

# 2w TDD Power amplifier (33dBmPA)

## Design brief

*Version: 20230505*

### 1 Brief description of design scheme

- 1) In TDD mode, the transceiver is integrated on the same circuit board.  
The internal RF transceiver and transceiver signals are separated by an analog switch chip, and the external RF interface is only one SMA interface.
- 2) 2W power amplifier module link design with power amplifier tube and LNA, can be combined with CX660x baseband board design.
- 3) Transmit gain 15dB, output power 33dBm, receive gain 13dB.
- 4) 2W power amplifier module structure design needs a separate power amplifier box, the complete product also needs external design of the whole shell, power supply, control signal input, RF connection, antenna interface, power amplifier heat dissipation, etc.
- 5) The design of 2W power amplifier module only considers the realization of functions, and the functions of power amplifier working status, performance indicators, alarm information, and temperature characteristic compensation are not realized, which is not conducive to

the indicators and quality control of power amplifier module production and testing and is not conducive to the response and processing of abnormal problems in field application.

## 2 Parameters

Parameters	Production requirement
Working frequency	1427MHz ~ 1447MHz
Gain.Max.	15dB±1dB
Power.Max	33dBm±2dB
ACPR	Offset 20M ≤ -30dBc Offset 20M ≤ -45dBc
IMD3	≤ -30dBc @2 tone 1MHz
Transmit gain Max	13dB±1dB。
Reception noise figure	≤ 3dB
VSWR	≤ 1.5
Ripple in Band	≤ 1.5dB
Working temperature	-40°C - +85°C
Relative Humidity	95% (40°C)
Dimensions(L*W*H)	59mm*41mm*4mm
6.5g	6.5g
Power	DC12V

Auxiliary power supply	DC5V
Power consumption	≤10W @ Pout 33dBm
Signal control	T/R

### 3 Module interface definition

No	Definition	Num	Interface standard	Function description
1	J2	1	SMA	Antenna receiving and sending end
2	J1	1	SMA	The RF signal is connected to the main CX660X
3	J4	1	PH2.0_4p	Power and control signals

### 4 PH2.0\_4p Definition

No	PIN	Function description
1	1	T/R
2	2	GND
3	3	DC5V input
4	4	DC12V input