HRF-ROC09325

Features

- High Integration Minimizes System Cost
- Data Rates To 28.8 Kbits/Sec
- FSK Operation Capable Of Frequency Hopping
- Programmable Power, Frequency And Tx/Rx/Standby
- Operates From Single 2.8V To 3.3V Power Supply
- High Performance On-chip Baseband Filtering
- Digital Encoding, Decoding, And Correlator
- Surface Mount Leadless Plastic Packaging
- Direct Down Conversion (Zero IF) Receiver

Radio On A Chip
300 – 928 MHz
FSK Transceiver
## Frequency Agile
With SPI Bus Interface

Description

The Honeywell HRF-ROC09325 is a programmable transceiver for use in digital data applications. Direct microprocessor connections for control and data transfer simplify product development. The HRF-ROC09325 is ideally suited for use in battery powered wireless applications in conjunction with microprocessors for data communication.

Product Photo

Functional Schematic
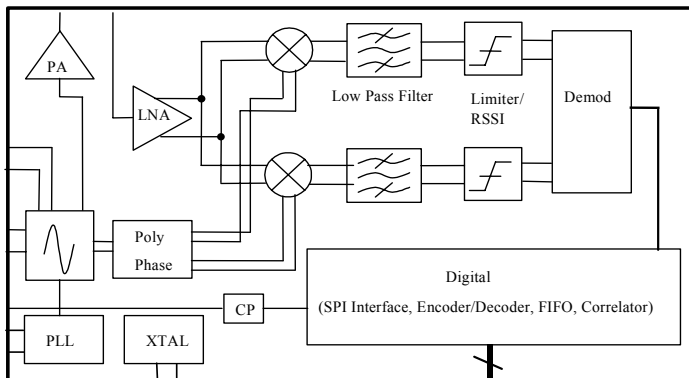
RF Electrical Specifications @ + 25ºC

Parameter	Test Condition	Frequency	Minimum	Typical	Maximum	Units
Rx Sensitivity		300– 928 MHz		-73		dBm
P1dB	Vdd = 3V	300– 928 MHz	-10	-20		dBm
Tx Output Power	Vdd = 3V	300– 928 MHz		+8	+11	dBm
Data Rate, Tx / Rx	Continuous Data			19.2	28.8	Kbps
Channel Rejection	Adjacent Channels	Fc +/- 200 KHz		25		dB
		Fc +/- 300 KHz		60		dB
		Fc +/- 1 MHz		75		dB
Detection Bandwidth	Iq Baseband FilterPassband			100		KHz
Control/Data I/O	Serial Peripheral Interface (SPI). Direct Connection To Microcontroller/Microprocessor			10		MHz

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DC Electrical Specifications @ + 25°C

Parameter	Minimum	Typical	Maximum	Units
V_{DD} Power Supply Voltage	2.8	3.0	3.3	V
Power Supply Current During Tx, Output Power Dependant (915 MHz)		16	Tx=-10 dBm	mA
		21	Tx=-1 dBm	mA
		29	Tx=+8 dBm	mA
Power Supply Current (I_{DD}) During Rx (915MHz)		29		mA
CMOS Logic Level (0)	0		0.7	V
CMOS Logic Level (1)	1.7		V_{DD}	V
Input Leakage Current (Standby Mode)			0.7*	mA

* Can be reduced to < 2uA with off-chip switch.

Absolute Maximum Ratings[1]

| 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-ROC09325 Beyond Any Of These Parameters May Cause Permanent Damage.

ESD Protection: Although the HRF-ROC090325 Contains ESD protection circuitry, conventional precautions should be taken to ensure that voltage levels do no exceed 300 V.

