

FSK Transmitter 2400 MHz Frequency Agile With SPI Bus Interface

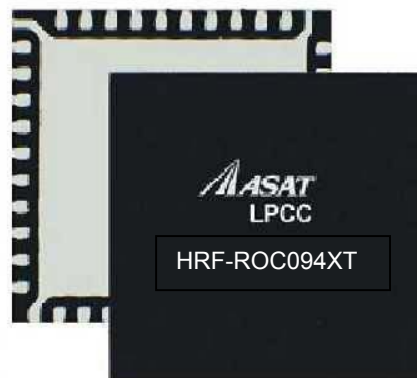
Features

- High Level of Integration Minimizes System Cost
- Data Rates over 128.8 Kbits/Sec
- Direct Connection To Microprocessor
- Programmable data rates
- Low and high beta FSK internal modulation modes
- Direct external modulation available
- Integrated Manchester coding
- Programmable Power, Frequency And Tx/Standby modes
- Operates From Single 2.5V Power Supply
- Surface Mount Leadless Plastic Packaging

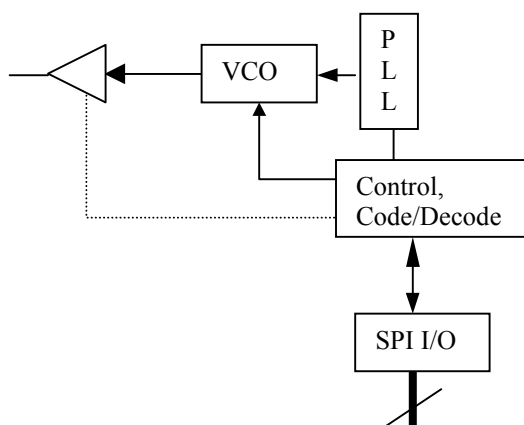
Description

The Honeywell HRF-ROC094XT is a single chip FSK transmitter for use in digital data applications. Direct microprocessor connection for control and data transfer, eliminate the need for additional ICs, while integrated data coding reduces the instruction set requirements on the microprocessor. The HRF-ROC094XT is ideally suited for use in battery powered wireless applications in conjunction with microprocessors for data communication. Adjustable data rates, bandwidths and power levels the IC to be used in a wide variety of high sensitivity / high EMI environments.

Product Photo



Functional Schematic



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2002 09425T Published June 2002 Page 1

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HRF-ROC094XT



Advance Information

RF Electrical Specifications @ + 25°C

Parameter	Test Condition	Frequency	Minimum	Typical	Maximum	Units
Tx Output Power	V _{DD} = 2.5V	2400– 2500 MHz		+3		dBm
Max Power control	6 steps for total range	2400-2500 MHz		20		dB
Data Rate, Tx	Continuous Data Packets			128		Kbps
Control/Data I/O	Serial Peripheral Interface (SPI). Direct Connection To Microcontroller/Microprocessor			10		MHz

DC Electrical Specifications @ + 25°C

Parameter	Minimum	Typical	Maximum	Units
V _{DD} Power Supply Voltage	2.4	2.5	2.6	V
Power Supply Current During Tx, Output Power Dependent (2450 MHz)	16	26		mA
Standby Current Consumption		<1		uA
CMOS Logic Level (0)	0		0.7	V
CMOS Logic Level (1)	1.7		V _{DD}	V
Input Leakage Current			2	nA

Absolute Maximum Ratings¹

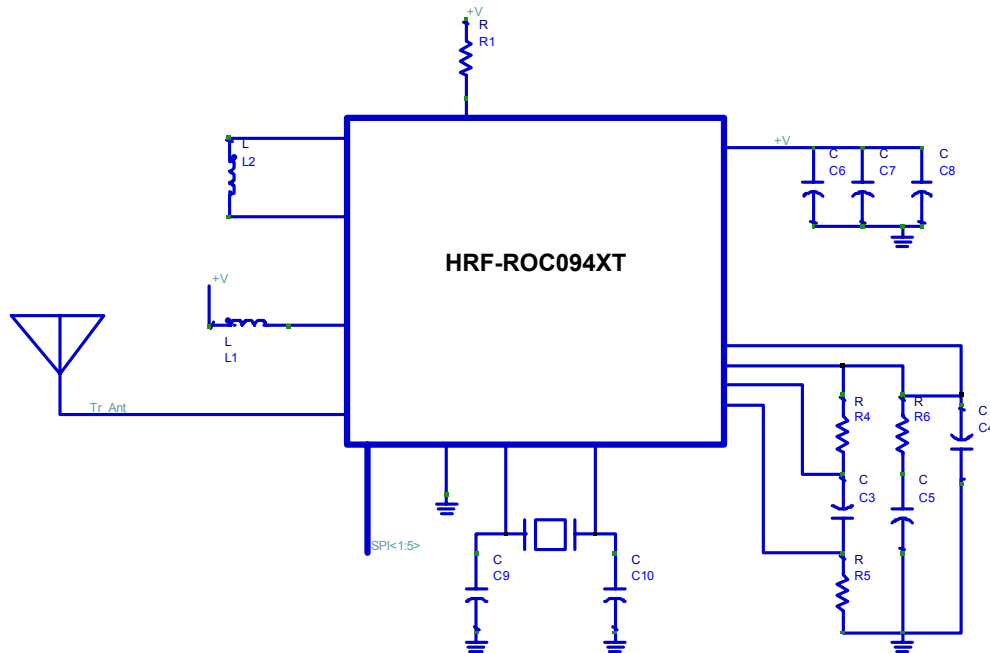
Parameter	Absolute Maximum	Units
Maximum Input Power	-	-
V _{DD}	+ 2.8	V
ESD Voltage (Human Body Model)	200	V
Operating Temperature	- 40 to + 85	Degrees C
Storage Temperature	- 40 to + 150	Degrees C

(Note 1) Operation Of The HRF-ROC094XT Beyond Any Of These Parameters May Cause Permanent Damage.

