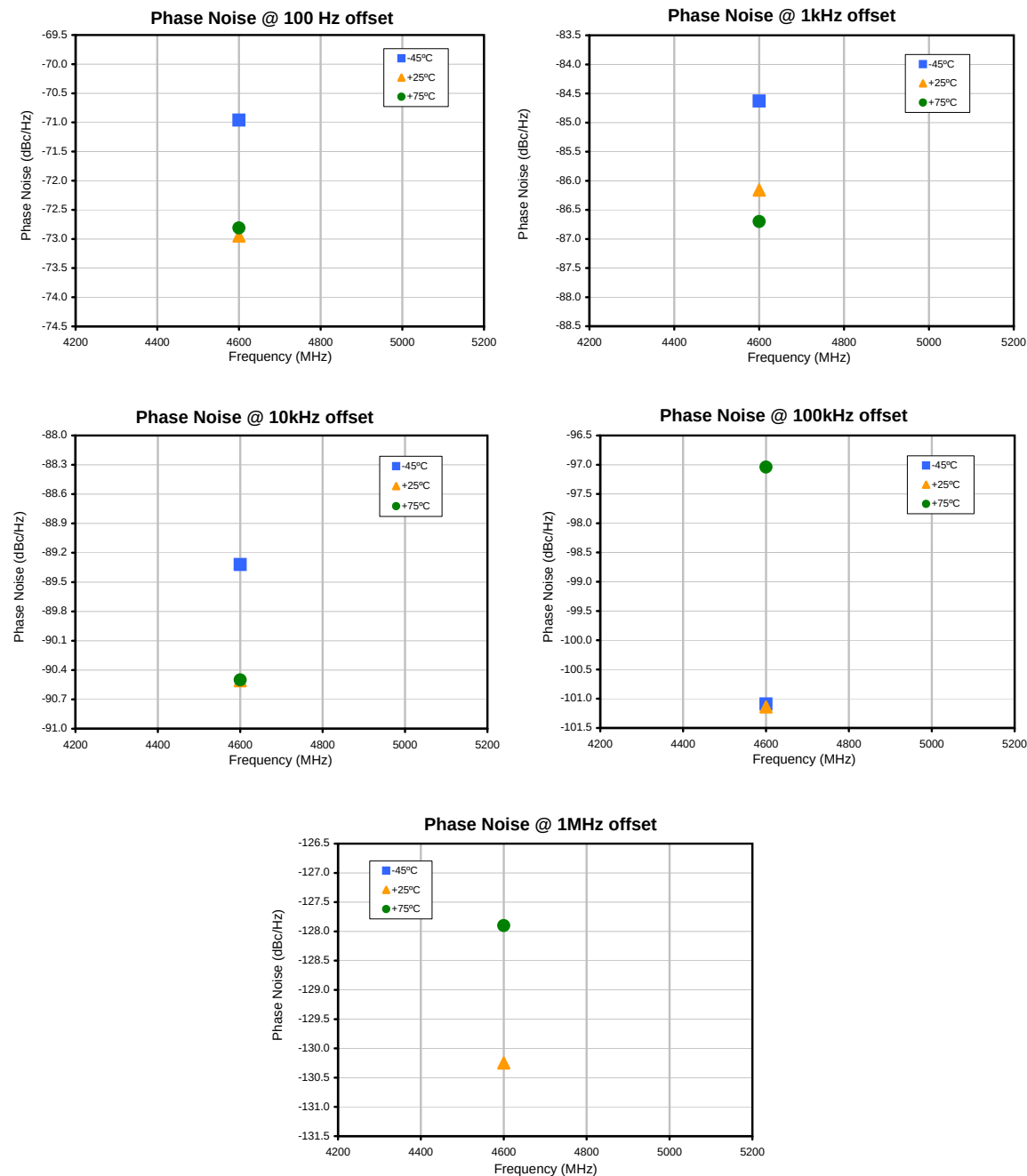
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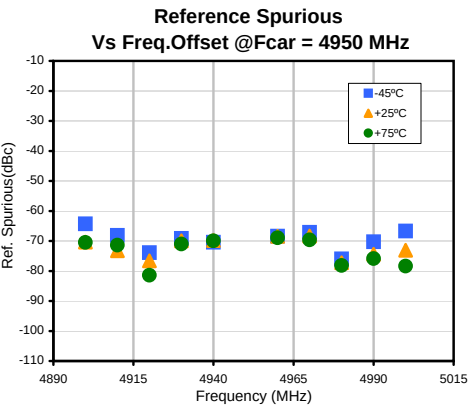
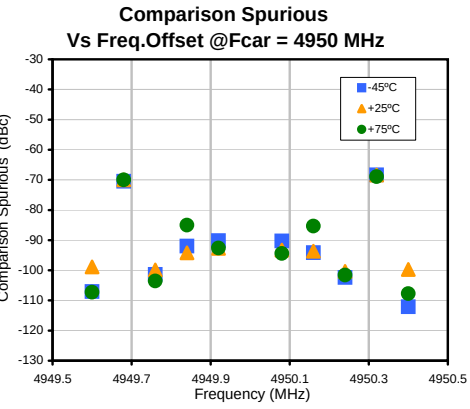
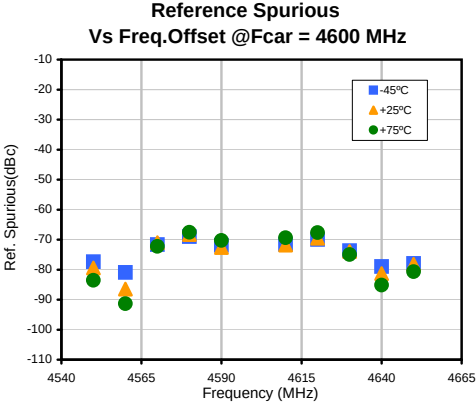
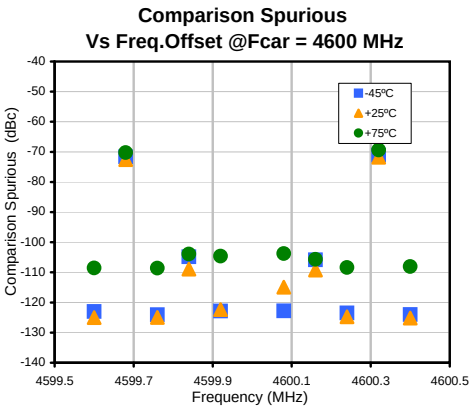
Typical Performance Data

