

Short Range Radio Module 902-928 MHz Frequency Agile With SPI Bus Interface

Features

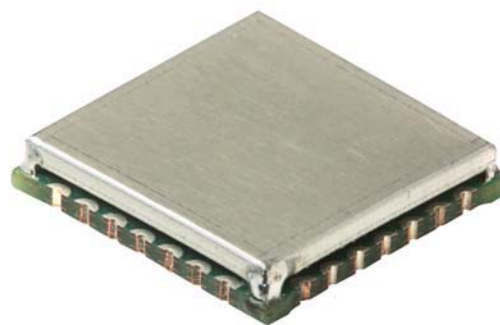
- Up To +6 dBm Output Power Into 50 Ohms
- HW Configurable Version For External PA & Antenna Switch
- 20mA Transmit Current At 1mW Output, 33mA Receive Current
- Direct Connection To Microprocessor Via SPI Bus
- Integrated Ant. Switch, LNA, Xtal Plus All RF Passives
- Receiver Has better than -70 dbm Sensitivity at 19.2 kbps
- Digital Encoding, Decoding And Correlator
- 23mm X 23mm X 4.5mm , Surface Mountable
- Prog. Power Levels, Freq. And Tx/Rx/Standby
- Operates From Single 2.8-3.3v Power Supply
- Drivers Available For Microchip 16F87X Series And Others

Description

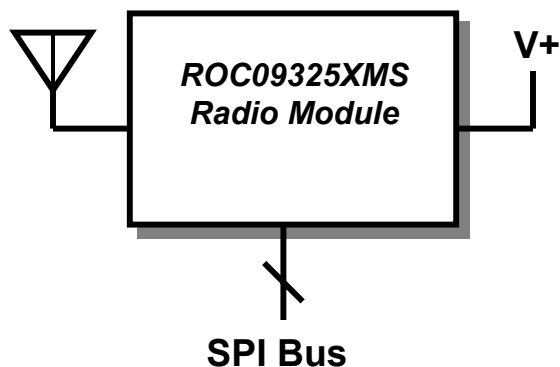
The HRF-09325XMS is a 23mm x 23mm shielded radio transceiver module for use in the 902-928 MHz ISM Band. Virtually no RF knowledge is required to use this module; only an antenna and a micro controller need be added to create a frequency agile wireless product. The module can be surface mounted/re-flowed or hand soldered as a means of attachment. Honeywell will provide basic firmware routines for controlling the module using standard serial peripheral interface (SPI) bus protocol.

Similar to the HRF-09325XM the HRF-09325XMS provides cost effective wireless connectivity at distances up to 300 feet outdoors and 40' indoors.

Product Photo



Functional Schematic



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RF Electrical Specifications @ + 25°C

Parameter	Test Condition	Frequency	Minimum	Typical	Units
Rx Sensitivity		902– 928 MHz	-70	-75	dBm
Tx Output Power	Vdd = 3V	902– 928 MHz		+6	dBm
Data Rate, Tx / Rx	Continuous Data			19.2	Kbps
Channel Rejection	Adjacent Channels	Fc +/- 300KHz		60	dB
Dynamic Range				60	dB
Baseband Filter Fc				100	KHz

DC Electrical Specifications @ + 25°C

Parameter	Minimum	Typical	Maximum	Units
V _{DD} Power Supply Voltage	3.0		3.3	V
Power Supply Current During Tx, Output Power Dependant (915 MHz, 3dBm/ 50 ohm load)		20		mA
Power Supply Current (I _{DD}) During Rx (915MHz)		33		mA
Standby Power Consumption		<5		uA
CMOS Logic Level (0)	0		0.7	V
CMOS Logic Level (1)	1.7		V _{DD}	V

Absolute Maximum Ratings¹

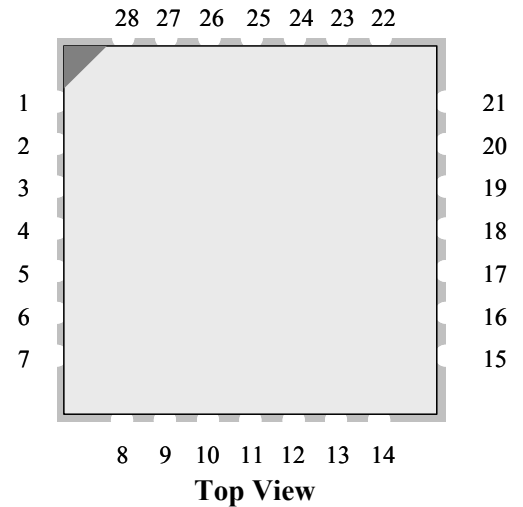
Parameter	Absolute Maximum	Units
Maximum Input Power	-	-
V _{DD}	+ 3.6	V
Operating Temperature	- 40 to + 85	Degrees C
Storage Temperature	- 40 to + 150	Degrees C

(Note 1) Operation Of The HRF-ROC09325XM Beyond Any Of These Parameters May Cause Permanent Damage.

