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.

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

CASE STYLE : KF1336

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**	2.93		3.33	V
	Unlocked			0.4	
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				

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Frequency Synthesizer ZSN-EDR10920/1

Typical Performance Data

FREQ. (MHz)	POWER OUTPUT (dBm)			HARMONICS (dBc)						VCO CURRENT (mA)			PLL CURRENT (mA)		
				F2			F3								
	-45 °C	+25ºC	+75 °C	-45 °C	+25ºC	+75 °C	-45 °C	+25ºC	+75 °C	-45 °C	+25ºC	+75 °C	-45 °C	+25ºC	+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					+25ºC					+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 n	COMPARISON SPURIOUS @Fcarrier 4600 MHz± (n*Fcomparison) (dBc) NOTE 1			COMPARISON SPURIOUS @Fcarrier 4950 MHz± (n*Fcomparison) (dBc) NOTE 1		
	-45 °C	+25ºC	+75 °C	-45 °C	+25ºC	+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 n	REFFERENCE SPURIOUS @Fcarrier 4600 MHz± (n*Freffence) (dBc) NOTE 3			REFFERENCE SPURIOUS @Fcarrier 4950 MHz± (n*Freffence) (dBc) NOTE 3		
	-45 °C	+25ºC	+75 °C	-45 °C	+25ºC	+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).

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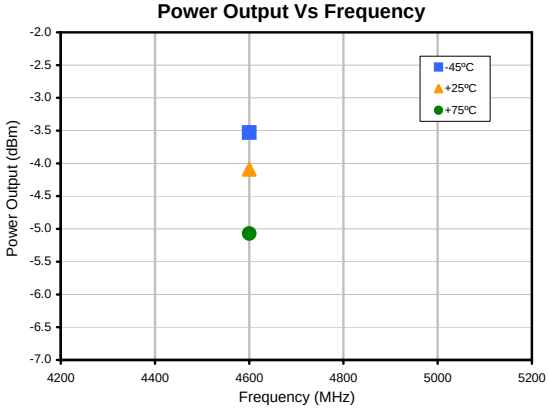
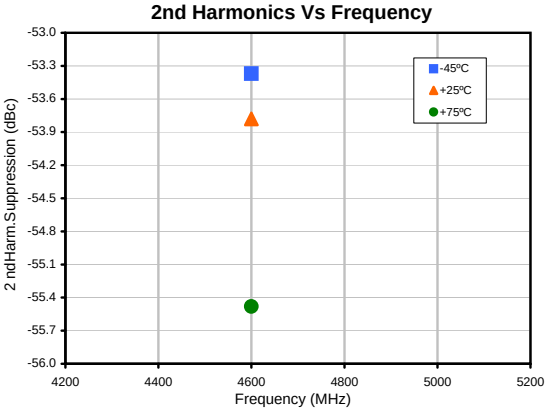
Frequency Synthesizer ZSN-EDR10920/1