Typical Application
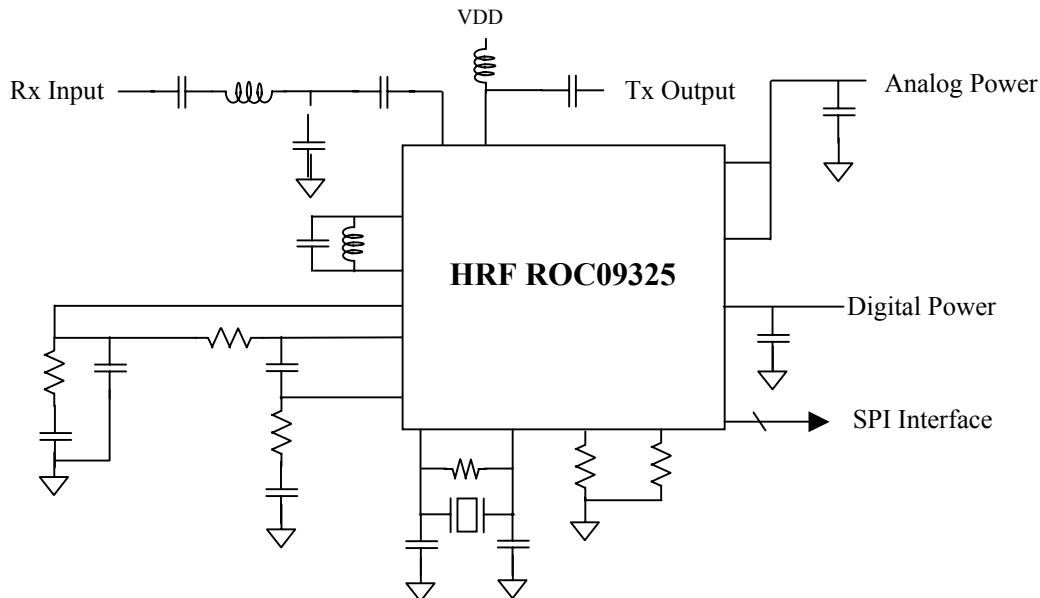
Package Outline
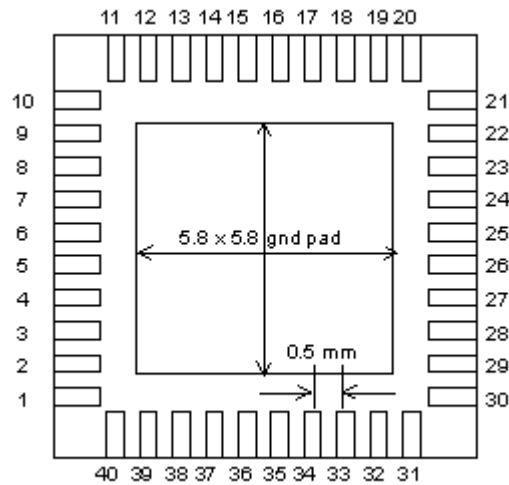
Bottom View, 40 pin, 7.0 x 7.0 x 1.0mm
LPPC™ Package

Backside ground pad is required as the low inductance ground return for both RF and digital signals. Additionally, this provides a direct connection to the die for enhanced thermal dissipation.

Pin Configuration

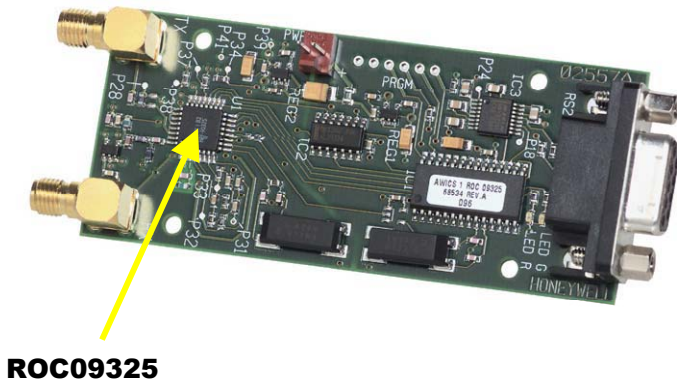HRF-ROC09325 40 Pin LPCC™ (7 mm X 7 mm) Package Pin List

Name	LPCC Pin	Name	LPCC Pin
LNA_RF_IN	1	DIG_DATA_IN	21
GROUND*	2	SPI_DATA_ IN	22
VCO_TANK_P	3	RESET	23
VCO_TANK_M	4	SPI_CLK	24
VMOD3	5	SPI_INT_OUT	25
VMOD1	6	REXT_BE	26
VDD_VCO	7	RSSI_Q	27
TX_DATA_I	8	RSSI_I	28
PD_OUT	9	TX_ENABLE_OUT	29
GROUND*	10	RX_ENABLE_OUT	30
CLK1	11	GROUND*	31
CLK2	12	NO CONNECTION	32
GROUND*	13	VDD_BaseBand	33
VDD_PLLDIG	14	NO CONNECTION	34
XTALDIV2_OUT	15	VDD Mixer	35
RX_OUT	16	NO CONNECTION	36
TX_DATA	17	REXT_Frontend	37
REXT_PLL	18	PA_RF_OUT	38
SPI_DATA_OUT	19	VDD_PA	39
SPI_SSN	20	GROUND*	40

* Ground pins are added to aid in signal isolation. Primary RF/Digital ground is provided through backside slug pad.

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ROC09325

Customer Demonstration Board

The engineering evaluation board provides for a RS232 connection using a PIC microcontroller as the interface between the HRF-ROC09325 and the RS232 port. Using the software provided and a PC, control of test data, operating frequency, power levels and all internal registers is available for early product development/prototyping. The board operates from a single +6 to +9 volt supply and provides separate RF Rx/Tx ports.

Ordering Information

Ordering Number	Product
HRF-ROC09325-T	Delivered On Tape And Reel[2]
HRF-ROC09325-K	Customer Demonstration Kit

Note 2: Contact Honeywell for details

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