

Plug-In

Voltage Controlled Oscillator

POSA-138+

Low Noise 118 to 138 MHz

Features

- low phase noise, -163 dBc/Hz at 1 MHz offset, typ.
- linear tuning
- excellent harmonic suppression, -40 dBc typ.
- load insensitive
- hermetic metal case

Applications

- aircraft
- transmitters
- military hi-rel applications



CASE STYLE: C07

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Electrical Specifications

FREQUENCY (MHz)		POWER OUTPUT (dBm)	TUNING VOLTAGE (V)		PHASE NOISE (dBc/Hz)					PULLING pk-pk @ 12 dB (MHz)	PUSHING (MHz/V)	TUNING SENSITIVITY (MHz/V)	HARMONICS (dBc)		3 dB MODULATION BANDWIDTH (MHz)	DC OPERATING POWER	
Min.	Max.	Typ.	Min.	Max.	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz	Typ.	Typ.	Typ.	Typ.	Max.	Typ.	Vcc (volts)	Current (mA)
118	138	+5	1	16	-72	-100	-125	-145	-163	0.07	0.03	2.3	-40	-30	2.0	12	25

Pin Connections

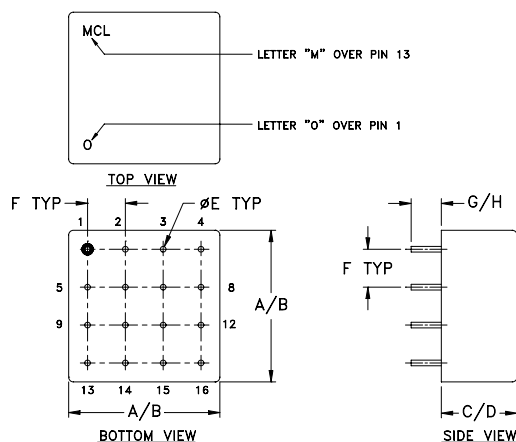
RF OUT	9
VCC	12
V-TUNE	3
GROUND	1,2,4,5,6,7,8,10,11,13,14,15,16
CASE GROUND	2,5,6,7,8,10,11,13,14

Maximum Ratings

Operating Temperature	-55°C to 85°C
Storage Temperature	-55°C to 100°C
Absolute Max. Supply Voltage (Vcc)	+15V
Absolute Max. Tuning Voltage (Vtune)	+24V

all specifications: 50 ohm system
Permanent damage may occur if any of these limits are exceeded.

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	wt
.770	.810	.380	.410	.030	.200	.20	.14	grams
19.56	20.57	9.65	10.41	0.76	5.08	5.08	3.56	11.0

Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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/MCLStore/terms.jsp

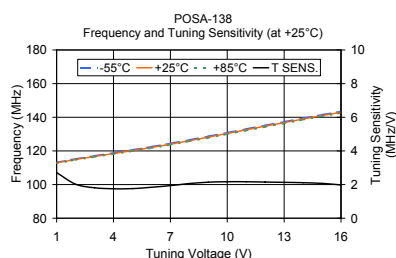


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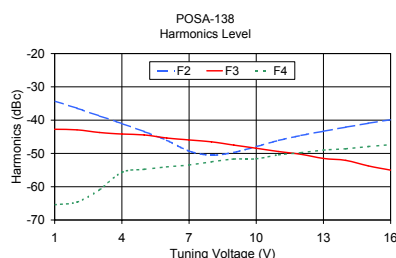
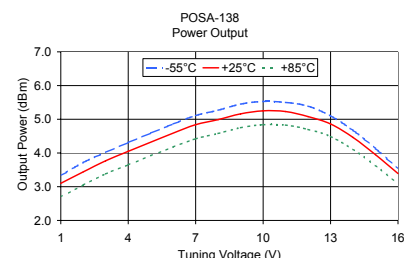
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Performance Curves

