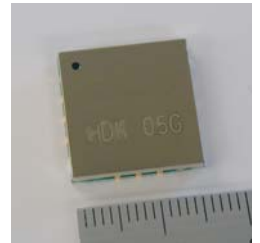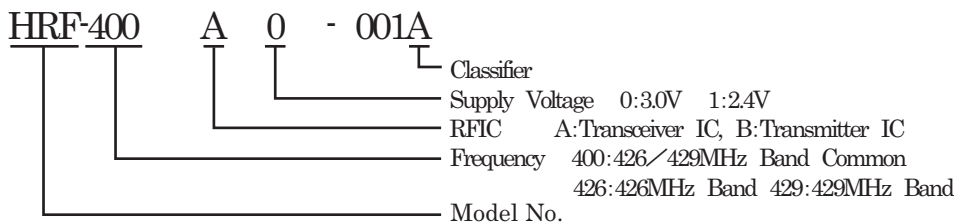# Low Power RF Transceiver Module

Model No. HRF is compact transceiver module for embedded device. It conforms to ARIB STD-T67 standard, featuring high sensitivity, high performance and high quality. It can be easily-used by embedding remote control system, abnormal sensing system, remote control system, etc. Moreover, custom module by combining various sensors as sensing system can be accommodated.

■Features

· Super miniature size 16mm×16mm×3mm
· High Sensitivity -118dBm or less
· Built-in serial communication function
· Surface Mount Design (reflow available)
  * Japan Technical Regulations Conformity Certification can be obtained by simply attaching antenna.

■Product Designation & List

HRF-400　　A0　-　001A

- Classifier
- Supply Voltage   0:3.0V   1:2.4V
- RFIC   A:Transceiver IC, B:Transmitter IC
- Frequency   400:426／429MHz Band Common
                   426:426MHz Band 429:429MHz Band
- Model No.

Tx／Rx	SAW	Amp	Frequency		Supply Voltage	
					3.0V	2.4V
Transceiver	Yes	Yes	429MHz Band	429MHz Band only	HRF-429A0-001D	HRF-429A1-003A
			426MHz Band	426MHz Band only	HRF-426A0-001E	HRF-426A1-003B
	No	No	400MHz Band	426MHz Band 429MHz Band Common	HRF-400A0-001F	HRF-400A1-003C
		Yes			HRF-400A0-001H	HRF-400A1-003G
Receiver only		No			HRF-400A0-001G	–
Transmitter only					HRF-400B0-004A	HRF-400B1-004B

■Specification (Reference)

【Transmitter/Receiver Common】 at 25℃

Item	Rating	Unit	Remarks
Radio Frequency	426MHz Band・429MHz Band	MHz	RCR STD-30, ARIB STD-T67
Modulation Method	FSK		
Transmission Speed	2400	bps	
Operating Temperature Range	-30 ～ 75	℃	
Storage Temperature Range	-40 ～ 85	℃	
Supply Voltage	3.0±0.15／2.4±0.12	V	
Current Consumption (Receiving)	23 Typ.	mA	
Current Consumption (Transmitting)	31 Typ.	mA	At +10dBm Transmission

【Tramsmitter】

Item	Rating	Unit	Remarks
Transmit Output Power	+10 Max.	dBm	
Frequency Deviation	Within±4	ppm	
Occupied Bandwidth	Within 8.5	KHz	
Spurious Emission Strength	-26 or less	dBm	
Adjacent Ch Leakage Power	-40 or less	dB	

【Receiver】

Item	Rating	Unit	Remarks
Receiver Sensitivity	-118 or less	dBm	BER=1% ※ -114dBm or less without AMP
Collateral Emission Strength	-54 or less	dBm	

Low Power RF Transceiver Modem

This module is transceiver modem for embedded device, which conforms to Low Power RF standard (ARIB STD-T67). RF System can be easily built by embedding to remote control system, security equipment, net home appliances,etc. Moreover, custom module, such as by combining various sensors as sensing system can be accommodated.
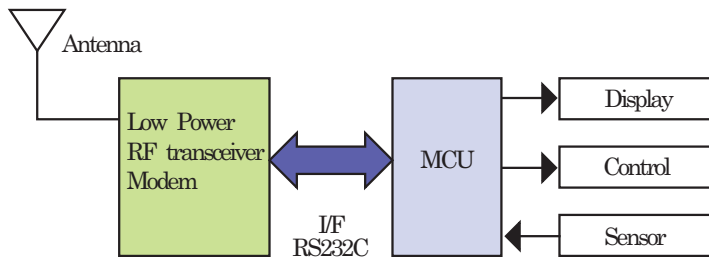
■Features
・Super miniature size：30mm×30mm×7mm *HRF429MD001S
・Communication protocoal (CPU) built in.
・Long distance communication possible by high receiving sensitivity.
・Japan Technical Regulations Conformity certified type (antenna attached)available. *HRF429MD001
・Non-certified type is SMD. *HRF429MD001S

Model No. HRF429D001S
(Non-certified type)

■Application Example

■Specification

【Transmitter/Receiver Common】   at 25℃

Item	Rating	Unit	Remarks
RF Method	Low Power RF		ARIB STD-T67 conformed
Radio Frequency	426.250〜429.7375	MHz	46ch
Wave Type	FID		
Transmission Speed	2400	bps	
Operating Temperature Range	-30 〜 75	℃	
Storage Temperature Range	-40 〜 85	℃	
Supply Voltage	DC 3.6 〜 5.0	V	
Current Consumption (Receiving)	30 Typ.	mA	
Current Consumption (Transmitting)	40 Typ.	mA	+10dBm transmitting

【Tramsmitter】

Item	Rating	Unit	Remarks
Transmit Output Power	+10 Max.	dBm	
Frequency Deviation	Within±4	ppm	
Occupied Bandwidth	Within 8.5	KHz	
Spurious Emission Strength	-26 or less	dBm	
Adjacent Ch Leakage Power	-40 or less	dB	

【Receiver】

Item	Rating	Unit	Remarks
Receiver Sensitivity	-118 or less	dBm	BER=1%
Collateral Emission Strength	-54 or less	dBm	

【Interface】

Item	Rating	Remarks
Communication Method	Serial (RS232C)	
Sync. Method	Asyncronous	
Data Speed	1200/2400/9600/19200bps	
Data Length	7/8 bit	
Parity	None/Even/Odd	
Stop Bit	1/2 bit	

*HRFMD001S needs to obtain Japan Technical Regulations Conformity Certification by customer.

HOKURIKU

Specifications are subject to change without notice.

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