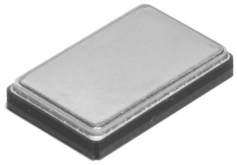
Preliminary

Discontinued

RFM products are now Murata products.

HX1080

1030.0 MHz SAW Oscillator



- ***SAW Frequency Stabilized***
- ***Fundamental-mode Oscillation at 1030.0 MHz***
- ***Designed for ATC/TCAS Transponder Applications***
- ***Complies with Directive 2002/95/EC (RoHS)***

The frequency of this oscillator is stabilized by UHF surface-acoustic-wave (SAW) technology, providing excellent performance in a compact, rugged oscillator operating at the fundamental frequency of 1030.0 MHz. The highly-reliable HX1080 is designed for use in Mode-S Air Traffic Control Transponders/Traffic Alert and Collision Avoidance Systems (TCAS).

Absolute Maximum Ratings

Rating		Value	Units
DC Supply Voltage		3.0 to +3.7	VDC
Ambient Temperature	Powered	-55 to +105	°C
	Storage	-55 to +125	

Electrical Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Operating Frequency	Absolute Frequency	f_O	1, 7	1029.7	1030.0	1030.3	MHz
	Tolerance from 1030.0 MHz	Δf_O				±300	kHz
RF Output Power		P_O	3, 6	+10	+12	+13	dBm
Start-up Time			2, 8			500	ns
Discrete Spurious	Second Harmonics		2, 3, 4		-25	-20	dBc
	Third and Higher Harmonics				-35	-30	
	Nonharmonic				< -100	-80	
SSB Phase Noise	1 kHz Offset		2, 3, 4			-90	dBc/Hz
	10 kHz Offset					-110	
RF Impedance	Nominal Impedance	Z_O	3		50		Ω
	Operating Load VSWR	G_L	3, 5			1.5:1	
DC Power Supply	Operating/Enable Voltage	V_{CC}	3, 6	3.0	3.3	3.7	VDC
	Operating Current	I_{CC}			37	40	mA
Operating Ambient Temperature		T_A	3, 6	-55		+105	°C
Lid Symbolization (YY=Year, WW=Week)				RFM HX1080 YYWW			

CAUTION: Electrostatic Sensitive Device. Observe precautions for handling. COCOM CAUTION: Approval by the U.S. Department of Commerce is required prior to export of this device.

NOTES:

1. One or more of the following United States patents apply: 4,760,352; 5,787,117; and 7,260,375.
2. Unless noted otherwise, all specifications are listed at T_A = +25 ±2 °C, V_{CC} = nominal voltage ±0.01 VDC, and load impedance = 50 Ω with VSWR ≤ 1.5:1.
3. The design, manufacturing process, and specifications of this device are subject to change without notice.
4. Applies to oscillator only and not to sidebands caused by external electrical or mechanical sources. (Dedicated external voltage regulation with low-frequency filtering for the DC power supply and proper circuit board layout are recommended for optimum spectral purity.)
5. For specified maximum operating load VSWR,any angle, at F_O. No instability or damage will occur for any passive load impedance.
6. For any combination of V_{CC} and T_A within the specified operating ranges.
7. Applies for any combination of Note 5 and 6 conditions.
8. Start-up time is defined as the time from when 90% of Vcc is applied to the Enable Pin until the RF output reaches 90% of its steady-state output level.

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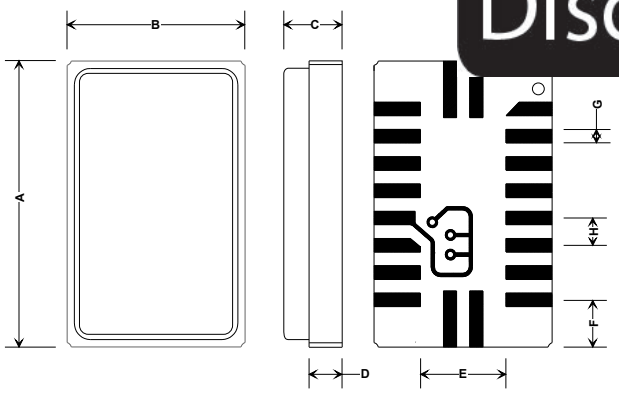
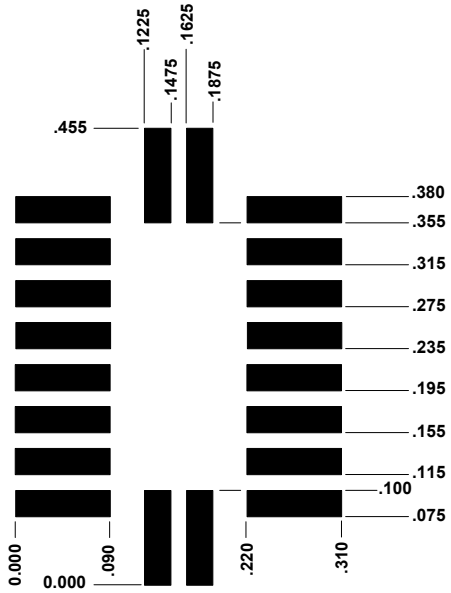


