

RADIO MODULE
MTX-MT75

FSK/ASK TRANSMITTER MODULE

Supports the follow parts:

MTX-MT75

PRELIMINARY

DATA SHEET

Radios, Inc.

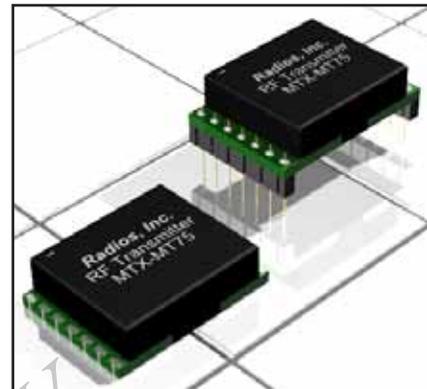
May 2, 2006 Preliminary Data Sheet

MTX-MT75

FSK/ASK TRANSMITTER MODULE

The MTX-MT75 FSK/ASK transmitter is designed for applications in the 315 MHz, 433 MHz, or 868 MHz bands.

The MTX-75 consists of a PICmicro® microcontroller architecture and a 315/434/868/915 MHz ASK/FSK RF transmitter. In addition, it features a 4 channel 10-bit analog-to-digital (A/D) converter, one comparator channel, and 128 bytes of EEPROM memory.



Key Features

- Frequency range from 290-350MHz, 380-450MHz, or 850-930MHz
- ASK data rate: 0-40 kbps
- FSK data rate: 0-40 kbps by crystal pulling
- VCO phase locked to quartz crystal reference; allows narrow band receivers to be used to maximize range and interference immunity
- Crystal frequency divide by 4 available(CLKOUT)
- Low power consumption
 - 14 mA transmitting +6 dBm at 434 MHz
 - 4 mA transmitting -15 dBm at 434 MHz
 - 0.1 uA standby current
- Wide operating voltage range: 2.7 - 16V
- Industrial and extended temperature range

Typical Applications

- Automotive remote keyless entry (RKE)
- Automotive alarm systems
- Community gate and garage door openers
- Burglar alarm systems
- Building access
- Low power telemetry
- Meter reading
- Tire pressure sensors
- Wireless sensors

PRODUCT ORDER INFORMATION

Part Number	Description
MTX-MT75K(D)(S)	rfPIC12F675K 290-350 MHz FSK/ASK Module Transmitter
MTX-MT75F(D)(S)	rfPIC12F675F 380-450 MHz FSK/ASK Module Transmitter
MTX-MT75H(D)(S)	rfPIC12F675H 850-930 MHz FSK/ASK Module Transmitter

Contact Information

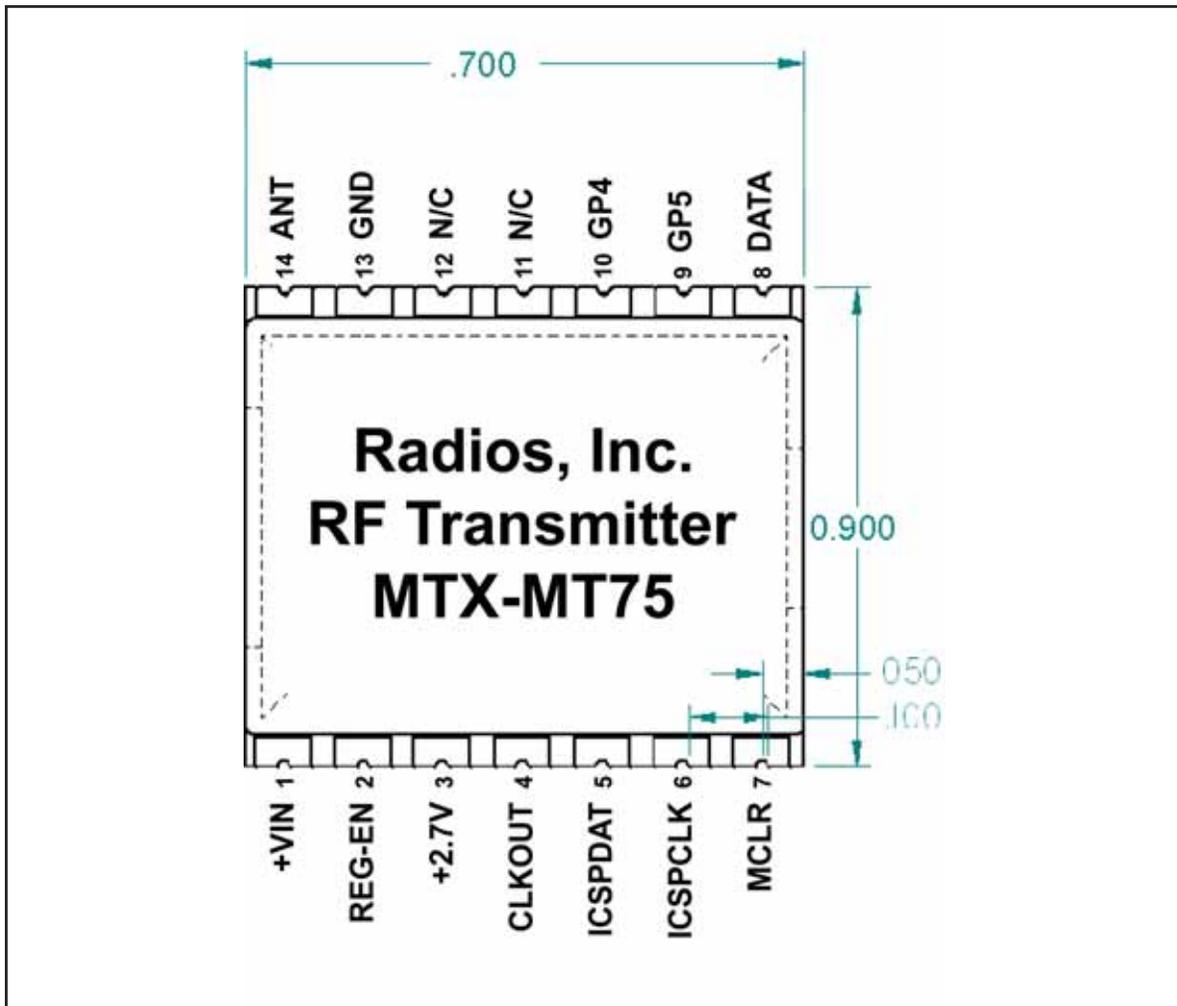
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Mechanical and Pin Diagram



