

The antenna connection is a 0.055 inch pin receptacle. A simple small diameter wire (AWG 24) antenna can be constructed and inserted into the receptacle. The length of the wire depends on the frequency.

$$\lambda \text{ (meters)} = c / f \text{ (Hertz)}$$

where

$$c = 3 \times 10^8 = \text{speed of light (meters per second)}$$

$$f = \text{receive frequency (Hertz)}$$

$$\lambda = \text{wavelength (meters)}$$

The length of the antenna wire in inches can be found for a given frequency using the following formula:

$$\text{wire antenna length (inches)} = 2952.8 / f \text{ (MHz)}$$

Alternatively, the pin receptacle can be removed and an alternate antenna connection can be made. For example, a coaxial wire can be connected to the antenna pad on the front side of the PCB and ground pad on the back side of the PCB.

PCB LAYOUT

The following figures illustrate the various layers of the rFRXD0420 receiver module printed circuit board.

FIGURE 2: rFRXD0420 TOP SILK-SCREEN

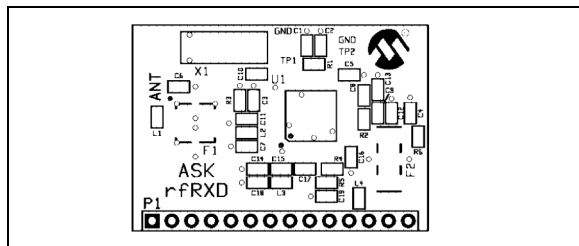


FIGURE 3: rFRXD0420 TOP COPPER

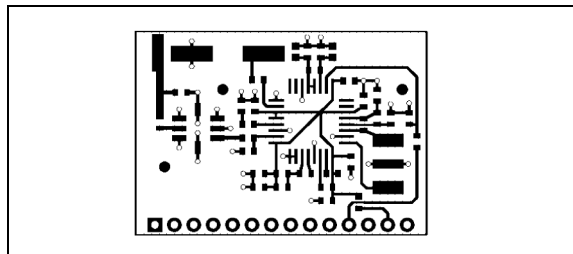
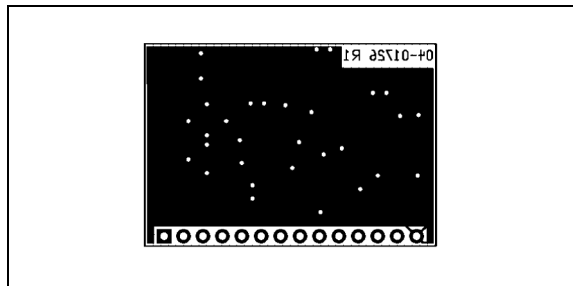


FIGURE 4: rFRXD0420 BOTTOM COPPER



GERBER FILES

Gerber Files for the rFRXD0420 are available on the rPIC Development Kit 1 CD-ROM.

FIGURE 6: rRXD0420 RECEIVER MODULE BILL-OF-MATERIALS

rRXD0420 Receiver Module Bill-of-Materials					
Quantity	Designator	Value	Description	Order From	Part Number
2	C6, C7	Not Placed			
1	C15 - 433.92 MHz	3 pF, NP0, 0603	Capacitor, Ceramic Chip	Digi-Key	PCC030CVTR-ND
1	C17	6 pF, NP0, 0603	Capacitor, Ceramic Chip	Digi-Key	PCC080CVTR-ND
1	C15 - 315 MHz	7 pF, NP0, 0603	Capacitor, Ceramic Chip	Digi-Key	PCC070CVTR-ND
8	C3, C4, C5, C8, C14, C16, C18, C19	330 pF, X7R, 0603	Capacitor, Ceramic Chip	Digi-Key	PCC331ACVTR-ND
3	C11, C12, C13	1000 pF, X7R, 0603	Capacitor, Ceramic Chip	Digi-Key	PCC1772TR-ND
1	C1	1800 pF, X7R, 0603	Capacitor, Ceramic Chip	Digi-Key	PCC1775TR-ND
1	C9	33000 pF, X7R, 0603	Capacitor, Ceramic Chip	Digi-Key	PCC1769TR-ND
1	C2	47000 pF, X5R, 0603	Capacitor, Ceramic Chip	Digi-Key	PCC1771TR-ND
1	C10	0 ohm, 0603	Resistor, Chip, Thick Film	Digi-Key	P0.0GTR-ND
1	R2	390 ohm, 0603	Resistor, Chip, Thick Film	Digi-Key	P390GTR-ND
2	R4, R5	470 ohm, 0603	Resistor, Chip, Thick Film	Digi-Key	P470GTR-ND
1	R6	1K ohm	Resistor, Chip, Thick Film	Digi-Key	P1.0KGTR-ND
1	R3	10K ohm, 0603	Resistor, Chip, Thick Film	Digi-Key	P10KGTR-ND
1	R1	100K ohm, 0603	Resistor, Chip, Thick Film	Digi-Key	P100KGTR-ND
1	L3 - 315 MHz	22 nH, 0603	Inductor, Chip	Digi-Key	TKS3715TR-ND
1	L3 - 433.92 MHz	15 nH, 0603	Inductor, Chip	Digi-Key	TKS3713TR-ND
2	L1, L2 - 315 MHz	82 nH, 0603	Inductor, Chip	Digi-Key	TKS3722TR-ND
2	L1, L2 - 433.92 MHz	39 nH, 0603	Inductor, Chip	Digi-Key	TKS3718TR-ND
1	L4	600Z, 0603	Ferrite Bead Chip	Digi-Key	240-1143-2-ND
1	P1	14-Pin Right Angle Header	Single row 0.025" square right angle post	Digi-Key	A26510-ND
1	F1 - 315 MHz		SAW Filter - 315 MHz	EPCOS	B3751
1	F1 - 433.92 MHz		SAW Filter - 433.92 MHz	EPCOS	B3750
1	F2		10.7 MHz Ceramic Filter, 230 kHz BW	muRata	SFECV10M7GA00
1	X1 - 315 MHz	20.35625 MHz	Crystal, HC-49/S	Crystek	016999
1	X1 - 433.92 MHz	26.451250 MHz	Crystal, HC-49/S	Crystek	016985
1	U1	rRXD0420	UHF ASK/FSK/FM Receiver	Microchip	rRXD0420

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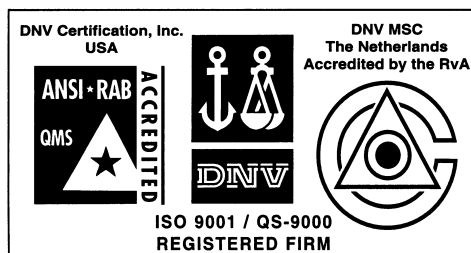
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