



# HX1007

- **Ideal for 433.92 MHz Unlicensed Transmitters in Europe**
- **Quartz SAW Frequency Stabilization and Harmonic Filtering**
- **Compact, Surface-Mount Case with <90 mm<sup>2</sup> Footprint**

## 433.92 MHz Hybrid Transmitter

The HX1007 is a miniature hybrid transmitter designed for data transmission using on-off keyed (OOK) modulation. The transmitter is stabilized by a quartz SAW device for long-term frequency stability. The HX1007 is recommended for data rates up to 19.2 kbps (52 μsec bit period). The HX1007 is designed for unlicensed control, security and data links certified and operating under ETSI-I-ETS 300 200 regulations.

### Absolute Maximum Ratings

Rating	Value	Units
Power Supply and/or Modulation Input Voltage	10	V
Nonoperating Case Temperature	-40 to +85	°C
Ten-Second Soldering Temperature	230	°C



SM-4 Case

### Electrical Characteristics

Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Operating Frequency	Absolute Frequency	f <sub>O</sub>	1, 2, 3, 4,	433.72		434.12	MHz
	Tolerance from 433.92 MHz	Δf <sub>O</sub>	10			±200	kHz
RF Output Power into 50 Ω at 25°C	Within Specified Temperature Range	P <sub>O</sub>	2, 4, 5, 10	-3	0		dBm
			2, 3, 4, 5	-5	0		
Harmonic Spurious Emissions			2, 3, 4, 5		-40		dBc
Modulation Input	Input HIGH Voltage	V <sub>IH</sub>	3, 4, 5	2.5		V <sub>CC</sub>	V
	Input LOW Voltage	V <sub>IL</sub>		0.0		0.3	
	Input HIGH Current	I <sub>IH</sub>				100	μA
	Input LOW Current	I <sub>IL</sub>		0.0			
Data Timing Parameters	Modulation Rise Time	t <sub>R</sub>	3, 4, 5, 6		12		μs
	Modulation Fall Time	t <sub>F</sub>			10		
Power Supply	Voltage	V <sub>CC</sub>	5, 7	2.7	3	3.3	VDC
	Peak Current	I <sub>CC</sub>	3, 4, 5, 8		7	10	mA
	Standby Current		5, 9			1.0	μA
Operating Case Temperature Range		T <sub>C</sub>	5	-40		+85	°C
Lid Symbolization (in addition to Lot and/or Date Codes)				RFM HX1007			



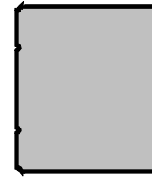
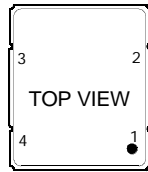
**CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.**

### NOTES:

1. One or more of the following United States patents apply: 4,454,488; 4,616,197; 4,670,681; and 4,760,352.
2. Typically, equipment utilizing this device requires emissions testing and government approval, which is the responsibility of the equipment manufacturer.
3. Applies over the specified range of operating temperature.
4. Applies over the specified range of operating power supply voltage.
5. The design, manufacturing process, and specifications of this device are subject to change without notice.
6. The maximum modulation bandwidth (and data rate) is dependent on the characteristics of the external encoding circuitry (not included).
7. Unless noted otherwise, case temperature T<sub>C</sub> = +25°C ± 2°C, test load impedance = 50 Ω, and modulation input is at logic HIGH.
8. The maximum operating current occurs at the maximum specified power supply voltage and maximum specified operating temperature.
9. Standby current is defined as the supply current consumed with the modulation input at logic LOW.
10. Improper antenna loading affects performance of HX device.

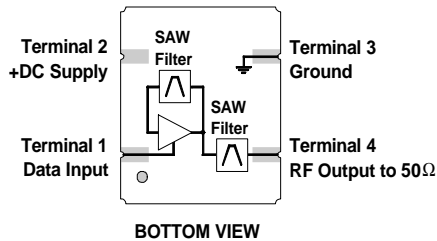
## Electrical Connections

Terminal Number	Connections
1	Data Input
2	+DC Supply
3	Ground
4	RF Output to 50 Ω

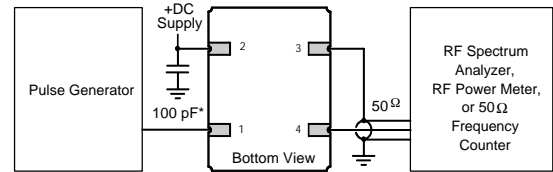


## Footprint

## Block Diagram

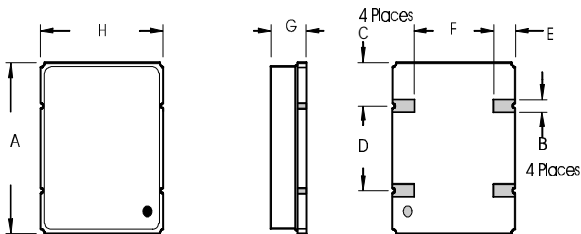


## Typical Test Circuit



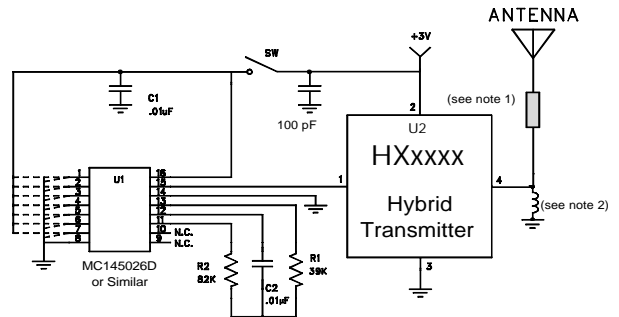
**\*Note:** Bypass required only for "HX2..." series transmitters in the 902 to 928 MHz band.

## Case Design



Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A		10.67		0.420
B	1.27 Nominal		0.050 Nominal	
C	2.67 Nominal		0.105 Nominal	
D	5.08 Nominal		0.200 Nominal	
E	1.70 Nominal		0.067 Nominal	
F	5.36 Nominal		0.211 Nominal	
G		2.80		0.110
H		9.02		0.355

## Typical Transmitter Application



## Notes:

1. This matching component is required only for antennas that are not 50 ohms. It is typically a chip inductor to match to stub antennas shorter than 1/4 wavelength. For very low radiated field-strength applications, a resistor can also be used.
2. For ESD protection.