

## HOPERF

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## HOPERF





## RF Module ->

RF COB MODULE

| Model No . | $\begin{gathered} \text { RFM110W } \\ (\mathrm{TX}) \end{gathered}$ | $\underset{(R X)}{\text { RFM217LBW }}$ | RFM210LBW (RX) | $\begin{gathered} \text { RFM217BW } \\ (R X) \end{gathered}$ | RFM210LCFW $(\mathrm{RX})$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Photo |  |  |  | 榢 |  |
| Frequency(MHz) | 315/433 | 315/433/888/9915 | 315/433 | 315/433/8888/915 | $315 / 433$ |
| vDD(v) | 1.8-3.6 | 1.8-3.6 | 1.8-3.6 | 1.8-3.6 | 1.8-3.6 |
| Modulation | оок | оок | оок | оок | оок |
| ${ }^{\text {Max }{ }_{\text {(kpas }} \text { Datate }}$ | 30 | 40 | 40 | 40 | 40 |
| Current Tx | 12.4 | - | - | - | - |
| (mA) ${ }_{\text {( }}$ Rx | - | 3.8 | 3.8 | 3.8 | 3.8 |
| Sensitivity (dBm) | - | -113 | -113 | -113 | -113 |
| ${ }^{\text {Output Power }}$ | 13 | - | - | - | - |
| Size(mm) | 17.8×12.885 | $32 \times 11 \times 5$ | $32 \times 11 \times 5$ | $32 \times 11 \times 5$ | $32 \times 11 \times 5$ |
| Interface | TWI | TWI | TWI | TWI | TWI |


| Model No. | ${ }_{\substack{\text { RFM119w } \\ \text { (TX) }}}^{\text {cen }}$ | $\underbrace{\text { cen }}_{\substack{\text { RFM119sw } \\ \text { (Tx) }}}$ | $\underbrace{\text { (TX) }}_{\text {RFM11986 }}$ |  | $\underset{\substack{\text { RFM } 2198 \mathrm{~B} \\ \text { (R) }}}{ }$ | ${ }_{\text {RFM }{ }_{\text {(RX) }} \text { (19\% }}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Photo |  |  |  |  |  |  |
| Frequency (MHz) | 315/433/868/915 | 315/433/888/915 | 315/433/8688/915 | 315/433/888/915 | 315/433/888/915 | 315/433/8888915 |
| vDD(v) | 1.8-3.6 | 1.8-3.6 | 1.8-3.6 | 1.8-3.6 | 1.8-3.6 | 1.8-8.6 |
| Modulation | (G)FSK/00k | (G)FSk/ook | (G)FSK/Ook | (G)FSK | (G)FSK/00k | (G)FSK/00k |
| ${ }^{\text {Max }}$ (kbatas) ${ }^{\text {Pate }}$ | 100/30 | 100/30 | 300/40 | 300 | 300/40 | 100/30 |
| Current ${ }^{\text {Tx }}$ | 33 | 33 | 75 | - | - | - |
| (mA) ${ }_{\text {Rx }}$ | - | - | - | 8.5 | 7 | 5.7 |
| Sensitivity (dBm) | - | - | - | -120 | -120 | -109 |
| Output Power | 13 | 13 | 20 | - | - | - |
| Size(mm) | 17.8×12.8x5 | $16 \times 16 \times 1.9$ | 16x16x1.9 | 16x16x1.8 | 16x16x1.9 | 16x16x5 |
| Interface | TW1 | TWI | SPI | Tw1 | SPI | SPI |