Pin Description

Pin Num	Pin Name	Description	Pin Num	Pin Name	Description
Pin 1	+VIN	Supply Voltage	Pin 8	DATA	Data Output Pin
Pin 2	REG-EN	Regulator Enable	Pin 9	GP5	General Purpose I/O / RF Enable
Pin 3	+2.7V	Regulated Output	Pin 10	GP4	General Purpose I/O
Pin 4	CLKOUT	Reference Clock	Pin 11	N/C	No Connect
Pin 5	ICSPDAT	Serial Programming Data I/O	Pin 12	N/C	No Connect
Pin 6	ICSPCLK	Serial Programming Clock	Pin 13	Gnd	Ground
Pin 7	MCLR	Master Clear Reset	Pin 14	ANT	RF Output

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Electrical Limits

Sym	Parameters	Min	Typ	Max	Unit	Notes
	Absolute Maximum Ratings					
VDD	Supply Voltage	-20		20	V	
	Storage Temperature Range	-65		150	°C	
	Lead Temperature		260		°C	
V _{EN}	Enable Input Voltage	-20		+20	V	
	Operating Ratings					
	Supply Voltage	2.7		16	V	
V _{EN}	Enable Input Voltage	0		TBD	V	
TA	Ambient operating temperature	-40		125	°C	
	Voltage on MCLR with respect to Gnd	-0.3		13.5	V	
	Voltage on other pins with respect to Gnd	-0.3		VDD+0.3	V	

Electrical Characteristics

This device is ESD sensitive. Do not operate or store near strong electrostatic fields. Use appropriate ESD precautions. All voltages are with respect to Ground.

Parameters	Test Conditions	Min	Typ	Max	Unit	
RF Transmitter Characteristics						
VCO Frequency	315 MHz	290		350	MHz	
	433.92 MHz	380		450	MHz	
	868/915 MHz	850		930	MHz	
Crystal Frequency	315 MHz	9.06		10.94	MHz	
	433.92 MHz	11.88		14.06	MHz	
	868/915 MHz	26.56		29.06	MHz	
Reference Frequency	315 MHz	2.265		2.735	MHz	
	433.92 MHz	2.97		3.515	MHz	
	868/915 MHz	3.32		3.63	MHz	
Spurious Response	for FSK operation			-10	dBm	
Frequency Stability vs VDD				±3	ppm	
Frequency Stability vs Temp	Crystal temp constant			±10	ppm	
FSK Deviation		±5		±80	kHz	
FSK Data Rate	NRZ			40	kbit/s	
ASK Data Rate	NRZ			40	kbit/s	
RFEN High to Transmit			1.2 0.8 0.6	1.5 1.2 1.0	mS	
RF Output Power	RFEN = 1, FSK RFEN = 1, ASK		-70 7.5		dBm	
Phase Noise	200kHz offset		-86		dBc/Hz	
Spurious Emissions	47MHz < f < 74MHz			-54	dBm	
	87.5MHz < f < 118MHz					
	174MHz < f < 230MHz					
	470MHz < f < 862MHz, B=100kHz					
	f < 1GHz, B=100kHz				-36	dBm
	f > 1GHz, B=1MHz				-30	dBm

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Electrical Characteristics - CONT.

DC Characteristics					
RF Transmitter Current 315/433.92 MHz	RFEN = 1, FSK	2.0	2.7	5.0	mA
	RFEN = 1, ASK	7.0	10.7	16	mA
RF Transmitter Current 868/915 MHz	RFEN = 1, FSK	2.6	4.0	6.5	mA
	RFEN = 1, ASK	9.0	14.0	20	mA
ENABLE Input					
Enable Input Logic-Low Voltage(V_{IL})	regulator shutdown			0.4 0.18	V V
Enable Input Logic-High Voltage(V_{IH})	regulator enabled	2.0			V
Enable Input Current	$V_{IL} \leq 0.4V$ $V_{IL} \leq 0.18V$ $V_{IH} = 2.0V$ $V_{IH} = 2.0V$	2	0.01 5	-1 -2 20 25	μA μA μA μA

Note 1. Exceeding the absolute maximum rating may damage the device.

Note 2. The device is not guaranteed to function outside its operating rating.

Note 3. Devices are ESD sensitive. Handling precautions recommended. Human body model, 1.5k in series with 100pF.

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Product Warranty and Disclaimer Information:

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Technical Support:

Radios Inc. is committed to providing its customers with excellent technical support and the resources necessary to assist its customers with their product development. Customers have several options to obtain assistance. First, any questions or concerns can be e-mailed to Radios Inc. at information@radiosinc.com. We monitor our e-mail daily, and will respond to all questions promptly. Additionally, to speak directly to a technical support representative, customers may call Radios Inc. at 215-362-1899.

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Editorial Information:

	(Date)
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