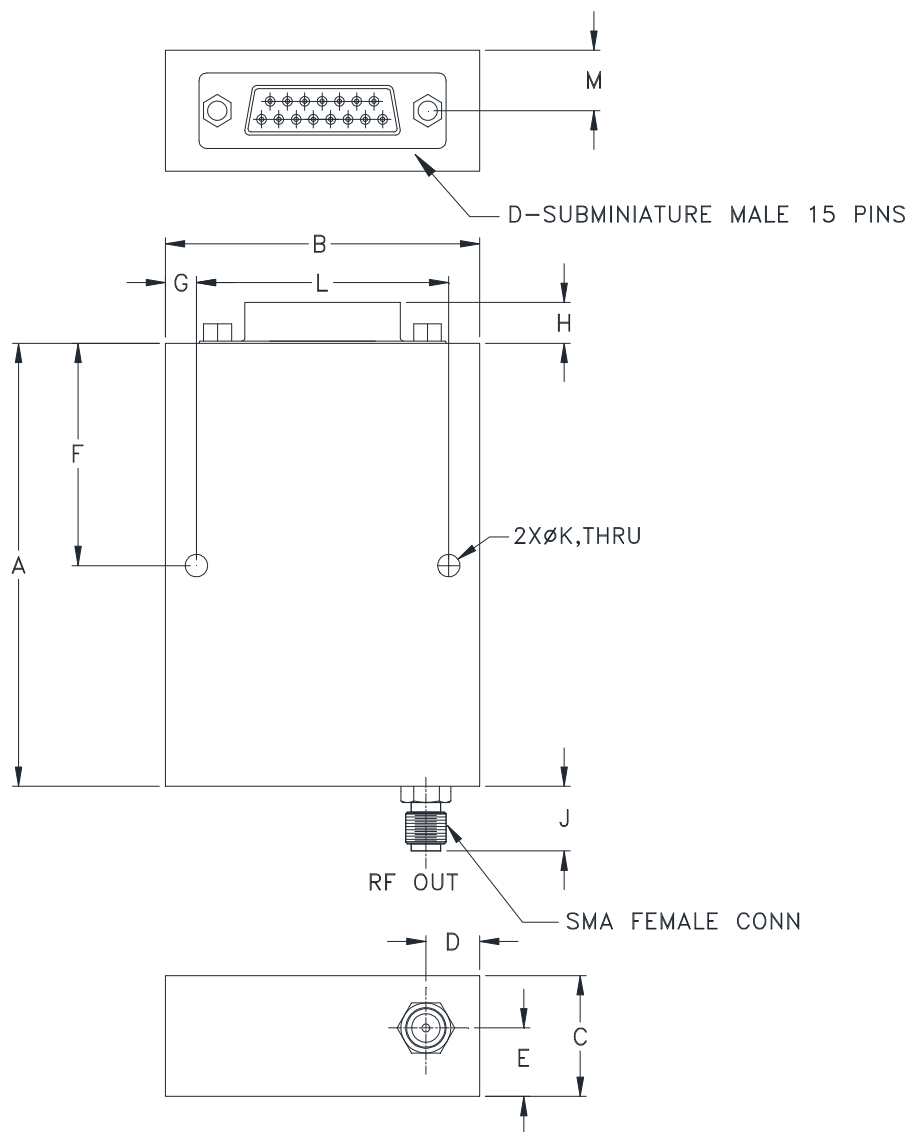


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Typical Performance Data





CASE#	A	B	C	D	E	F	G	H	J	K	L	M	WT. GRAMS
KF1336	2.75 (69.85)	1.96 (49.78)	.75 (19.05)	.34 (8.64)	.375 (9.52)	1.38 (35.05)	.19 (4.83)	.25 (6.35)	.40 (10.16)	.14 (3.56)	1.575 (40.0)	.375 (9.52)	130

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Case material: Aluminum alloy.
- Case finish: Clear chemical conversion coating, non-chrome or trivalent chrome based.



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All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-40° to 85° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Vibration (High Frequency)	20g peak, 20-2000 Hz, 4 times in each of three axes (total 12)	MIL-STD-883, Method 2007.3, Condition A
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A