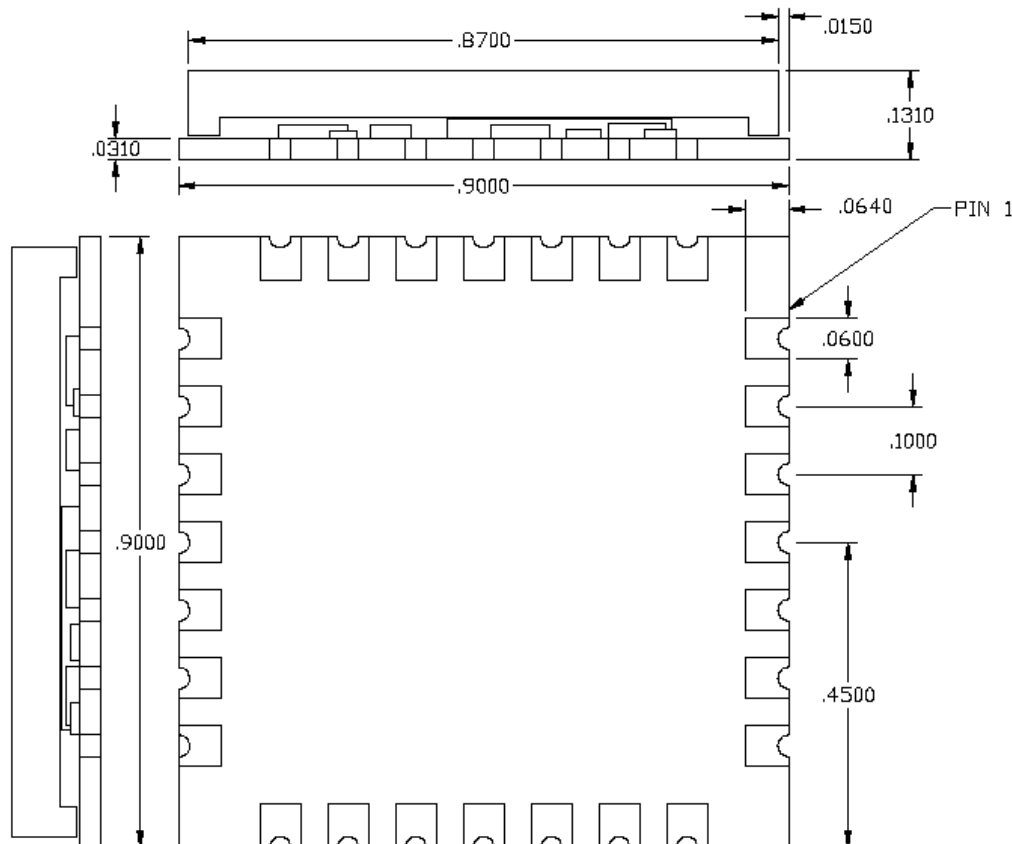
ESD Protection: Precautions Should Be Taken During Handling / Assembly Until Protected By External Circuitry or Housings

Pin Configuration

Pin	Name	Pin	Name
1	RX Enable Out	15	Ground
2	No Connection	16	VDD
3	RF I/O to Antenna	17	Crystal/2
4	Not Used	18	Tx Data V
5	No Connection	19	SPI Data Out
6	VDD	20	SPI SSN
7	Ground	21	SPI Data In
8	No Connection	22	Reset
9	No Connection	23	VDD
10	Ground	24	Ground
11	VDD	25	SPI Clock
12	No Connection	26	SPI Interrupt
13	VCO Control Voltage	27	Tx Enable
14	No Connection	28	RSSI Out