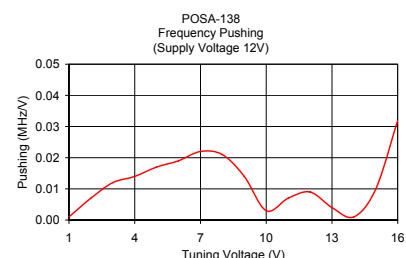
POSA-138+



V TUNE	TUNING SENS. (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)		
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C
1.00	2.71	113.26	112.87	112.65	3.33	3.10	2.70
2.00	2.02	115.30	114.90	114.64	3.72	3.44	3.05
3.00	1.81	117.13	116.71	116.43	4.02	3.77	3.38
4.00	1.75	118.89	118.46	118.15	4.31	4.05	3.65
5.00	1.76	120.68	120.22	119.89	4.59	4.32	3.92
6.00	1.84	122.54	122.05	121.70	4.86	4.59	4.18
7.00	1.94	124.51	124.00	123.62	5.11	4.84	4.42
8.00	2.06	126.59	126.06	125.66	5.27	4.99	4.58
9.00	2.14	128.73	128.20	127.79	5.45	5.16	4.75
10.00	2.17	130.90	130.37	129.95	5.53	5.25	4.84
11.00	2.17	133.08	132.54	132.12	5.50	5.23	4.83
12.00	2.15	135.24	134.69	134.26	5.39	5.08	4.70
13.00	2.13	137.37	136.81	136.33	5.10	4.86	4.49
14.00	2.11	139.48	138.93	138.49	4.67	4.46	4.11
15.00	2.07	141.54	140.99	140.56	4.13	3.95	3.63
16.00	1.98	143.52	142.97	142.54	3.53	3.39	3.10



V TUNE	HARMONICS (dBc)			FREQ. PUSHING (MHz/V)
	F2	F3	F4	
1.00	-34.25	-42.75	-65.41	0.00
2.00	-36.42	-42.92	-64.59	0.01
3.00	-38.72	-43.72	-60.89	0.01
4.00	-41.00	-44.17	-55.67	0.01
5.00	-43.44	-44.44	-54.77	0.02
6.00	-46.04	-45.37	-54.04	0.02
7.00	-49.29	-45.96	-53.46	0.02
8.00	-50.51	-46.51	-52.51	0.02
9.00	-49.68	-47.51	-51.68	0.01
10.00	-47.94	-48.44	-51.60	0.00
11.00	-46.08	-49.42	-50.42	0.01
12.00	-44.60	-50.27	-49.77	0.01
13.00	-43.33	-51.50	-49.00	0.00
14.00	-42.10	-52.10	-48.60	0.00
15.00	-40.92	-53.75	-47.92	0.01
16.00	-39.86	-55.03	-47.36	0.03



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Voltage Controlled Oscillator

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Typical Performance Data

V TUNE	TUNE SENS (MHz/V)	FREQUENCY (MHz)			POWER OUTPUT (dBm)			HARMONICS (dBc)			FREQ. PUSH (MHz/V)	FREQ OFFSET (KHz)	PHASE NOISE (dBc/Hz)
		-55°C	+25°C	+85°C	-55°C	+25°C	+85°C	F2	F3	F4			
1.0	2.70	113.3	112.9	112.7	3.33	3.10	2.70	-34.3	-42.8	-65.4	0.00	0.1	-72
2.0	2.00	115.3	114.9	114.6	3.72	3.44	3.05	-36.4	-42.9	-64.6	0.01	1	-100
3.0	1.80	117.1	116.7	116.4	4.02	3.77	3.38	-38.7	-43.7	-60.9	0.01	10	-125
4.0	1.80	118.9	118.5	118.2	4.31	4.05	3.65	-41.0	-44.2	-55.7	0.01	100	-145
5.0	1.80	120.7	120.2	119.9	4.59	4.32	3.92	-43.4	-44.4	-54.8	0.02	1000	-163
6.0	1.80	122.5	122.1	121.7	4.86	4.59	4.18	-46.0	-45.4	-54.0	0.02		
7.0	1.90	124.5	124.0	123.6	5.11	4.84	4.42	-49.3	-46.0	-53.5	0.02		
8.0	2.10	126.6	126.1	125.7	5.27	4.99	4.58	-50.5	-46.5	-52.5	0.02		
9.0	2.10	128.7	128.2	127.8	5.45	5.16	4.75	-49.7	-47.5	-51.7	0.01		
10.0	2.20	130.9	130.4	130.0	5.53	5.25	4.84	-47.9	-48.4	-51.6	0.00		
11.0	2.20	133.1	132.5	132.1	5.50	5.23	4.83	-46.1	-49.4	-50.4	0.01		
12.0	2.20	135.2	134.7	134.3	5.39	5.08	4.70	-44.6	-50.3	-49.8	0.01		
13.0	2.10	137.4	136.8	136.3	5.10	4.86	4.49	-43.3	-51.5	-49.0	0.00		
14.0	2.10	139.5	138.9	138.5	4.67	4.46	4.11	-42.1	-52.1	-48.6	0.00		
15.0	2.10	141.5	141.0	140.6	4.13	3.95	3.63	-40.9	-53.8	-47.9	0.01		
16.0	2.00	143.5	143.0	142.5	3.53	3.39	3.10	-39.9	-55.0	-47.4	0.03		

