

Radio Frequency Interface Front End Data Sheet

Description

This integrated circuit provides a charge pump and ASK/PSK demodulation/modulation for self powered or passive backscatter applications. The device meets FCC 47CFR18.307 for transmit power level.

The MSRFIF operates from 50 Hz up to 250 MHz. The MSRFIF requires no batteries to function. The device is powered by RF energy from the reader. The RFIF has a voltage output for powering microcontrollers, preamps and other circuits. The MSRFIF includes the duplexer for a transmitter and receiver to share the same antenna.

Demodulated data is provided on the DEMOD pin or pad for connection to a microprocessor for decoding. The MOD1/2 inputs provides modulation of the ID from the microprocessor.

No battery is needed for low power processors (less than 50 μ A). A received signal strength detector keeps the logic off until a strong enough signal is received. P \overline{D} O output provides a trigger only when RSSI is activated.

The MSRFIF is available in die form and in an 8-pin TSSOP or SOIC package for evaluation.

Features

- Up to 250 MHz Operation
- AM modulation and AM demodulation with Pin Selectable AM modulation depth
- Bi-Phase PSK demodulation
- Receive Signal Strength Power Saving Circuit
- 8 Pin Package and die form
- DC output for low power controllers (50 μ A)

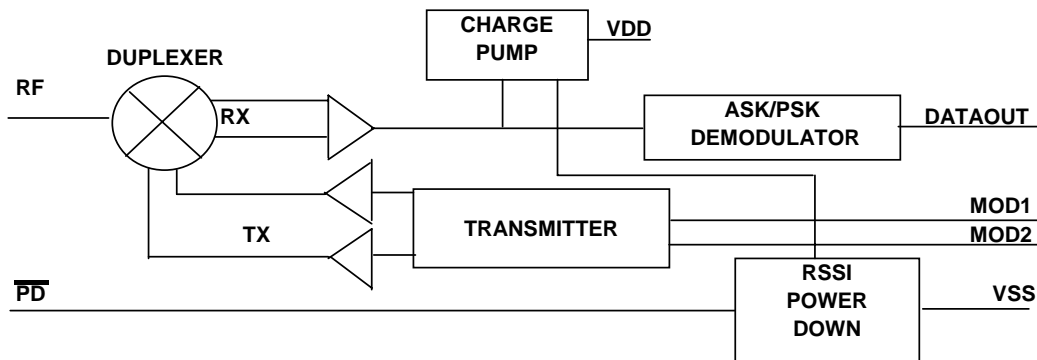
Applications

- Remote Medical Reading and Monitors
- Theft Detection
- Security Systems
- Inventory Control
- Access Cards
- Automotive Key Identification
- Pet Identification
- Mobile Commerce
- Airline Baggage Identification
- Sensor Transceiver

Absolute Maximum Ratings

Power Supply Voltage	+6V
Storage Temperature Range	-60 to +150 ^o C
Operating Temperature Range	-40 to +85 ^o C

MSRFIF



Radio Frequency Interface Front End Data Sheet

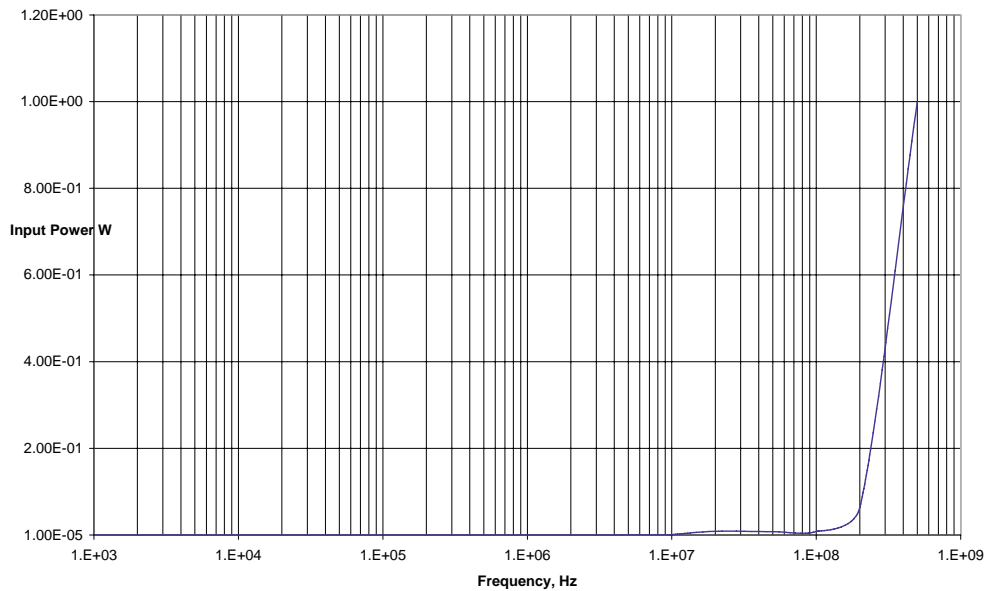
Electrical Characteristics _____

(VDD = +2.5 V, T = 25 C)