Typical Performance Data

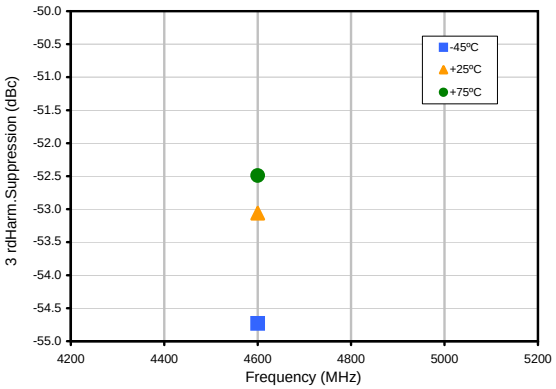
Power Output Vs Frequency



2nd Harmonics Vs Frequency



3rd Harmonics Vs Frequency



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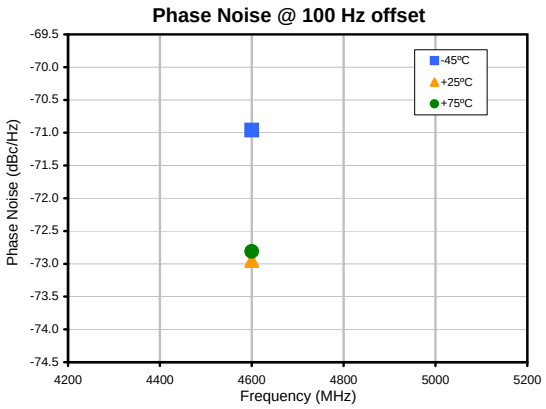
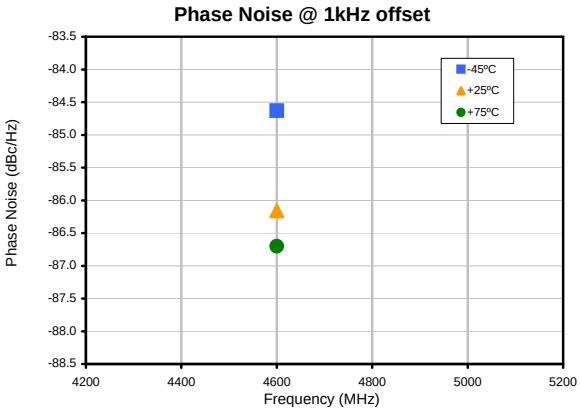
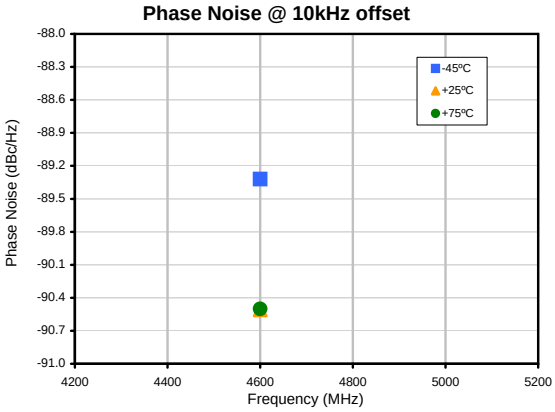
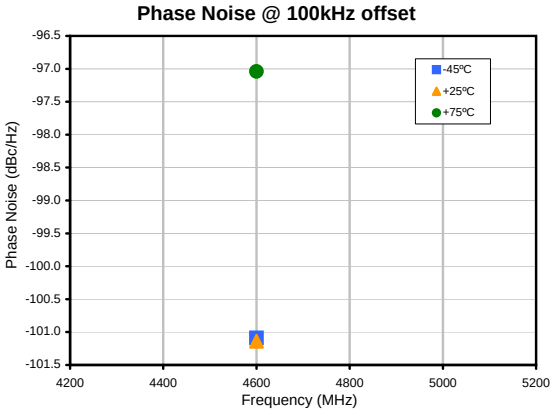
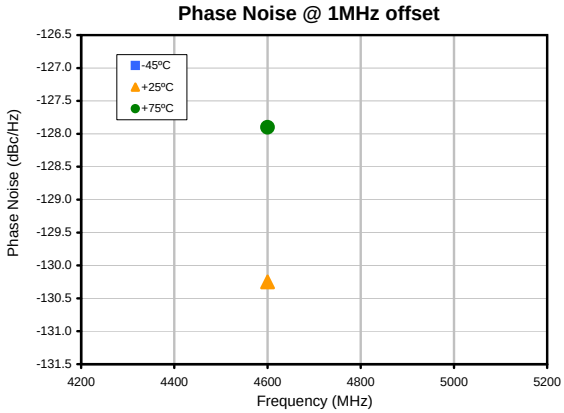
Typical Performance Data











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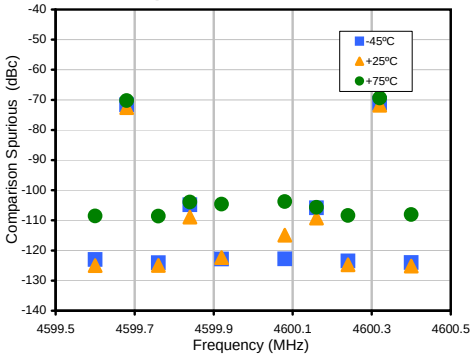
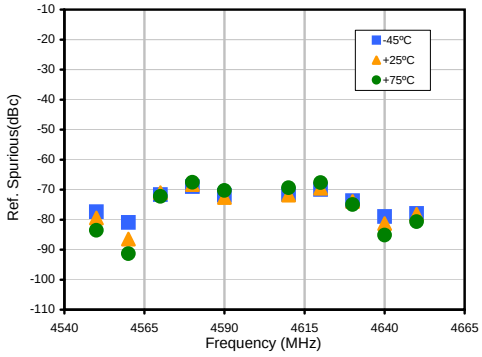
Typical Performance Data

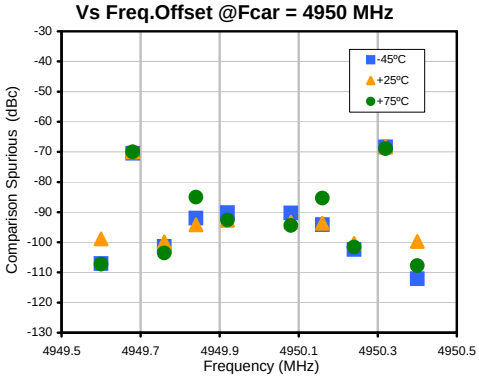
Comparison Spurious
Vs Freq.Offset @Fcar = 4600 MHz