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POSA-138+
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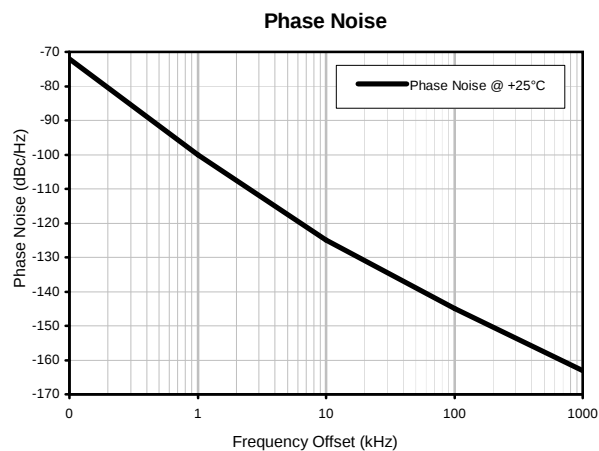
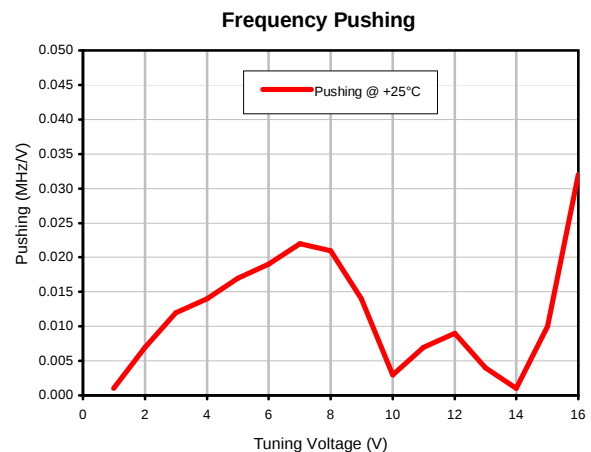
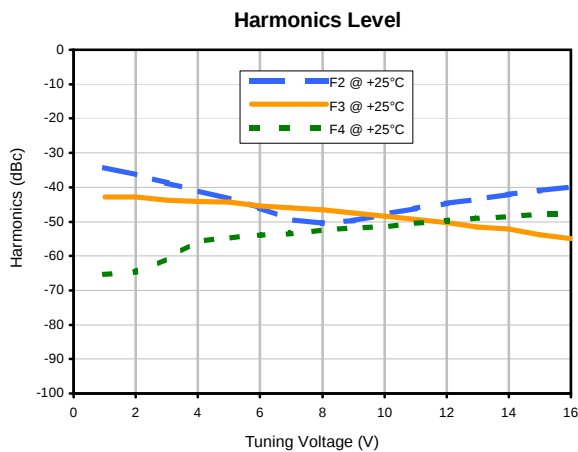
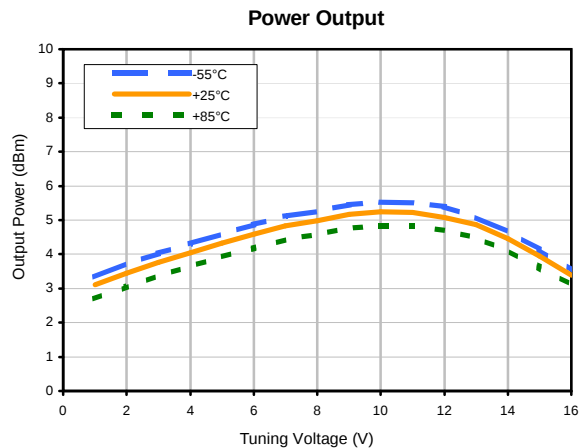
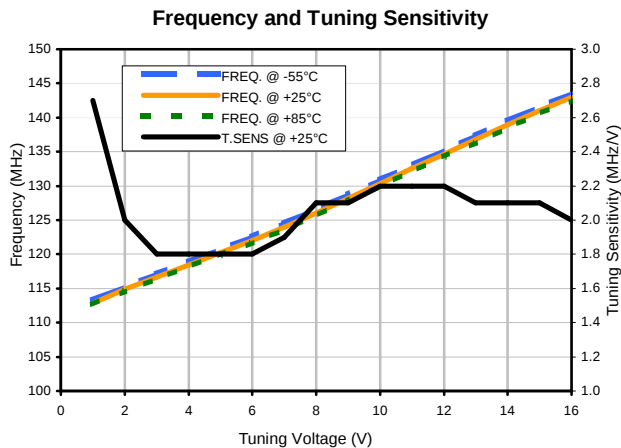
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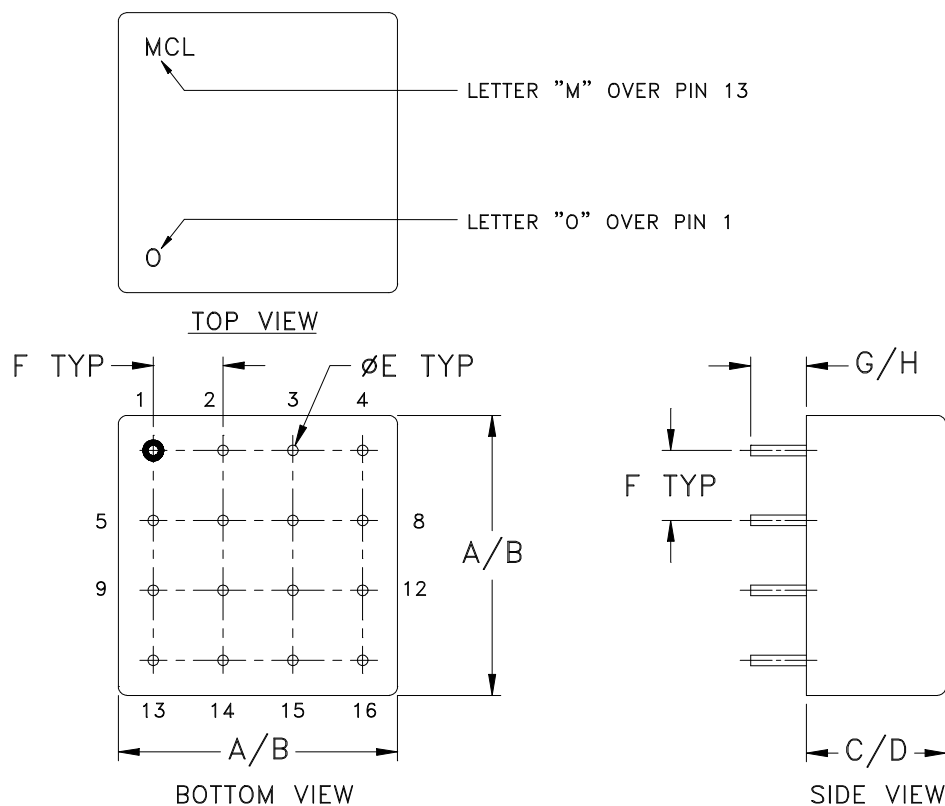
POSA-138+

Typical Performance Data



Outline Dimensions

C07



CASE#	A	B	C	D	E	F	G	H	WT. GRAM
C07	.770 (19.56)	.810 (20.57)	.380 (9.65)	.410 (10.41)	.030 (.76)	.200 (5.08)	.20 (5.08)	.14 (3.56)	11.0

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

Notes:

- Header material: C.R.S.
Pin material: #52 alloy.
Cover material: Cupro-Nickel.
- Pin finish: Electro Tin-Silver..
- Tolerance on pin diameter $\pm .005$ inch.
- Glass meniscus 0.015 inch max.
- Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.



INTERNET <http://www.minicircuits.com>

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Mini-Circuits ISO 9001 & ISO 14001 Certified



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	-55° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Moisture Resistance	10 cycles, 24 hours per cycle	MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
Terminal Strength	4 1/2 Pound Pull	MIL-STD-202, Method 211, Condition A



Environmental Specifications

ENV01T1

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Specification	Test/Inspection Condition	Reference/Spec
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D