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
DC Specifications						
Operating Voltage	VDD		2.4	2.7	4.0	V
Supply Current	IDD		0.1	0.5	1.0	μA
Output Current	IO	RL = 50 KΩ	15	50		μA
PDOB Trip Voltage	V _{PDOB}			1.0		V
AC Specifications						
Frequency Range	f _{carrier}		50 Hz	250		MHz
Input Power	W _{in}	f _{carrier} = 0.1-50 MHz	36	60	300	μW
Maximum RX Data Rate				120		kbps
Maximum TX Data Rate				5		kbps
Maximum Modulation Depth		MOD1=0 MOD2=Data		3		%
Maximum Modulation Depth		MOD1=Data MOD2=0		4		%
Maximum Modulation Depth		MOD1, MOD2=Data		6		%

MSRFIF

POWER Input vs. Frequency for 2.5VDC Output



STANDARD PRODUCTS

MSRFIF	Radio Frequency Interface Front End
MSFIPS	FIPS-140 Level 4+ Security Supervisor
MSSCSA	Single Chip Spectrum Analyzer
MSTHDA	Total Harmonic Distortion Analyzer
MSLSA	Low Power Spectrum Analyzer
MSCPSI	Controller Programmable Sensor Interface
MSSPSI	Smart Programmable Sensor Interface
MSEPAF	Electrically Programmable Active Filter
MSCBT	Communications Baseband Transceiver
MSGEQ5A	Five Band Spectrum Analyzer
MSGEQ7	Seven Band Spectrum Analyzer
MSHFS1-6	Selectable High Frequency LP/BP Filter
MSFS1-6	Selectable Lowpass/Bandpass Filter
MSU1F1-4, MSU2F1	Resistor Programmable Universal Active Filter
MSU1HF1-4, MSU2HF1	High Frequency Resistor Programmable Universal Active Filter
MSELP	Switched Capacitor Elliptic Lowpass Filter with Op Amps
MSNBLP	Switched Capacitor Butterworth Lowpass Filter
MSLE/B/C5L/M	Switched Capacitor General Purpose Lowpass Filter
MS2LFS	Dual Selectable Low Voltage Lowpass/Bandpass Filter
MSLFS	Selectable Low Voltage Lowpass/Bandpass Filter
MSHN1-6	Selectable High Pass/Notch Filter
MSDET	Tone Detector

Mixed Signal Integration
2157F O'Toole Avenue
San Jose, California 95131-1332
Phone: (408)-434-6305
Fax: (408)-434-6417

MSRFIF

In Mississippi, Alabama, Georgia
South Carolina, North Carolina, and
Tennessee contact:

AdeptRep Inc.
280 Metaire Lane
Madison, Alabama 35758
Telephone: 256-772-1922
Facsimile: 256-325-2841
Toll Free: 1-888-419-2563
E-mail: adeptrep@knology.net
Web site: www.adeptrep.com

In northern Illinois and
eastern Wisconsin contact:

M & S Sales
187 Old Sutton Road
Barrington Hills, Illinois 60010
Telephone: 847-426-8155
Facsimile: 847-426-8120
E-mail: mandssales@aol.com

In Arizona, Utah, Colorado, Montana,
Wyoming, Idaho, New Mexico and
southern Nevada contact:

Nelco TWO Company
8617 Gold Peak Drive Unit A
Highlands Ranch, CO 80130
Telephone: 303-792-0657
E-mail: nelcoelect@aol.com

In Taiwan contact:

Maxtek Technology Co., Ltd.
5F, No. 13-20, Sec. 6, Min Chian E Road, Nei Hu
Taipei, 114 R.O.C.
Telephone: 886-2-2794-6060
Facsimile: 886-2-2879-8922
Web site: www.maxtek-icrep.com.tw

In Hong Kong and the People's
Republic of China contact:

Alphatron
282, King's Rd.,
13th Floor, Flat C2,
North Point Centre, North Point, Hong Kong
Hong Kong Telephone: 852-9453-2305
China Telephone: 86-1392-3826-400
Facsimile: 852-2491-1365 or 852-2900-3616

In Korea contact:

H. B. Corp.
7F, Hyobong Building 1364-1
Seocho-Dong, Seocho-Gu
Seoul, Korea 137-070
Telephone: (02)3472-3450
Facsimile: (02)3472-3458
Web site: www.hbcorp.co.kr

In Singapore, Indonesia and
Malaysia contact:

EXER Technologies (S) PTE LTD
45 Kaki Bukit Industrial Terrace
Singapore 416125
Telephone: (65)-6-747-9669
Facsimile: (65)-6-749-9669
Web site: www.exercorp.com

In Israel contact:
Phoenix Technologies Ltd.
3 Gavish St.
Kfar-Saba, 44424
Israel
Telephone: 09-764-4800
Facsimile: 09-764-4801

In the United Kingdom contact:
Broadband Technology 2000 Ltd.
Victory House
Marino Way
Finchampstead
Berkshire RG40 4RF
Telephone: +44 (0) 1727 791000
Facsimile: +44 (0) 1727 791001
E-mail: msi@broadband.uk.com
Web site: www.broadband.uk.com

In Germany, Austria and Switzerland contact:
ED-V GmbH
Behringerstrasse 13
D 63814 Mainaschaff
Germany
Telephone: 49 6021 79710
Facsimile: 49 6021 79711
Web site: www.ed-v.de

Catch our web site at "<http://www.mix-sig.com>"

Send us e-mail at "info@mix-sig.com"

Mixed Signal Integration Corporation reserves the right to change any product or specification without notice at any time. Mixed Signal Integration products are not designed or authorized for use in life support systems. Mixed Signal Integration assumes no responsibility for errors in this document.