Package Outline – Bottom View



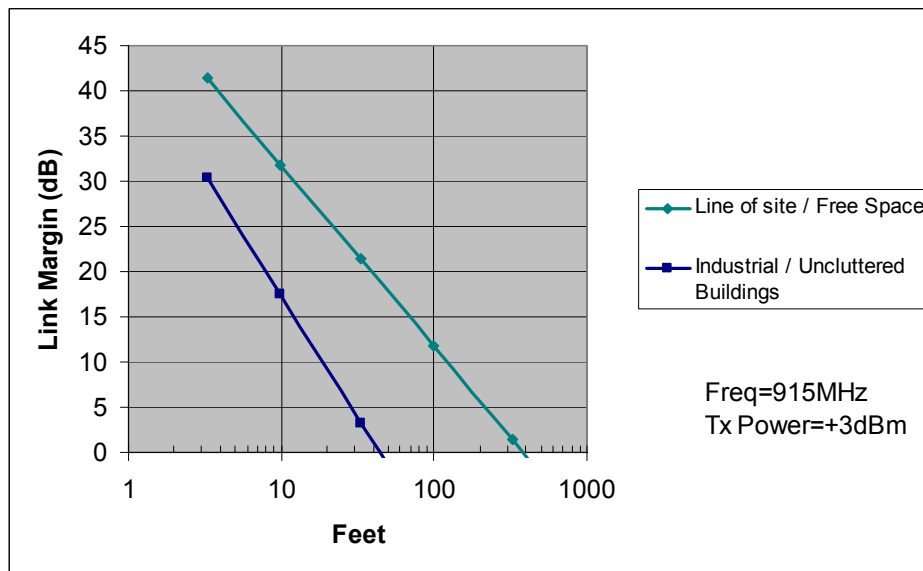
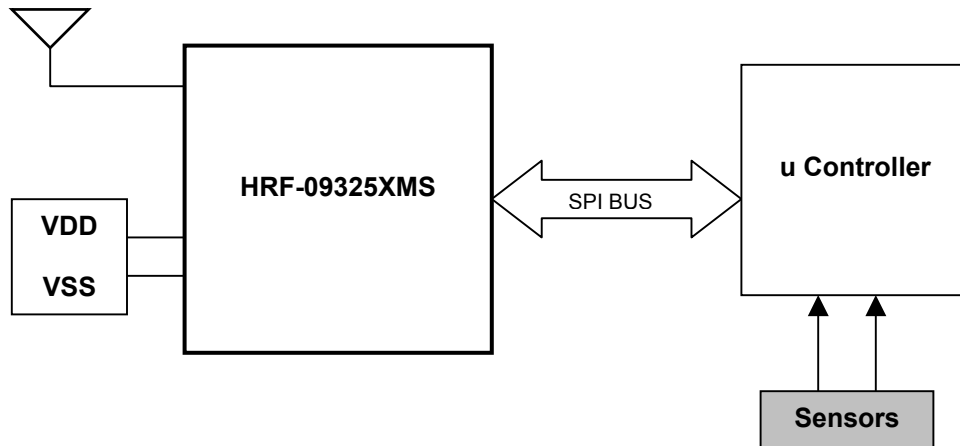
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HRF-ROC09325XMS

Typical Application



HRF-09325XMS typical indoor and outdoor link margins using 1dBi gain antennas for transmit and receive.

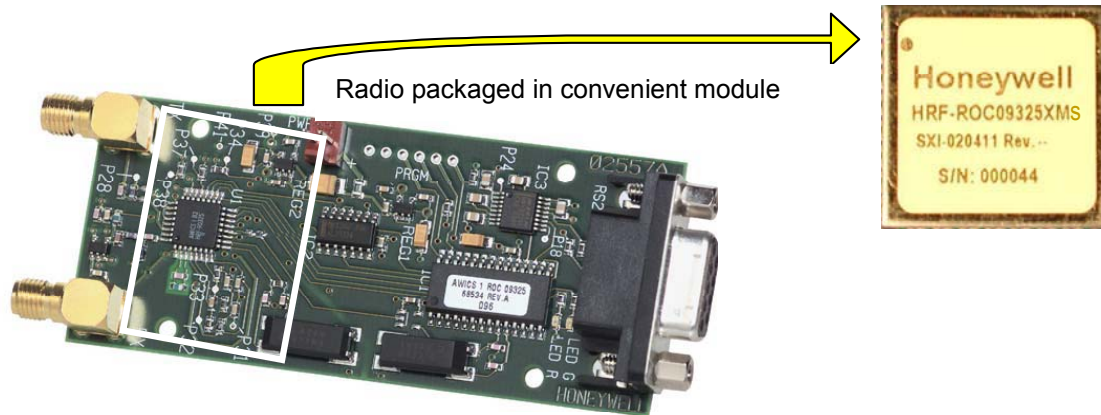
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Advance Information

Customer Demonstration Board

If more information is needed to learn about the operation of the ROC09325 radio, there is an evaluation kit that includes the same radio as the module but it is in a different form factor. One evaluation board includes the ROC09325 radios and a PIC microcontroller with RS-232. The kit includes two boards, antennas, cables, documentation and software. The evaluation kit allows the user to work with two communicating boards.



Ordering Information

Ordering Number	Product
HRF-ROC09325XMS-P	Delivered In Waffle Packs
HRF-ROC09325 - K	Evaluation Kit

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