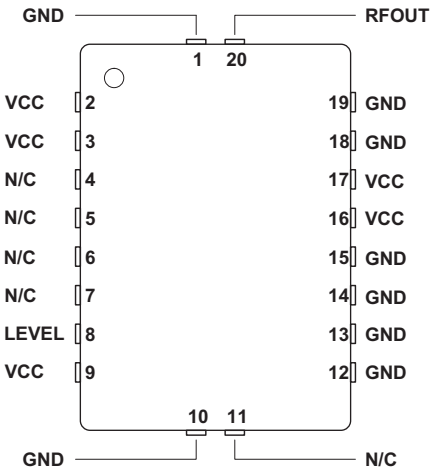
				Inches		
			Max	Min	Nom	Max
A	10.6	10.7	10.9	0.417	0.423	0.429
B	6.7	6.8	7.0	0.264	0.270	0.276
C	1.5	1.8	2.0	0.061	0.070	0.079
D	1.4	1.7	1.9	0.058	0.066	0.074
E	3.2	3.3	3.4	0.125	0.130	0.135
F	1.8	1.9	2.0	0.069	0.074	0.079
G	0.4	0.6	0.6	0.015	0.020	0.025
H	0.9	1.0	1.1	0.035	0.040	0.045
I	1.7	1.8	1.9	0.065	0.070	0.075



Dimensions in inches

SM3-20H PCB Pad Layout

HX1080 Pin Out



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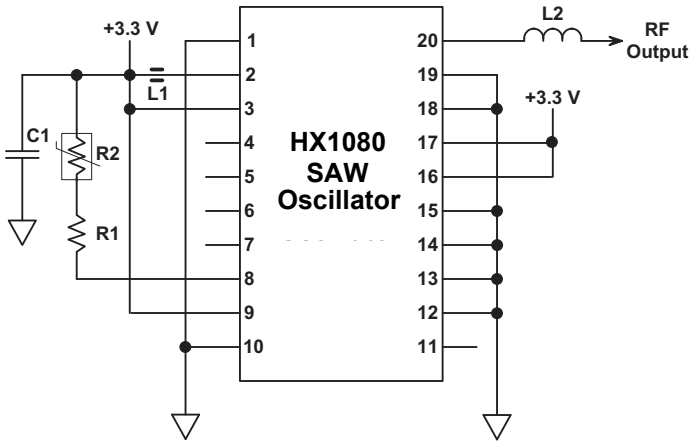

Ref	Description	Part Number	Manufacturer
C1	Capacitor, 0.1 µF, 0402 SMD	GRM155R61A104KA01B	Murata
L1	Ferrite Bead, 300 ohm, 0402 SMD	74279272	Wurth Electonics, Inc.
L2	Inductor, 1.8 nH 0402 SMD	LL1005-FHL1N8S	TOKO
R1	Resistor, 4.99K, 0402 SMD, 1/16 W, 5%	RR0510P-4991-D	Susumu
R2	Thermistor, 0805 SMD, 1K, +4110 ppm	TFPT0805L1001FV	Vishay Dale
U1	1030 MHz SAW Oscillator, SMD	HX1080	RF Monolithics, Inc.

Pin	Name	Description
1	GND	Oscillator Ground
2	VCC	Power Input, +3.3 V nominal. This pin must be supplied through a ferrite bead of 300 ohm nominal impedance
3	VCC	Power Input, +3.3 V nominal
4	N/C	Mechanical connection only, make no electrical connection
5	N/C	Mechanical connection only, make no electrical connection
6	N/C	Mechanical connection only, make no electrical connection
7	N/C	Mechanical connection only, make no electrical connection
8	LEVEL	Current-driven RF output level control input. Allows temperature compensation of RF output level.
9	VCC	Power Input, +3.3 V nominal
10	GND	Oscillator Ground
11	N/C	Mechanical connection only, make no electrical connection
12	GND	Oscillator Ground
13	GND	Oscillator Ground
14	GND	Oscillator Ground
15	GND	Oscillator Ground
16	VCC	Power Input, +3.3 V nominal
17	VCC	Power Input, +3.3 V nominal
18	GND	Oscillator Ground
19	GND	Oscillator Ground
20	RFOUT	RF output pin, match to 50 ohm load with a 1.8 nH series inductor