| Model No . | $\begin{gathered} \text { RFM300W } \\ \text { (TRX) } \end{gathered}$ | $\begin{aligned} & \text { RFM300HW } \\ & \text { (TRX) } \end{aligned}$ | $\begin{aligned} & \text { RFM63W } \\ & \text { (TRX) } \end{aligned}$ | $\begin{aligned} & \text { RFM64W } \\ & \text { (TRX) } \end{aligned}$ | $\underset{\text { (TRX) }}{\text { RFM69CW }}$ | $\underset{\text { (TRX) }}{\text { RFM69HCW }}$ | ${ }_{\substack{\text { RFM } \\ \text { (TR) } \\ \text { Rep }}}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Photo |  |  |  |  |  |  |  |
| Frequency(MHz) | 315/433/868/915 | 315/433/888/915 | $888 / 915$ | $315 / 433$ | 315/433/8888915 | 315/433/868/915 | 433/888/9915 |
| vDD(V) | 1.8-3.6 | 1.8-3.6 | 2.1-3.6 | 2.1-3.6 | 1.8-3.6 | 1.8-3.6 | 5-6 |
| Modulation | (G)FSK/OOK | (G)FSK/Ook | FSK/OOK | FSkIOOK | (G)FSK/OOK | (G)FSK/Ook | FSK/OOK |
| ${ }^{\text {Max }}$ Matatas ${ }^{\text {ckate }}$ | $300 / 40$ | $300 / 40$ | 200 | 200 | 300 | 300 | 256 |
| Current ${ }^{\text {Tx }}$ | 28 | 75 | 25 | 25 | 45 | 130 | 550 |
|  | 7 | 7 | 3 | 3 | 16 | 16 | 25 |
| Sensitivity (dBm) | -120 | -120 | $-110$ | $-110$ | $-120$ | $-120$ | $-120$ |
|  | 13 | 20 | 12 | 12 | 13 | 20 | 30 |
| Size(mm) | $16 \times 16 \times 1.9$ | $16 \times 16 \times 1.9$ | $19.7 \times 16 \times 1.9$ | $19.7 \times 16 \times 1.9$ | $16 \times 16 \times 1.9$ | $16 \times 16 \times 1.9$ | $33 \times 18 \times 1.9$ |
| Interface | SPI | SPI | SPI | SPI | SPI | SPI | SPI |

[^0]
## RF Module

| RF DATA MODULE |  |  |  | SoC COB MODULE |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Model No. | $\begin{aligned} & \text { HM-TRLR-SW } \\ & \text { (TRX) } \end{aligned}$ | $\begin{aligned} & \text { HM-TRLR-D } \\ & (T R X) \end{aligned}$ | $\begin{aligned} & \text { HM-TRPW } \\ & \text { (TRX) } \end{aligned}$ | $\begin{aligned} & \text { RFM50W } \\ & \text { (TRX) } \end{aligned}$ | $\begin{aligned} & \text { RFM380F32W } \\ & \text { (TRX) } \\ & \hline \end{aligned}$ |
| Photo |  |  |  |  | HOPERF |
| Frequency(MHz) | 433/4708868/915 | 433/470/888/915 | $434 / 8699915$ | 315/433/888/9915 | 433/868/915 |
| vodiv) | 2.4-3.6 | 3.6-5.5 | 2.4-3.6 | 1.9-3.6 | 1.8-3.6 |
| Modulation | LoRa/(G)/FS/OOK | LoRa/(G)FSk/ook | (G)FSK/Ook | (G)FSK/ook | (G)FSK/00K |
| ${ }^{\text {Max } \chi_{\text {(kppos }} \text { Datate }}$ | $\underbrace{}_{\substack{37.5(L O R a) \\ 300 \text { (EFSK) }}}$ | $\underbrace{}_{\substack{37.5(L O R a) \\ 300 \\ \text { (6FSk) }}}$ | 115.2 | 256 | 300 |
| Current ${ }^{\text {Tx }}$ | 120 | 120 | 100 | 85 | 80 |
| (mA) ${ }^{\text {( }}$ | 16 | 16 | 25 | 13 | 8.9 |
| Sensitivity (dBm) | -139 | -139 | -117 | -126 | -120 |
| ${ }_{\text {Otemer }}^{\text {Output Power }}$ (dBm) | 20 | 20 | 20 | 20 | 20 |
| Size(mm) | 16x20x2 | $47 \times 26 \times 10$ | 16x20x2 | $16 \times 16 \times 1.9$ | $16 \times 16 \times 3.4$ |
| Interface | TTL | TTLRS $485 / \mathrm{RS} 232$ | TTLIRS485/RS232 | Soc | Soc |