ESD Protection: The HRF-ROC094XT Contains reduced ESD Protection Circuitry for sensitive Analog and RF I/O. Precautions Should Be Taken During Handling/Assembly Until Protected By External Circuitry or Housings

HRF-ROC094XT

Typical Application

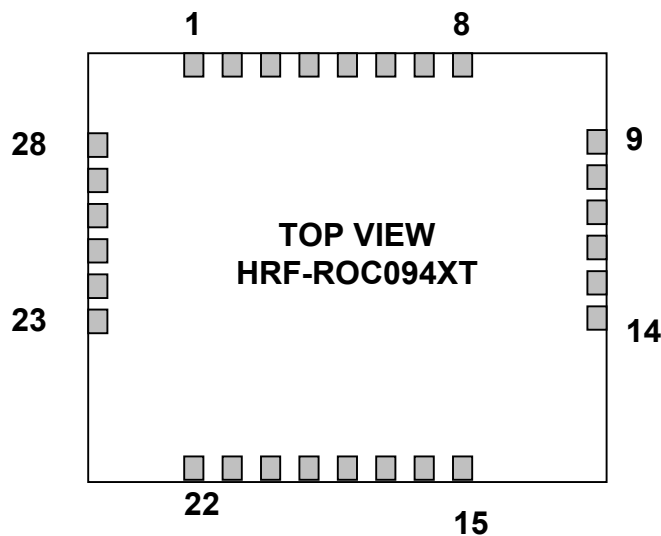


Package Outline

4mm x 5mm

28 pin Leadless

Plastic Chip Carrier



Low inductance RF/DC ground connection required below part as bottom ground pad is used for all device grounding. Additionally, this connection provides a direct connection to the die for enhanced thermal dissipation. **Package shown not to scale.**

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2002 09425T Published June 2002 Page 3

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Pin Configuration

HRF-ROC094XT 28 Pin LPCC™ (4 mm X 5 mm) Package Pin List

* RF/Digital ground is provided through backside slug pad.

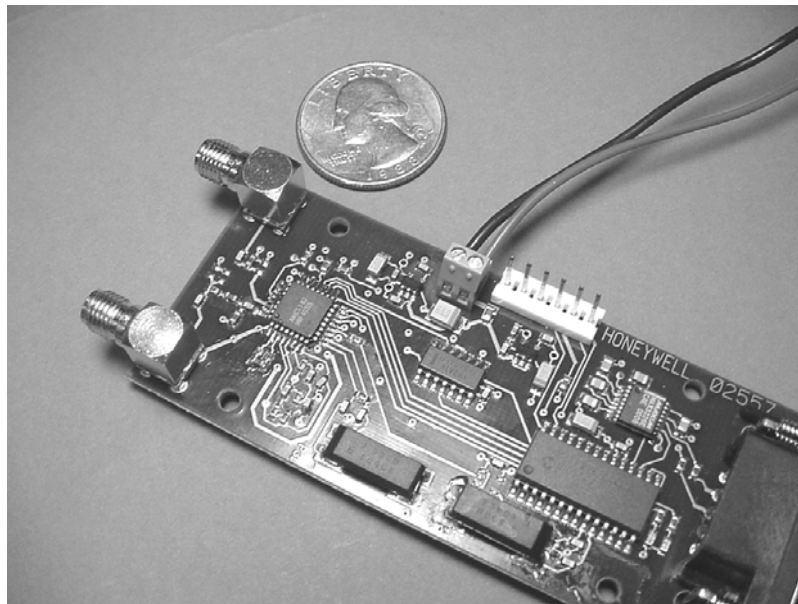
Name	Pin #	Function
PA_out	1	PA output pin and choke
VP	2	Positive supply PA
PA_out_ac	3	PA AC coupled output
Tx Enable	4	Buffered output – Tx on, active high
Resetrn	5	Dig power-on reset
SPI_data_in	6	SPI serial data input
Dig_data_in	7	Dig FIFO RX data, bypass RX demod
SPI_SSN_in	8	SPI slave select
SPI_CLK_in	9	SPI clk input
SPI_data_out	10	SPI serial data output
SPI_INT_out	11	SPI interrupt output
Tx_data_v	12	CMOS fifo monitor
Vp	13	Positive Supply digital section
Vp	14	Positive Supply digital section
P_test_out	15	PLL N-counter output comp freq
R_test_out	16	PLL R-counter output comp freq
Xtaldiv2_out	17	crys ref divide by 2 buffered output
Crystal2	18	reference crystal connection
Crystal1	19	reference crystal connection
NC	20	
Pdout	21	Phase detector charge pump output
Rext_PLL	22	PLL bias resistor
Vp_pll	23	Phase detector supply
Tx_data_I	24	Mod charge pump output
Vmod1	25	VCO varactor input, wideband mod
Vmod2	26	VCO varactor input, narrowband mod
VP	27	VCO positive supply bypass
VP	28	VCO positive supply

HRF-ROC094XT



Advance Information

Engineering Evaluation Board



The engineering evaluation board provides for a RS232 connection using a PIC microcontroller as the interface between the HRF-ROC094XT 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-ROC094XT -B	Delivered In Chip Tubes
HRF-ROC094XT -T	Delivered On Tape And Reel ²
HRF-ROC094XT -E	Engineering Evaluation Board

Note 2: Contact Honeywell for details

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2002 09425T Published June 2002 Page 5

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