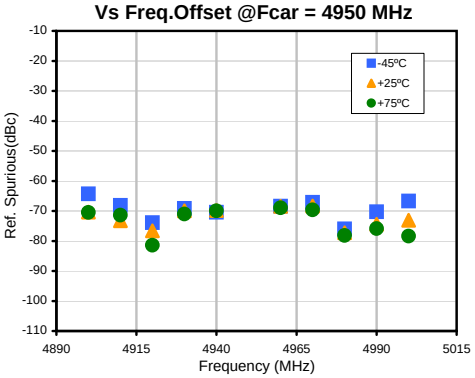
Reference Spurious
Vs Freq.Offset @Fcar = 4600 MHz



Comparison Spurious
Vs Freq.Offset @Fcar = 4950 MHz



Reference Spurious
Vs Freq.Offset @Fcar = 4950 MHz



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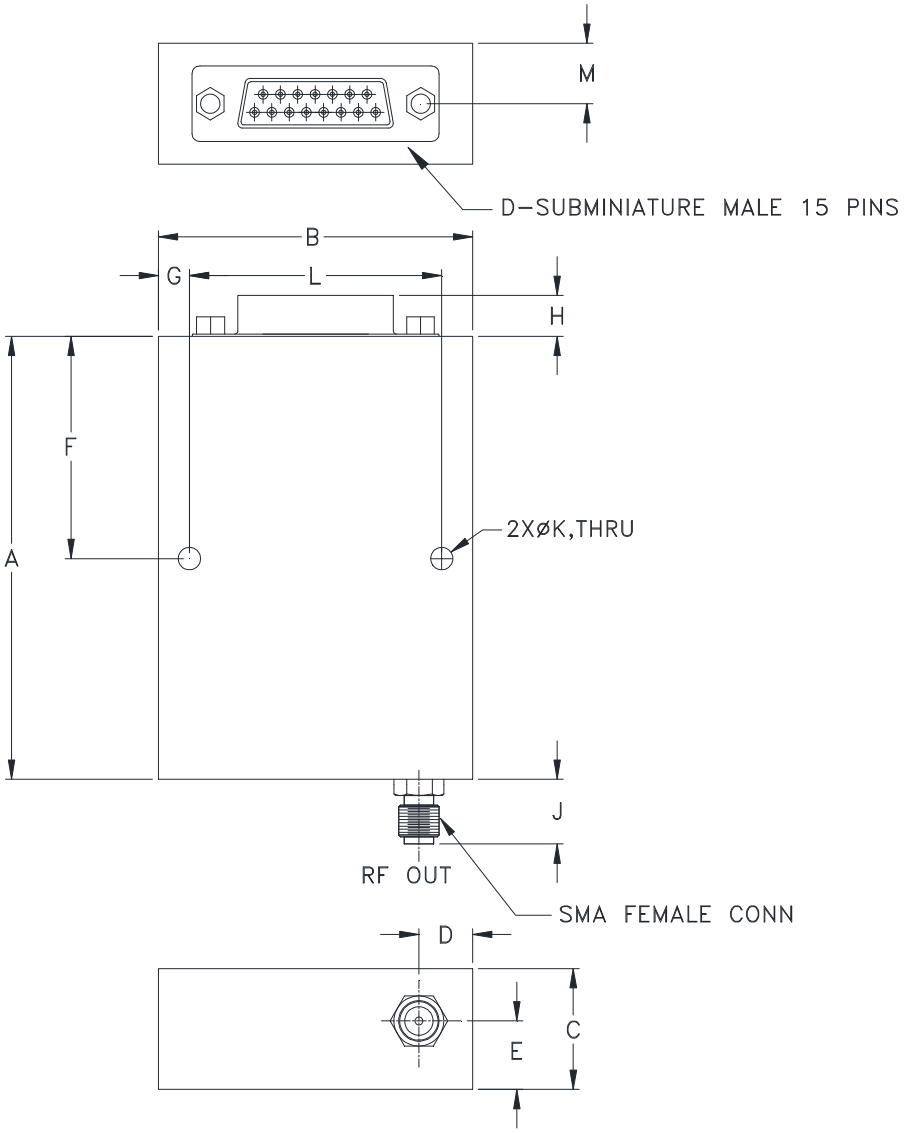
Case Style KF

KF1336

Outline Dimensions



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. ± .03; 3 Pl. ± .015

Notes:

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

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Environmental Specifications ENV48T3

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

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