| LoRa MODULE |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Model No. | $\begin{aligned} & \text { RFM90W } \\ & \text { (TRX) } \end{aligned}$ | RFM90CW $(T R X)$ | $\begin{gathered} \text { RFM95W } \\ \text { (TRX) } \end{gathered}$ | $\begin{gathered} \text { RFM95PW } \\ \text { (TRX) } \end{gathered}$ |  | $\begin{aligned} & \text { RFM96W } \\ & \text { (TRX) } \end{aligned}$ |
| Photo |  |  |  |  |  |  |
| Frequency(MHz) | 433/868/915 | 150~960 | 86991915 | 869919 | 137~1020 | 433/470 |
| vdD(v) | 1.883 .7 | $1.8-3.7$ | 1.883 .7 | 5.0~6.4 | $1.8-3.7$ | 1.8-3.7 |
| Modulation | Lora/(6)FSK | LoRa/(G)FSK | LoRa/(G)FSkiook | Lora/(G)Fskiook | LoRa/(G)Fsk | Lora/(6) Fskiook |
| $\mathrm{Max}_{\text {(kbps }}$ (Lata Rate |  | 62.5 |  |  | 300 |  |
| Current Tx | 118 |  | 120 | 450 | 120 | 120 |
| (mA) ${ }^{\text {Rx }}$ | 9.3 | 10.3 | 10.3 | 10.3 | 10.3 | 10.3 |
| Sensitivity (dBm) | -139 |  | -139 | -139 | -136 | -139 |
|  | 22 | 22 | 20 | 27 | 20 | 20 |
| Size(mm) | $16 \times 16 \times 1.8$ | $16 \times 16 \times 2.8$ | $16 \times 16 \times 1.8$ | $18 \times 35.4$ | $16 \times 16 \times 2.7$ | $16 \times 16 \times 1.8$ |
| Interface | SPI | 4 wire SPI | SPI | SPI | 4 wire SPI | SPI |


| LoRa MODULE |  |  |  | 2.4 GHz MODULE |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Model No. | RFM98PW (TRX) | $\begin{aligned} & \text { RFM98W } \\ & \text { (TRX) } \end{aligned}$ | $\begin{aligned} & \text { RFM99W } \\ & \text { (TRX) } \end{aligned}$ | $\begin{gathered} \text { RFM75W } \\ \text { (TRX) } \end{gathered}$ | RFM75PW (TRX) |
| Photo |  |  |  |  |  |
| Frequency (MHz) | 169/433/470 | 4331470 | 2400~2483 | $2400-2483$ | 2400~2483 |
| vDD(V) | 5.0~6.4 | 1.8~3.7 | 1.8-3.7 | 1.9-3.6 | 3.3-4.2 |
| Modulation | Lora/(G) Fskiook | LoRal(G)FSkIOOK | LoRa/FLRC/Fsk | (G)FSK | (G)FSK |
| ${ }^{\text {Max }}$ (kbpsp) ${ }^{\text {Data }}$ Rate |  |  |  | 250K/1M/2M | 250K/1M/2M |
| Current Tx | $300 / 500$ | 120 | 24 | 18 | 180 |
| (mA) ${ }^{\text {( }}$ | 10.3 | 10.3 | 8.6 | 16 | 21 |
| Sensitivity (dBm) | -139 | -139 | -130 | -96 | -107 |
| ${ }_{\text {Ontor }}^{\text {Output Power }}$ (dBm) | 27/30 | 20 | 13 | 4 | 28 |
| Size(mm) | $18 \times 35.4$ | $16 \times 16 \times 1.8$ | $16 \times 16 \times 1.8$ | 16.8×12.8×2 | $33 \times 18 \times 2$ |
| Interface | SPI | SPI | SPI | SPI | SPI |

Wireless Module

| WiFi Module |  |  |  | BLE Module |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Model No . | HM-WF8266 | HM-WF8710 | HM-WF8720 | HM-BT2201 | HM-BT4502 | HM-BT4502B |
| Photo |  |  |  | - | - + - | $=$ |
| Frequency | $2412-2484 \mathrm{MHz}$ | $2412 \sim 2484 \mathrm{MHz}$ | $2412 \sim 2484 \mathrm{MHz}$ | $2402 \sim 2483.5 \mathrm{MHz}$ | $2402-2480 \mathrm{MHz}$ | $2402-2480 \mathrm{MHz}$ |
| vod(v) | $2.5 \sim 3.6 \mathrm{~V}$ | 3.3 V | 3.3 V | 3.3 V | 1.8~3.6V | 1.8~3.6V |
| Modulation | Wifi | WIFI | WIFI+BLE | BLE | BLE | BLE |
| $\underset{\text { (kbps) }}{\text { Max. Data Rate }}$ | 115.2Kbps | 1152000bps | 1152000bps | 230400bps | 115.2Kbps | 115.2Kbps |
| Air Rate | 150Mbps | 65 Mpbs | WIFI:65Mpbs BLE:1Mbps | 2Mbps | 2M bps | 2M bps |
| Current ${ }^{\text {TX }}$ | 170 mA (Typ.) | 218mA @1T MCS7 /BW20M(16dBm) | 218mA @1TMCS7 /BW20M(16dBm) | 4.1 mA @0dBm | <8mA | <8mA |
| (mA) Rx | $<50 \mathrm{~mA}$ | 70 mA | 70 mA | 3.6mA @1Mbps | <8mA | <8mA |
|  | <20uA(Deep-Sleep) | $\begin{gathered} 30 u \mathrm{~A} \\ \text { @Deep Sleep } \end{gathered}$ | $\begin{gathered} 30 \mathrm{uA} \\ \text { @Deep Sleep } \\ \hline \end{gathered}$ | 0.75 UA @EM4 | $<4 u A$ | <4uA |
| Sensitivity (dBm) | -91dBm(11Mbps) | $\begin{gathered} -74 \mathrm{dBm} \\ \text { @HT20 MCS } 7 \end{gathered}$ | $\begin{gathered} -74 \mathrm{dBm} \\ \text { @HT20 MCS } 7 \end{gathered}$ | -98.9dBm @1Mbps | -97 dBm | -97 dBm |
| ${ }_{\text {atem }}^{\substack{\text { Output Power } \\(\text { dim }}}$ | 17 dBm | $\begin{gathered} \text { 15ddm @OFDM } \\ 54 \mathrm{Mbps} \end{gathered}$ | $\begin{gathered} \text { 15dBm @OFDM } \\ 54 \mathrm{Mbps} \end{gathered}$ | +6dBm Max | +10dBm | +10dBm |
| Size(mm) | $16 \times 24 \times 3.2 \mathrm{~mm}$ | $15.0 \times 20.5 \mathrm{~mm}$ | $15.0 \times 20.5 \mathrm{~mm}$ | $12.0 \times 17.0 \mathrm{~mm}$ | $12.5 \times 17 \times 2.5 \mathrm{~mm}$ | $11.2 \times 15.1 \times 2.6 \mathrm{~mm}$ |
| Interface | UART | UART | UART | UART | UART | UART |


| BLE Module |  | LoRaWan Module |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Model No. | HM-BT800B | HM-LWNH | RFM6501W | RFM6505W |
| Photo |  | (5xay |  |  |
| Frequency | $2402-2480 \mathrm{MHz}$ | $868 / 915 \mathrm{MHz}$ | 470/868/915 MHz | 470/868/915 MHz |
| vDD(v) | 1.7~3.6V | 1.8~3.6V | 2.4~3.7V | 2.4~3.7V |
| Modulation | BLE | LoRa | LoRa | LoRa |
| $\begin{gathered} \text { Max. Data Rate } \\ (\mathrm{kbps}) \end{gathered}$ | 115.2Kbps | 115.2 Kbps | 115.2 Kbps | 115.2 Kbps |
| Air Rate | 1 Mmps | 5.5 Kbps | $62.5 \mathrm{~kb} / \mathrm{s}($ LoRa) <br> $300 \mathrm{~kb} / \mathrm{s}$ (GFSK) | $\underbrace{}_{\substack{62.5 \mathrm{Kbls}(\text { LORa } \\ 300 \mathrm{~kb} \text { (GFSK) }}}$ |
| Current ${ }^{\text {Tx }}$ |  | 138 mA (Max. 145 mA ) | $107 \mathrm{~mA}(470 \mathrm{MHz})$ $118 \mathrm{~mA}(868 / 915 \mathrm{MHz})$ | $107 \mathrm{~mA}(470 \mathrm{MHz})$, $118 \mathrm{~mA}(868 / 915 \mathrm{MHz})$ |
| (mA) Rx | $\begin{aligned} & 7.7 \mathrm{~mA} \text { with ideal } \\ & \mathrm{CC-DCD},-2 \mathrm{Cd}) \end{aligned}$ | $<24 \mathrm{~mA}$ | <9mA | <9mA |
|  | $<0.8 u \mathrm{~A}$ | 1.8uA(Typ.) | 2 uA (Typ.) | 2 AA (Typ.) |
| Sensitivity (dBm) | -88 dBm | $-129 \mathrm{dBm}$ | $-137 \mathrm{dBm}$ | -137dBm |
| Output Power | +8 dBm | 19.5 dBm | +22dBm | +22dBm |
| Size(mm) | $18 \times 12.2 \times 2.3 \mathrm{~mm}$ | $32 \times 21 \times 2.5 \mathrm{~mm}$ | $16 \times 16 \times 2.8 \mathrm{~mm}$ | $16 \times 20 \times 2.8 \mathrm{~mm}$ |
| Interface | UART | UART | UART | UART |

RF
Based on Sub-GHz abilities
to develop the relative fields


Sensor
Various types of sensors \& related applications based on MEMS
b. high prodision digital pressura senson for oresistance
that
atimeterWaterproof Pressure Sensors


## measurement

$\int_{1} \begin{gathered}\text { Personalized } C u \\ \text { Customizing Sensors }\end{gathered}$

Development Kit \& TOOLS


Pressure Sensor


## Pressure Sensor



Humiture Sensor -


Customized Sensor


## About HOPERF



SHEN ZHEN HOPE MICROELECTRONICS (hereinafter referred to as "HOPERF")was founded in 1998. It is a national level high tech company which focused on wireless radio frequency and sensor products. With a global operation comprising a vertically integrated factory, HOPERF has developed
into the first intact industry chain group company in China which integrating ASIC chip design, MEMS sensor chip design, package test calibration technique and application services. The company has patented technology of NextGenRF TM algorithm for analog and digital hybrid RF chips with independent intellectual property rights, as well as related IIT application solutions, etc. Until now, it has obtained 9 enterprise certifications, 31
invention

Products of HOPERF are covering from RF chips, RF modules, LoRaWan modules, transparent transmission modules to sensor products. The sensor products are including pressure sensors and temperature \& humidity sensors. Also the new IoT related products such as WiFi modules, BLE modules,
NB-IOT modules and 4 G -LTE modules. The products cover the fields of information collection, information transmission and signal processing, and have a broad application space for expansion.
HOPERF has a mature R \& D design team, including expert engineers in the field of digital / analog, packaging, testing and calibration, and has working experience in the international companies such as Germany, the United States, and Switzerland. The company also has a long-term cooperation with international chip leading companies, evolution of design technology routes and cultivation of independent research and development forces. HOPER
passed the ISO9001:2000 quality management system, with international certifications such as Pb-free \& RoHS, $\operatorname{lGS}$, REACH, ETSI, etc, strictly in pascordance with international general standards for quality control, adhere to strengthen quality management, improve corporate efficiency; continue to strengthen customers Confidence, expand market share. We also introduced first-class packaging, testing production equipment, high-precision testing and measurement instruments from Germany, the United States and other places, and estabished a high-level cust-free workhip, whe and
guaranteed the reliability and stability of product quality. At present, it has a modern production base of 30,000 square meters in Taihu Science and Technology Park in Wuxi, which will built a solid hardware foundation for the rapid expansion of production capacit, in the future and occupy a high level in the industry.

After more than 20 years of stable operation, HOPERF started from market application service offering to find customer needs for targeted development, provided technical research and development system
services, to intelligent mass production, to master upstream independent intellectual property chip services, to intelligent mass production, to master upstream independent intellectual property chip
design, ett. It has deep accumulation and accumulation in the industry subdivisions, which has strongly promoted the process of chip localization. HOPERR's products have already applied in dozens countries
and served for more than 1000 brand customers from world-wide and served for more than 1000 brand customers from world-wide. Our products were comprehensivel
applied in Outdoor Sport, Electronic Navigation, Industrial Measurement, Environmental Monitoring, Medical, Smart Health, , ivivin and Aircraft etc. The self-develoloped CMT series RF chips and high--precision
sensors have successflly sensors have successfully replaced corresponding internationally renowned products, effectively
promoting the upgrade of China's integrated circuit products, technological innovation, and the pace


In June 2020, the Shenzhen headquarter was relocated to the VANKE Cloud City Innovation Base in Xili, Nanshan, which was an important milestone in the development of HOPERF. The brand new technological
innovation environment has brought a broader perspective and offer more opportunities. HOPERF will take innovation environment has brought a broader perspective and offer more opportunities. HOPERF will tak
this relocation as an opportunity to further optimize management and build the underlying innovation capaibity of core products to win the trust and support of more customers with sincerity and professiona
ability.


Certificates \& Honors



$\underset{\text { RoHS }}{\infty}$
and More>> (in mond

Applications of HOPERF products covering security, agriculture, transportation, environmental protection, fire protection, personal consumption, public utilities and so on. We are committed to providing a comprehensive solution for all trades with personal consumption, public utilities and so on.We are committed to provid
cロחחEct Tロ THInGs | COחПEcTIMG THE WORLD

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components
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[^0]:    We provide customized service for module products
    Please consult the sales staffs for more information

